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Does Financial Liberalization Spur Growth?

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The views expressed in this paper are those of the authors and do not necessarily reflect the views of the National Bank of Belgium.

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Editorial

On May 17-18, 2004 the National Bank of Belgium hosted a Conference on *"Efficiency and stability in an evolving financial system"*. Papers presented at this conference are made available to a broader audience in the NBB Working Paper Series (www.nbb.be).

Abstract

We show that equity market liberalizations, on average, lead to a one percent increase in annual real economic growth over a five-year period. The effect is robust to alternative definitions of liberalization and does not reflect variation in the world business cycle. The effect also remains intact when liberalization is instrumented with quality of institutions-variables that explain liberalization but not growth and when a growth opportunity measure is included in the regression. Capital account liberalization has a less robust effect on growth than equity market liberalization has. Other simultaneous reforms only partially account for the effect. Finally, we examine why some countries respond to equity market liberalization differently from others.

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1   Introduction

One of the most fundamental national policy decisions of the past 25 years has been the financial liberalization of equity markets across the world. Equity market liberalizations give foreign investors the opportunity to invest in domestic equity securities and domestic investors the right to transact in foreign equity securities. We find that equity market liberalizations increase subsequent average annual real economic growth by about 1%. One might think that financial liberalizations may be subsumed by other variables that are commonly used in the economic growth literature [see Barro (1997a) and Barro and Sala-i-Martin (1995)]. We find that this is not the case.

From a neoclassical perspective, our results are to be expected. Improved risk sharing post-liberalization should decrease the cost of equity capital (see, for example, Bekaert and Harvey (2000)) and increase investment. When markets are imperfect, equity market liberalization may have strong effects as well. Financing constraints (see e.g. Hubbard (1998) and Gilchrist and Himmelberg (1998)), make external finance more costly than internal finance, and cause investment to be sensitive to cash flows. Equity market liberalization directly reduces financing constraints in the sense that more foreign capital becomes available, and foreign investors may insist on better corporate governance which indirectly reduces the wedge between internal finance and external finance. Hence, the cost of capital may go down because of improved risk sharing or because of the reduction in financing constraints or both. Moreover, better corporate governance and investor protection should promote financial development (La Porta et al. (1997)) and hence growth (King and Levine (1993), for example).

From at least two alternative perspectives, our results may be more surprising. First, alternative theories do not imply positive growth effects after financial liberalization, for example, because of reduced precautionary savings (Devereux and Smith (1994)) or because informational asymmetries prevent foreign capital to be profitably invested (Stiglitz (2000)). Second, a rapidly growing literature on the growth effects of capital account liberalization finds mixed results (see Eichengreen (2002) for a survey).

We conduct a number of empirical exercises that instill confidence in our results. First,

our results survive an extensive number of econometric robustness experiments, including controlling for world business cycle variation. Second, our results are robust to alternative measurements of the liberalization variable. The use of a homogeneous measure of international openness, focusing on equity markets, may explain why our results are so different from the capital account openness literature. We confirm that the standard IMF measure of whether the capital account is free of restrictions (see Rodrik (1998) and Kraay (1998)), does not give rise to a robust growth effect. When capital account restrictions are more finely measured, as in Quinn (1997) and Edwards (2001), there does appear to be a growth effect, although it is more fragile than the equity market liberalization effect we find (see Arteta, Eichengreen and Wyplosz (2003)).

Third, we take seriously the possibility that liberalization may be a strategic decision correlated with growth opportunities. However, growth opportunities do not explain the liberalization decision. Moreover, when we instrument liberalization with variables measuring the quality of local institutions, which explain liberalization but not growth, the liberalization effect remains intact.

Fourth, our growth effect is large and it is unlikely that it can be fully ascribed to equity market liberalization. Most importantly, equity market liberalization may coincide with other reforms that improve the growth prospects of the country. We closely investigate several possibilities such as macro reforms, financial reforms, legal reforms (including reforms regarding insider trading) and the coincidence of equity market liberalizations with post-banking crisis reforms.

Fifth, it is unlikely that the liberalization effect is the same in all liberalizing countries. We relate the heterogeneity of the growth effect to the comprehensiveness of reforms, the legal environment, investment conditions, and the degree of financial development.

The paper is organized as follows. The second section describes our data, the summary statistics and the econometric framework. The third part of the paper examines the role of equity market liberalization as a determinant of economic growth. The fourth section investigates the endogeneity issue. The fifth section explores whether the equity market liberalization effect can be accounted for by macroeconomic and other regulatory reforms.

The sixth section sheds light on why the growth response to financial liberalization differs across countries. Some concluding remarks are offered in the final section.

2 Data and model framework

2.1 *Equity market liberalizations*

Our tests involve regressions of real per capita GDP growth on an equity market liberalization indicator. These regressions have both time-series and cross-sectional dimensions. Table 1 contains the descriptions and sources of all the variables used in the paper.

Perhaps the most important variable in our paper is the indicator variable, Official Equity Market Liberalization. This variable 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 for foreign portfolio investors to own the equity of a particular market and zero otherwise. We augmented this analysis with liberalization dates for five developed countries: Japan, Iceland, Malta, New Zealand and Spain (see Appendix A).

Our analysis of robustness of the liberalization effect considers two alternative measures of financial liberalization. The first measure, First Sign, is based on the earliest of three possibilities: a launching of a country fund, an American Depositary Receipt (ADR) announcement and an Official Liberalization. It might be possible for a foreign investor to access the market through a country fund well before foreigners are allowed to directly transact in the local equity market. For example, consider the case of Thailand. Bekaert and Harvey (2002) date the Official Liberalization in September 1987. This was the first month of operation of the Thai Alien Board which allowed foreigners to directly transact in Thai securities. However, foreigners could indirectly access the Thai market earlier. In July 1985, the Bangkok Fund Ltd. was launched on the London Stock Exchange and in December 1986, Morgan Stanley launched the Thailand Fund. Thailand announced its first ADR in January 1991. So, for our analysis, the Official Liberalization is dated in 1987 whereas the First Sign date is 1985.

We also consider a measure of capital account liberalization based on IMF information. The dates for the Official Liberalization, first country fund, and first ADR announcement are presented in Appendix A. All other data are discussed when they are introduced in the analysis.

Our regression analysis uses four different country samples which are determined by data availability. Economic growth rates, the basic control variables and the Official Liberalization indicator are available for all samples. Samples I and II, our largest, include 95 and 75 countries, respectively, and employ primarily macroeconomic and demographic data. Samples III and IV, on the other hand, include 50 and 28 countries, respectively, and employ, in addition to the macroeconomic and demographic information, data describing the state of banking and equity market development in each country.

2.2 *Unconditional effects of liberalization*

Table 2 presents some summary analysis of some of the main variables in our analysis. We analyze the data from two perspectives. In the first two columns, we consider means of the variables five-years before and after equity market liberalizations. However, for real GDP growth, we also examine three and seven-year intervals. In the third and four columns, we look at the difference in means between countries that are fully liberalized and countries that were never liberalized (segmented countries).

Using a sample of liberalizing countries, we find that the real annual GDP growth rate is more than 1% higher in the post-liberalization period for all intervals. There is a much sharper difference in growth between fully liberalized countries and those that did not experience a liberalization, of approximately 2.2%.

The next group of variables will serve as control variables in the growth regressions, as determinants of steady-state GDP. The control variables experience changes after liberalization that would indicate a higher steady state GDP with the most striking differences for the fully liberalized and segmented countries. In each case, there are highly significant differences. The never liberalized countries have: lower secondary school enrollment, lower life expectancy, and higher population growth. The size of the government sector is smaller

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in the segmented sample.

The last panels of the table consider variables that appear in later sections and we will discuss them then. Importantly, the differences in means reported in Table 2 only summarize the data. In order to assess whether growth increases after equity market liberalizations, it is necessary to conduct a multivariate regression analysis.

2.3 *Econometric framework*

Define the logarithmic growth in real GDP per capita for country i between t and $t + k$ as follows:

$$y_{i,t+k,k} = \frac{1}{k} \sum_{j=1}^{k} y_{i,t+j} \ i = 1, \dots, N \tag{1}$$

where $y_{i,t} = \ln(\frac{\text{GDP}_{i,t}}{\text{POP}_{i,t}} / \frac{\text{GDP}_{i,t-1}}{\text{POP}_{i,t-1}})$ and N is the number of countries in our sample. Let the initial level of log GDP per capita be denoted as Q_{it} and the country's long-run (steady state) per capita GDP as Q_i^*. Taking a first-order approximation to the neoclassical growth model [see e.g. Mankiw (1995)], we can derive: $y_{i,t+k,k} = -\lambda[Q_{it} - Q_i^*]$, where λ is a positive convergence parameter. The literature often implicitly models Q_i^* as a linear function of a number of structural variables such as the initial level of human capital. Hence a prototypical growth regression can be specified as

$$y_{i,t+k,k} = -\lambda Q_{i,t} + \gamma' \mathbf{X}_{it} + \epsilon_{i,t+k,k}, \tag{2}$$

where $\mathbf{X}_{it}$ are the variables controlling for different levels of long-run per capita GDP across countries. Our main addition to the literature is to examine the effect of adding an equity market liberalization variable, $\text{Lib}_{i,t}$, to the growth regression:

$$y_{i,t+k,t} = \beta Q_{i,1980} + \gamma' \mathbf{X}_{i,t} + \alpha \text{Lib}_{i,t} + \epsilon_{i,t+k,k} \tag{3}$$

where $Q_{i,1980}$ represents the logarithm of per capita real GDP in 1980 and serves as an initial GDP proxy. Because it is critical to capture the temporal dimension of the liberalization process, we combine time-series with cross-sectional information.

We identify the parameters using a GMM estimator described and analyzed in Bekaert, Harvey and Lundblad (2001). The estimator maximizes the time-series content in our regression by making use of overlapping data. We adjust the standard errors for the resulting moving average component in the residuals using a cross-sectional extension to Hansen and Hodrick (1980). Note that our regressors are all pre-determined. This estimator looks like an instrumental variable estimator but it reduces to pooled OLS under simplifying assumptions on the weighting matrix.

Our econometric framework raises four issues: the construction of the weighting matrix, the choice of k, the specification of the control variables and the construction of the liberalization indicator.

First, growth regressions have been criticized for being contaminated by multicollinearity [see Mankiw (1995)]. In a pure cross-sectional regression, the regressors may be highly correlated (highly developed countries score well on all proxies for long-run growth), the data may be measured with error, and every country's observation is implicitly viewed as an independent draw. It is therefore likely that standard errors underestimate the true sampling error. In our panel methods, we can accommodate heteroskedasticity both across countries and across time and correlation between country residuals by choosing the appropriate weighting matrix. In the tables, we report results using the method that accommodates overlapping observations, and groupwise heteroskedasticity but does not allow for temporal heteroskedasticity nor SUR effects. Results available from the authors demonstrate that the main results remain largely robust to accommodating these other effects.

Second, since our sample is relatively short, starting only in 1980 and many liberalizations only occurred in the 1990s we use $k = 5$, instead of $k = 10$ which is typical in the literature. However, Islam (1995) and Caselli, Esquivel and Lefort (1996) find very similar results using $k = 5$ versus $k = 10$ and we check the robustness to the alternative k's and the introduction of variables controlling for the world business cycle.

Third, Levine and Renelt (1992) find that most of the independent variables in standard growth regressions are in a particular sense "fragile." We are primarily interested in the robustness of any effect the liberalization dummy may have on growth. We minimize the

data mining biases for the other regressors by closely mimicking the regression in Barro (1997b). In addition, given the documented fragility of some of these variables, our initial analysis adds the control variables one by one to the growth regression.

Fourth, perhaps the main methodological issue regarding our sample is the construction of the equity market liberalization indicator variable. Although timing capital market reforms is prone to errors, the use of annual data reduces the impact of small timing errors. Nevertheless, we conduct several robustness experiments with respect to the definition of the liberalization variable.

3   Liberalization and Economic Growth

3.1   *The liberalization effect in a classic growth regression*

Table 3 describes the results of a standard growth regression for our largest sample which includes a constant, initial GDP (1980), government consumption to GDP, secondary school enrollment, population growth, and life expectancy as explanatory variables. We present results for $k = 5$, and add the variables one by one and eventually all together. When initial GDP is the only regressor, it comes in with a strongly significant positive coefficient. When paired with the other control variables, which can now proxy for the steady state level of GDP, it mostly comes in with a negative sign, as expected given the standard results on conditional convergence. The control variables have the expected sign and all are strongly significant.

The results for the full regression are broadly consistent with the previous literature (see Barro (1997a,b) and Barro and Sala-i-Martin (1995)). Initial GDP enters with a very significant negative coefficient suggesting that low initial GDP levels imply higher growth rates - conditional on the other variables. The secondary school enrollment and government size variables become insignificant but have the correct sign. Life expectancy has a significant positive coefficient suggesting that long life expectancy is associated with higher economic growth. Population growth has a significantly negative coefficient in the regression.

Most importantly, the liberalization coefficient is positive and significant in all the re-

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gressions and four to six standard errors from zero. For example, in the full regression, the liberalization coefficient is 0.0097 and five standard errors from zero. This suggests that, on average, a liberalization is associated with a 0.97% increase in the real per capita growth rate in GDP. The effect ranges from 0.92% to 1.29%. We also estimated the regression using three non-overlapping five-year intervals. There are three different samples with three time-series observations without overlap; we run three regressions separately, and then average the resulting coefficients. The average growth effect for the non-overlapping estimation is 1.03%.

Mankiw (1995) argues that omitted variable bias is a fundamental problem affecting almost all cross-country empirical work on growth. In our context, countries that adopt policies that tend to enhance growth are likely to have good fundamentals along many dimensions (for example, regarding human capital and health care). Because it is impossible to control for all aspects of these policies, allowing an equity market liberalization variable simply captures part or most of this omitted variable effect. Therefore, we also consider a fixed effects regression reported in Table 3, where we introduce a country-specific dummy. The liberalization effect decreases to 0.56% but it remains highly statistically significantly different from zero. Interestingly, for the other samples we investigate, the fixed effect estimation leads to a smaller change in the liberalization coefficient. For example, in sample IV the coefficient shrinks from 1.08% to 1.03%.

3.2   *Robustness*

3.2.1   Alternative measures of liberalization

We consider two measurement issues regarding our liberalization variable: an alternative timing and its relation to capital account openness. Because the coefficients on the control variables are robust across the different specifications, we only present the alternative liberalization effects in Table 4. We now also report results for four different sub-samples, which represent a robustness exercise in its own right. The official liberalization effect, as shown in panel A, is somewhat smaller for samples II and III, but it exceeds 1% for the more homogeneous sample IV. As an interesting aside, we find stronger evidence of conditional

convergence the more homogeneous the sample is, which is consistent with the neo-classical growth model [see Barro and Sala-i-Martin (1995)]. Table 4, panel A, also suggests that the coefficient on the liberalization indicator is robust to using the First Sign dates.

The second part of Table 4, panel A, explores the role of capital account liberalization which is the topic of a large debate. Rodrik (1998), Edison et al. (2002) claim that there is no correlation between capital account liberalization and growth prospects. In contrast, Edwards (2001) finds a positive effect that is driven by the high income countries in his sample. Arteta, Eichengreen and Wyplosz (2003) conduct robustness experiments using different measures of openness and conclude that the relation between growth and capital account liberalization is fragile.

Our measure of capital account openness (see also Grilli and Milesi-Ferretti (1995)) is from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). This publication reports several categories of information, mostly on current account restrictions. The dummy variable takes on a value of zero if the country has at least one restriction in the "restrictions on payments for the capital account transactions" cate-gory.[1] We first look at the capital account liberalization separately. Consistent with Arteta, Eichengreen and Wyplosz (2003), we find that the capital account liberalization relation with growth is somewhat fragile. The coefficient on this indicator is small and insignificantly different from zero in samples I and II. The coefficient is larger in samples III and IV but only significantly different from zero in sample III. Consistent with Edwards (2001), the capital account measure does best in our smaller samples which are more heavily weighted towards high income countries.

Importantly, the equity market liberalization variable is robust to the inclusion of the capital account liberalization variable. In the largest sample, the equity market liberaliza-tion effect is 0.94% per year over a five year period and it is smallest, 0.71% per year, in sample III. The t-statistic ranges from 2.1 (sample IV) to 4.6 (sample I). The capital accoun-

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[1]The IMF changed the reporting procedures in 1996 and included subcategories for capital account restrictions (see the discussion in Miniane (2000)), but we follow the bulk of the literature in using the 0/1 variable.

t liberalization dummy has no longer any significant effect on growth in samples I, II and IV. While the coefficient on the capital account liberalization indictor remains significant in sample III, the coefficient is diminished when the equity market liberalization variable is in the regression. The growth effect of equity market liberalizations dominates that of capital account openness.

In a comprehensive survey of the literature on capital account liberalization, Eichengreen (2002) laments the lack of robust empirical results and calls for research to distinguish different types of controls. After all, the IMF measure is an aggregate measure of many different types of capital restrictions (including, for example, foreign exchange restrictions) and any type of restriction leads to a "restricted" label. Miniane (2000) proposes averaging the 13 subcategories in the AREAER as a measure of capital control intensity to get a broader measure of restrictions. Quinn (1997) scores the intensity of the enforcement of the controls. Quinn's results are more in favor of a growth effect, but the results in Quinn, Inclan and Toyoda (2001) and Edwards (2001) suggests that some economic development is necessary to reap the benefits of capital account liberalization. Of course, by only focusing on equity flows, we respond to Eichengreen's appeal and find strong, robust results.

3.2.2   Other robustness checks

We conduct seven additional robustness checks. First, we compare Latin-American liberalizations to non-Latin American liberalizations. The results in panel B of Table 4 suggest that this region is not driving the growth effect. Second, we control for variation in the world business cycle and interest rates. Panel C of Table 4 shows that OECD economic growth exerts a strong positive influence in our growth regression but the liberalization effect is not diminished by the inclusion of the business cycle variables. Indeed, in each of our samples, the growth effect from liberalization increases once we add these variables. Third, we included time-dummy variables in the main regression. These variables had no discernable impact on the liberalization coefficients. Fourth, we estimated the regressions with three alternative growth horizons: three, seven and ten years. While the liberalization effect is present at all horizons, this analysis suggests that most of the impact occurs in the first five years

after liberalization which is consistent with the convergence literature.[2] Fifth, we tested the sensitivity of our results to setting initial GDP at 1980 levels. As alternatives, we reset GDP to 1990 levels and also considered using the initial GDP at the time when a country liberalizes. Again, the inference did not change. Sixth, we altered our assumptions about the weighting matrix. In particular, we considered an estimation with restricted SUR effects and an estimation that imposed homoskedasticity with no SUR effects. The liberalization result is resilient to such changes.

Finally, we conducted a Monte Carlo analysis of the liberalization effect. For each replication, we draw 95 uniform random numbers and randomly assign one of the existing liberalization dummies to each country. We re-run the growth regression with the same control variables but with purely random liberalization events. We repeat this experiment 1000 times. The 97.5^{th} percentile of the distribution shows a coefficient of 0.0057 and a t-statistic of 3.25 as reported in the appendix. This is well below our estimated coefficient of 0.0097 and t-statistic of 7.00 reported in Table 3. Hence, the empirical p-value is less than 0.001. The Monte Carlo evidence shows that the impact of the liberalization indicator is not a statistical artifact and not simply associated with the clustering of liberalizations in the late 1980s and early 1990s. It also shows that a standard t-test may slightly over-reject at asymptotic critical values, which we will take into account in our inference.

4 Endogeneity

As with the effect of financial development on growth, endogeneity issues loom large. Is the liberalization decision an exogenous political decision, or do countries liberalize when they expect improved growth opportunities? These concerns are highly relevant for countries that joined a free market area like Spain and Portugal in the European Union, where membership simultaneously requires relaxing capital controls and favorable growth conditions. However, such liberalizations are rare in our sample.

Nevertheless, we formally tackle the endogeneity issues using a two-pronged approach.

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[2]The seven-year horizon regressions suggest that 88% of the growth impact of a liberalization takes place in the first five years.

First, we try to directly control for growth opportunities. Second, we try to find suitable instruments for the liberalization decision by examining its determinants in a probit analysis. Absent a direct measure of growth opportunities, a proper instrument should explain liberalizations but should not explain growth. We end the section reflecting on some other subtle endogeneity concerns related to financial development.

4.1   *Growth Opportunities*

If we could directly control for growth opportunities, the endogeneity concerns would be greatly mitigated. However, this is a formidable task. Any local variable that is correlated with growth opportunities may indicate an increase in growth opportunities because of the planned equity liberalization. Hence, including the growth opportunity variable into the regression is not very informative. Our approach is to look for "exogenous" growth opportunities. More specifically, we view each country as composed of a set of industries with time-varying growth opportunities and assume that these growth prospects are reflected in the price to earnings ratios of global industry portfolios. We then create an implied measure of country-specific growth opportunities that reflects the growth prospects for each industry (at the global level) weighted by the industrial composition for each country. We construct an annual measure of the 3-digit SIC industry composition for each country by their output shares according to the UNIDO Industrial Statistics Database. For each SIC code, we also measure price-earnings (PE) ratios for that industry at the global level, from which we construct an implied measure of growth opportunities for each country by weighting each global industry PE ratio by its relative share for that country. We divide this measure by the overall world market PE ratio to remove the world discount rate effect and we also measure this variable relative to its past five-year moving average. We call the difference "growth opportunities" (GO).

$$GO_{i,t} = \ell n \left[\frac{IPE_t \times w'_{i,t}}{WDPE_t} \right] \; - \; \frac{1}{60} \sum_{s=t-60}^{t-1} \ell n \left[\frac{IPE_s \times w'_{i,s}}{WDPE_s} \right] \tag{4}$$

where IPE_t is a vector of global industry price-earning ratios,[3] $w_{i,t}$ is a vector of country-specific industry weights, and $WDPE_t$ is the price-earning ratio of the world market.[4]

When we introduce this variable into a growth regression, panel A of Table 5 shows that it predicts growth but does not drive out the liberalization effect. The fact that the GO measure is significant in the regressions indicates that it is indeed a good measure of growth opportunities. Comparing the growth effect of liberalization in this regression with the original effect (repeated in panel D), we see that it is essentially unchanged.

4.2 *Understanding the liberalization decision*

The most probable reason why growth opportunities do not drive out the liberalization effect is because liberalizations are not driven by growth opportunities but by other factors. We can verify this directly using a probit analysis of the liberalization decision. To measure growth opportunities, we use the GO measure and GDP growth averaged over five years preceding the liberalization date as independent variables. Another potential determinant of liberalization is the level of economic development, which we proxy by the same control variables as the ones used in the basic growth regression. It is also conceivable that financial liberalization is the natural outgrowth of a financial development process, and consequently we include a banking development measure (private credit to GDP) as an independent variable. Finally, it is likely that political factors, such as political stability, the existence of a democratic government, etc., play an important role in the liberalization process [see Perotti and van Oijen (2001), Quinn, Inclan and Toyoda (2001) and Quinn (2001)].[5] If this is true and the level of political maturity is uncorrelated with growth opportunities, a measure of political maturity might serve as an instrument for liberalization. As a start, we use ICRGs political risk rating to proxy for the level of political maturity.

In Table 5, panel B, we present evidence for the probit estimation where the left hand side is a 0/1 variable for which countries that liberalize receive a 1 and segmented countries receive a 0. We exclude the fully liberalized countries - this helps us predict the probability

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[3]All price-earnings ratios are taken from Datastream. We use the December value for our annual measures.

[4]The Datastream world market is the value weighted sum of the global industry portfolios.

[5]We thank Luc Laeven for suggesting this train of thought.

of the liberalization *decision*. We have 68 countries that either liberalize after 1980 or do not liberalize at all. For countries that liberalize, the right-hand-side predictive variables are averaged over the 5-years preceding liberalization; for those countries that do not liberalize, the right-hand-side predictive variables are averaged over the 5-years preceding the liberalization date of their closest geographic neighbor.

Of the standard growth control variables, initial GDP comes in with a surprising negative sign and human capital with a strongly significant positive sign. Some of the various control variables proxying for economic development are highly correlated with one another. For example, the correlation between life expectancy and secondary school enrollment is 0.76. Past GDP growth is not associated with the liberalization decision whereas growth opportunities are negatively correlated with liberalization. The financial development variable comes in borderline significantly but the political risk rating is strongly significant.[6] Apart from human capital, political risk is the strongest predictor of liberalization. Whereas this measure does not directly reflect the current economic fundamentals, the work of Barro (1997b), among others, has demonstrated negative growth effects of political unrest. This undermines the use of the broad political risk rating as an instrument for liberalization.

To further examine this issue, we collected time-series information on the 12 sub-components of the ICRG Political Index. We construct four subindices: POL1 (Political) which includes (a) Military in Politics and (b) Democratic Accountability; POL2 (Quality of Institutions) which includes (a) Corruption, (b) Law and Order and (c) Bureaucratic quality; POL3 (Socioeconomic Environment) which includes (a) Government Stability, (b) Socioeconomic Conditions and (c) Investment Profile; and POL4 (Conflict) which includes (a) Internal Conflict, (b) External Conflict, (c) Religious Tensions and (d) Ethnic Tensions. These four groups roughly maximize the within group cross-sectional correlation between the variables and minimize the outside the group correlation.

We then repeated the probit analysis replacing the political risk rating by one of its components. As the results in Panel B reveal, the POL2 – variables, associated with the quality

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[6]We also performed the analysis using changes in the independent variables as regressors but found no significant predictors of liberalizations.

of institutions, are by far the most important determinant of the liberalization decision, driving the overall variable's significance.

Using probit analysis, we find that, among those countries that either elect to liberalize in our sample or not (excluding the fully liberalized set), a higher level of institutional quality is associated with an increased probability of an equity market liberalization. To evaluate the ability of this variable to serve as an adequate instrument for liberalization in our growth regressions, we next consider the relationship between the "Quality of Institutions" and future GDP growth. To be clear, the "Quality of Institutions" variable may be associated with growth for the broader set of integrated countries because of the positive association between liberalization and future growth. Hence, for this particular instrument, we are interested in the growth effect for segmented countries only.

In Table 5, panel C, we conduct standard growth regressions to explore the growth effect of these political rating subgroups only for the 27 segmented countries in our sample. We enter the four political subgroup indices and the overall ICRG political risk measure separately as independent variables in a growth regression either with fixed effects without additional controls or a constant with all the usual growth controls employed in Table 3. We find that, stripped of the liberalization channel, the "Quality of Institutions" variable has no significant association with future growth. In contrast, the Conflict subgroup is a significant predictor of growth for these countries and subsumes all of the political risk rating's predictive power for growth. It is likely that this variable is highly correlated with the political unrest variable used in Barro's (1997b) growth regression.

4.3   *Instrumental Variables Estimation*

Finally, in panel D, we report estimates from a standard growth regression for samples II, III, and IV for which the ICRG political risk variables are available. We include in the regressions, but do not report, the same control variables as presented in Table 3. In this estimation, however, we employ an instrumental variables approach within our GMM framework, where we use all the regressors as their own instruments, but instrument the liberalization indicator with the "Quality of Institutions" variable. Interestingly, the estimated liberalization effect

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remains positive and highly significant. The magnitude of the effect decreases in sample II to 57 basis points, and increases in samples III and IV. Including the overall ICRG Political Risk measure or the Conflict subgroup, which we know are associated with growth for the segmented countries, as separate controls, does not alter the significance of the liberalization effect. We conclude that our results are not likely due to the endogeneity of the liberalization decision.

4.4 *Endogeneity and financial development*

Our test design definitely suffers less from endogeneity concerns than earlier tests of the links between general financial development and growth. However, our tests do suffer from a subtle endogeneity bias related to financial development: a country cannot liberalize its financial markets when it does not have financial markets. Later we will control for financial development directly, but for these exercises we select countries for which we have data on financial markets and therefore are already somewhat financially developed. Hence, by comparing samples I and II with samples III and especially IV, we basically exclude countries without financial markets and part of the effect that we measure for samples I and II may be a financial under-development phenomenon. Since the liberalization effect is in fact largest for sample IV (see Table 4), this problem does not appear to bias our results towards finding large liberalization effects for our largest samples.

Clayton, Jorgensen and Kavajecz (2000) test the financial underdevelopment hypothesis directly by examining the impact of the existence of financial exchanges on 16 macroeconomic and financial variables. They find that there is no significant association between the existence of a financial exchange and increased GDP growth prospects.

5 Accounting for the Liberalization Effect

Our growth effect is surprisingly large. One potential interpretation is that reforms are multi-faceted. Countries may liberalize equity markets at the same time as they remove restrictions on foreign exchange, deregulate the banking system, and undertake steps to

develop the equity market. In this section, we introduce proxies for other contemporaneous reforms into the main regressions.

We investigate three types of reforms: macro-reforms, financial reforms and legal reforms. We do not have sufficient information to determine the exact time lines of reforms for all our countries in most instances. Consequently, we follow an indirect approach by inserting as control variables into our growth regression continuous variables that measure the direct effect of the reforms. An example would be the level of inflation for macro-reforms. The third bloc of variables examined in Table 2 comprises the variables used in this section. Table 2 shows that indeed in most instances these variables change in the required direction after an equity liberalization, and that liberalized economies score better on measures of macro-economic stability, financial development and rule of law. This is an indication of the potential simultaneity of reforms directly affecting these variables on the one hand and equity market liberalization on the other hand or it may be that equity market liberalization contributes to a better macro-economic environment, promotes financial development or instigates legal reforms that improve the legal environment. In fact, Rajan and Zingales (2003) point out that financial development may be blocked by groups (incumbents) interested in maintaining their monopoly position (in goods and capital markets). They argue that this is less likely to be the case if the country has open trade and free capital flows and hence financial openness may instigate other reforms.

In any case, the introduction of these continuous variables into our regression is likely to drive out the liberalization effect, which is a very coarse measurement of the extent and quality of the reforms. We do have detailed time line information on one type of reform: the introduction of insider trading rules and their implementation and we examine its growth effects and how it affects the growth effect of liberalization directly. Finally, we conjecture that a big reform package is likely after a major financial crisis, such as a banking crisis, and use information on the timing of banking crises to create another control for reform simultaneity effects.

5.1 *Macroeconomic reforms*

Mathieson and Rojas-Suarez (1992) and Henry (2000) discuss how policy reforms, including equity market liberalization, in developing countries typically involve domestic macro-reforms. We consider four variables that proxy for macroeconomic reforms and add them to the regression: trade openness, the level of inflation, the black market foreign exchange premium, and the government deficit.

Our measure of trade openness is the ratio of exports plus imports to GDP. The effect of trade integration and trade liberalization on growth is the subject of a large literature. Dollar (1992), Lee (1993), Edwards (1998), Sachs and Warner (1995) and more recently Wacziarg (2001) have established that lower barriers to trade induce higher growth. Rodriguez and Rodrik (2001) have recently criticized these studies on many grounds. However, Rodriguez and Rodrik primarily question whether trade policy rather than trade volume has affected growth. In our study, we are interested in the effect of financial market liberalization not in testing the impact of trade policy. The results in Table 6, panel B, show that, in all samples, the coefficient on trade openness is highly significant and positive suggesting countries that are open have higher growth than countries that are relatively closed.

Barro (1997a,b) finds a significant negative relation between inflation and economic growth and finds that the result is primarily due to a strong negative relation between very high inflation rates (over 15%) and economic growth. We use the natural logarithm of one plus the inflation rate to diminish the impact of some outlier observations.Indeed, given that the extreme skewness in inflation is primarily due to inflation in Latin-American countries, we also introduce a dummy for Latin America.

The results in Table 6 for the inflation variable are mixed. We find that seven of the eight coefficients on inflation are not significantly different from zero. Inflation is never significant for the Latin American countries. In three of the four non-Latin American samples, the sign is positive and even significant for sample I. In sample IV, inflation has a large but insignificantly negative coefficient for non-Latin American countries.[7]

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[7]We also estimated a regression without the Latin American indicator. The coefficient on the single inflation variable was not significantly different from zero. We also considered a regression with dummies

We also examine the effect of introducing black market foreign exchange premiums. The black market premium is taken from Easterly (2001). This variable measures the premium market participants must pay, relative to the official exchange rate, to exchange the domestic currency for dollars in the parallel market. The black market premium is often used as an indicator of macroeconomic imbalances and would consequently be sensitive to macro-reforms. It is also a direct indicator of the existence of foreign exchange restrictions and it should therefore not be surprising that it is closely correlated with market integration and equity market liberalization (see for instance Bekaert (1995)). Hence the black market premium may also be an inverse indicator of the quality and comprehensiveness of the equity market liberalization. Table 2 shows that the black market premium substantially decreases from a preliberalization level of 0.150 to a post-liberalization premium of 0.072.

As with the inflation indicator, we report results (both in Tables 2 and 6) based on the natural logarithm of one plus the black market premium to dampen the influence of outliers. The results in Table 6 show that the premium has a strong negative relation to economic growth in our three largest samples. It is insignificant for our smallest sample.

Our final indicator of macro-reforms is the size of a country's fiscal deficit. IMF adjustment programs often impose budgetary austerity and the sequencing literature on capital market reforms (see, for instance, Edwards (1987)) argues that financial openness can only be beneficial when countries first have government finances under control. Hence, the fiscal deficit variable potentially can both capture policy reform simultaneity and differentiate between successful and not successful liberalizations. For the purposes of our regressions, we define the deficit as the total expenditure less revenue for the central government. The results for the deficit indicator are only available for the smallest sample. However, Table 6 shows that the deficit variable is strongly significant and negatively influences growth prospects.

The final line of Table 6, panel B, shows the impact on the liberalization variable of including these four macroeconomic variables. In all of the samples, the size of the liberalization coefficient decreases by about 25 basis points – but remains significantly different

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for Brazil and Argentina only, the largest outliers in inflation data. Here, we find negative but insignificant coefficients, whereas the effect for Argentina and Brazil is negative and significant.

from zero. For example, in sample I, the coefficient is reduced from 0.97% (Table 3 and repeated in Table 6, panel A) to 0.74%. Hence, our results indicate that part of the equity market liberalization effect is accounted for by these four different proxies for macro-reforms.

5.2 *Financial reforms*

Regulatory changes furthering financial development may have occured simultaneously with the equity market liberalization. There is a significant literature that studies the relation between financial development and growth with contributions as early as McKinnon (1973) and Patrick (1966). Interestingly, Rousseau and Sylla (1999, 2003) show that early U.S. growth in the 1815-1840 period and early growth in other countries was finance led. We examine two financial development indicators: the size of the banking sector and stock exchange trading activity.

King and Levine (1993) study the impact of banking sector development on growth prospects.[8] Kaminisky and Schmukler (2002) study the timing and impact of equity market, capital account, and banking reforms. Panel C of Table 6 examines the role of the banking sector by adding private credit to GDP to the growth regression. Private credit to GDP enters significantly in all samples.

Atje and Jovanovic (1989), Demirgüç-Kunt and Levine (1996), Demirgüç-Kunt and Maksimovic (1996) and Levine and Zervos (1996, 1998a) examine the effect of stock market development on economic growth. In panel C, we also add, as an additional independent variable, equity turnover (a measure of trading activity).[9] This financial variable is only available for the two smaller sets of countries: 50 and 28 countries. The results in panel C of Table 6 show that the coefficient on the turnover variable is positive and significant for both

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[8]Jayarathne and Strahan (1996) find that banking deregulation led to higher regional economic growth within the U.S. whereas Beck, Levine and Loayza (2000) and Levine, Loayza and Beck (2000) measure the growth effect of the "exogenous component" of banking development.

[9]We do not consider market capitalization to GDP, since this variable is hard to interpret. Having a measure of overall equity values in the numerator, it may simply be a forward looking indicator of future growth or it may be related to the cost of capital. In addition, Rousseau and Wachtel (2000) find market capitalization to GDP to have a weaker impact than value traded in their cross-country analysis of growth.

samples. This implies a positive relation between stock market development and economic growth, consistent with previous studies.

In all four samples, the liberalization effect is somewhat diminished, dropping between 17 and 20 basis points across the samples. However, the liberalization coefficient continues to be significantly different from zero. Clearly, liberalization is more than just another aspect of more general financial development, not deserving of special attention.

5.3   Legal environment

In a series of influential papers, La Porta et al. (1997, 1998, 1999, 2000) and Djankov et al. (2003) stress the cross-country differences in the legal environment (either laws or their enforcement) in general and the legal environment regarding investor protection in particular. Reforms improving investor protection may promote financial development (see La Porta et al. (1997) for a direct test) and hence growth. The recent literature on financing constraints suggests a concrete channel through which this may occur. If capital markets are imperfect, external capital is likely to be more costly than internal capital and a shortage of internal capital will reduce investment below first-best levels. Recent empirical work shows that financial development (see Rajan and Zingales (1998), Love (2003)) and the liberalization of the banking sector (Laeven (2000)) may help relax these financing constraints and increase investment. Financial liberalization will make available more foreign capital but this does not necessarily resolve the market imperfections that lead to a wedge between the internal and external finance cost of capital. Reforms improving corporate governance and reducing the ability of insiders to extract resources from the firm may directly affect the external cost of capital. More generally, a better legal environment may increase steady state GDP. Whereas it is possible that the presence of foreign investors promotes financial reforms that help reduce financing constraints and the external finance cost of capital premium, it is conceivable that reforms improving the legal environment and investor protection are the real source of the improved growth prospects.

To examine this issue, we follow La Porta et al. (1997) and use a variable that measures the rule of law in general which is the Rule of Law subcomponent of the ICRG political risk

rating. Table 2 indicates that this variable significantly increases post-liberalization. When we add this measure to the growth regression (see Panel D), the growth effect of equity market liberalization slightly increases for sample II, but decreases for samples III and IV by about 20 basis points. In these last two samples, Law and Order generates small but significant growth effects.

Second, we use the insider trading law dummies created by Bhattacharya and Daouk (2002). They argue that the enforcement of insider trading laws makes developing markets more attractive to international investors. They present evidence that associates insider trading laws with a lower cost of capital in a sample of 95 countries. Importantly, Bhattacharya and Daouk distinguish between the enactment of insider trading laws and the enforcement of these laws.

Insider trading laws, and especially their enforcement, may be quite closely related to the corporate governance problems that lead to the external finance premium. Enforcement of insider trading laws may be a good instrument for reduced external financing constraints. It is possible that the enactment of such rules are particularly valued and perhaps demanded by foreigners before they risk investing in emerging markets. Indeed, the enforcement of insider trading laws may proxy for a more general state of law enforcement that may be correlated with policy reforms introducing equity market liberalization.

Panel D of Table 6 examines the relation between the enactment and enforcement of insider trading laws and economic growth. The existence of these laws has no significant relation to economic growth, as evidenced in the first set of results. While the coefficients on insider trading prosecutions are also not significantly different from zero, they are consistently positive across the four samples ranging between 0.22% (sample IV) and 0.33% (sample III).

However, the equity market liberalization remains significantly different from zero in the presence of the insider trading variable and drops by at most 11 basis points.[10]

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[10]Bhattacharya and Daouk (2002) examine the differential impact of insider trading laws and financial liberalizations on the cost of capital. While they find that both factors are important, the liberalization effect is more prominent.

5.4 *Banking crises*

It is conceivable that a major crisis of an economic nature induces a plethora of reforms, one of which being an equity market liberalization.[11] If this is the case, a crisis indicator could be a very useful control for the policy simultaneity problem. Caprio and Klingebiel (2001) provide the necessary information to create such an indicator; they survey and date banking crises for about 90 countries, differentiating between systemic and non-systemic banking crises. A banking crisis can bias our regressions in two distinct ways.

First, if policy reforms are clustered right after a crisis, the presence of a crisis negatively affects growth just before the reforms take place biasing the growth effect upward. We use a contemporaneous banking crisis dummy to control for this effect. Panel E of Table 6 shows that in all samples and across both definitions, growth is significantly lower during crisis times. However, the introduction of the crisis dummy does not affect the magnitude of the equity market liberalization effect, even though it is somewhat decreased in magnitude, especially in sample IV.

Second, we control for policy simultaneity by adding a dummy variable for the post-crisis period. The variable takes the value of one in the last year of the crisis and each year afterward. In most samples, there is significantly higher economic growth in the post crisis period (either systemic or systemic/borderline). This is particularly true for the broader definition of crisis. The liberalization effect, however, is largely unaffected by the inclusion of the post-banking crisis variable.

Intuition would suggest that some of the increment to economic growth resulting from an equity market liberalization may be attributed to simultaneous policy reforms. While the incremental growth resulting from a liberalization is smaller in the presence of proxies for reforms, they do not completely subsume the equity market liberalization effect.

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[11]For example, Drazen and Easterly (2001) find that reforms are more likely to occur when inflation and black market premiums are at extreme values. Kaminsky and Reinhart (1999) examine the interrelation between banking and currency crises and financial liberalizations.

6 Why do countries respond differently to liberalizations?

It is unlikely that equity market liberalization, or the more general reforms it may proxy for, has the same impact in every country. The growth effect should depend on two factors: how much additional investment do the reforms generate (e.g. because the cost of capital goes down) and the efficiency of new investments. It is likely that countries with a relatively high physical and human capital stock, relatively efficient financial markets, good legal institutions etc. might see highly efficient investment and a large growth response. But one could also make the case that countries with relatively bad institutions, an inefficient legal system, serious corporate governance problems, may experience the largest drop in the cost of capital, and generate larger investment increases. Overall, the signs of interaction effects between liberalization and domestic factors are ex ante unclear.

In this section, we provide an exploratory analysis of what differentiates the liberalization effects across countries. We begin by looking at a simple measure of the comprehensiveness or intensity of the reforms. We then consider whether the magnitude of the effect depends on the level of financial development. Finally, we follow La Porta et al. (1997, 1998, 1999, 2000) and consider institutional factors that measure the quality of the legal environment both overall and specifically for equity investors.

6.1 *Intensity of liberalization*

Liberalizations are often gradual and our dummy variable does not capture the intensity or comprehensiveness of the liberalization. A country opening up only 10% of its equity market to foreigners should expect a different growth effect than a country that allows 100%. Bekaert (1995) and Edison and Warnock (2003) propose a measure of equity market openness based on the ratio of the capitalization of the IFC investable to the global stocks in each country.[12] A ratio of one means that all of the stocks are available to foreign investors. In Table 7, we call this measure "Intensity A". We also explore a related measure by calculating the ratio

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[12]The IFC's global stock index seeks to represent the local stock market whereas the investable index corrects market capitalization for foreign ownership restrictions.

of the number of firms in the investable and global indices for each country ("Intensity B"). Given the high volatility of emerging market equity returns, this measure may be less noisy. Table 1 has more details on the construction of these variables. The estimates reported in panel A of Table 7 can be interpreted as the liberalization effect for countries which are fully open. The effect is, not surprisingly, stronger than the "coarse" liberalization effect. For Intensity Measure B, the growth effect of a full equity market liberalization is at least 1.2% and it is 1.7% in sample IV. For Intensity Measure A, the effects are slightly larger in samples I and II and much larger in samples III and IV. In all samples and for both measures, the coefficients are strongly significantly different from zero.

6.2 *Financial development*

We explore the differences across countries in the equity market liberalization effect by breaking up the indicator variable into three pieces:

$$y_{i,t+k,t} = \beta Q_{i,1980} + \gamma' \mathbf{X}_{i,t} + \alpha \text{LibFull}_{i,t} + \alpha_L \text{LibLow}_{i,t} + \alpha_H \text{LibHigh}_{i,t} + \delta \text{Char}_{i,t} + \epsilon_{i,t+k,k} \quad (5)$$

where $\text{LibFull}_{i,t}$ represents an indicator for countries that are fully liberalized throughout our sample; $\text{LibLow}_{i,t}$ denotes the countries that liberalize but have a characteristic, such as financial development, that falls below the median of the liberalizing countries; and $\text{LibHigh}_{i,t}$ is the analogous definition for countries with a higher than median value of the characteristic. Importantly, the regression also includes the own-effect of the characteristic, which is denoted by $\text{Char}_{i,t}$. We report the coefficients on the high and low characteristic indicators as well as a Wald test of whether the coefficients are significantly different. We also report the coefficient on the own effect.[13]

Table 2 suggests that financial development indicators substantially improve post equity market liberalizations. Panel B of Table 7 shows that countries that have a higher than median private credit to GDP ratio experience significantly higher growth after liberalization

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[13]We also estimated, but do not report, a more complex specification whereby the characteristics are interacted with the liberalization variables. Given that the results are similar, we elected to report the more intuitive analysis.

(1.05% for higher than average private credit to GDP and 0.48% for low level of private credit to GDP). The results suggest that a strong banking system provides the foundation whereby a country can have a larger increment to growth following an equity market liberalization. Panel B shows very similar results for our proxy for the development of equity markets: turnover. If a country has less than average turnover, then the effect of an equity market liberalization is a modest 0.17%. Countries with more than median turnover experience an average 0.94% boost in growth.

The financial development results provide the following two insights. First, equity market liberalization adds something over and above the impact of a change in a variable that proxies for financial development (Table 6). Second, the level of financial development matters. Liberalizations have a greater effect on economic growth if the country starts with above average financial development (Table 7).

6.3 *Legal and investment environment*

We look at a number of variables that proxy for the legal environment. We start with the classification of legal systems based on their origins, in La Porta et al. (1997): English, French and Other. La Porta et al. argue that the type of legal regime is a good proxy for the degree of investor protection. We use a measure of judicial efficiency from La Porta et al. (1998) which is based on Business International Corporation's assessment of the "efficiency and integrity of the legal environment as it affects business, particular foreign firms." We also consider the Djankov, La Porta, Lopez-de-Silanes and Shleifer's (2003) measure of the duration of the legal process, both for collection from bad checks and tenant eviction. They argue that this measure is a good instrument for judicial formalism which is inversely related to court quality. One disadvantage of these variables is that they are purely cross-sectional. It is conceivable that liberalization and the presence of foreign investors might affect the legal system. Alternatively, foreign investors may be reluctant to invest in countries with poorly developed legal systems. We find some evidence in favor of the latter interpretation in that all the interaction effects are positive.

For example, according to the results in Table 7 the growth impact of a liberalization

is significantly greater for countries with English versus French legal origins (1.24% versus 0.68%). Although English legal origins is associated with higher growth than Other legal origins, the difference is not statistically significant. There is higher growth effect associated with countries with a speedier judicial processes (0.84% for speedy and 0.29% for slow judicial processes). However, this difference is not significant (p-value is 0.14).

Finally, we examine the state of the investment environment. First, using the IRGG Economic risk rating (which includes current level of GDP per capita, inflation, current account and budget balances), we find that the current state of the economy has an insignificant impact on the heterogeneity of the growth effect. Second, we investigate the Investment Profile subcategory in the ICRG political risk ratings (which includes Contract Viability, Profit Repatriation, and Payment Delays). We find a highly significant difference when sorting by this characteristic. Countries with better than average investment profiles experience a 0.85% increment in growth whereas a lower than average profile shows only a 0.19% increase.

We also use, following La Porta et al. (1997), direct proxies for investor protection: Anti-director Rights, Creditor Rights and Accounting Standards. Countries with better director rights or creditor rights or accounting standards experience higher economic growth. However, the effect for creditor rights is not significant at conventional levels. Some of these effects are quite striking. For example the growth increment for countries with higher than average rated accounting standards is 1.1% whereas it is only 0.04% for countries with below average accounting standards.

Table 7 also includes information on the own effect of each characteristic. Both of the financial development indicators have a positive effect in the regression which is not surprising given the results in Table 6. The own effect for the speed of the judicial process is not significant at conventional significance levels. The current state of the economy has a strongly significantly own effect along with the Investment Profile. Finally, all three of the investor protection variables have positive own effects, however, the accounting standards effect is not significantly different from zero.

Our analysis of heterogeneity of the growth effect has a simple message. First, not all countries experience the same increment to growth after equity market liberalizations.

Second, the countries that benefit the most in terms of growth are those with: higher than average financial development, English rather than French/Other legal origins, a favorable investment profile for foreign direct and portfolio investors, and higher than average investor protection.

7   Conclusions

Although there has been substantial research on the relation between financial development and economic growth, both the finance and development literature lacks a comprehensive analysis of the effects of the equity market liberalization process on economic growth.

Our research demonstrates that equity market liberalization (allowing foreign investors to transact in local securities and vice versa) did increase economic growth. We augment the standard set of variables used in economic growth research with an indicator variable for equity market liberalization. We find that liberalization leads to an approximate one percent increase in annual real per capita GDP growth over a five year period and find this increase to be statistically significant. This result is robust to a wide variety of experiments including: an alternative set of liberalization dates, different groupings of countries, regional indicator variables, business cycle effects, different weighting matrices for the calculation of standard errors, four different time-horizons for measuring economic growth and more.

The approximately one percent increment in real growth following an equity market liberalization is surprisingly large. It is reasonable to expect that equity market liberalizations are intertwined with both macroeconomic reforms and financial development. Our evidence to some degree supports this point of view. Importantly, after controlling for either macro reforms, financial development, banking crises, legal reforms and the ability of a country to enforce its laws, we still find a statistically significant impact on economic growth from equity market liberalizations.

Most of our specifications, by construction, force a common coefficient relating liberalizations to growth in every country. It makes sense that there are country-specific deviations from the average. It is of great interest to investigate what might make a country have a greater (or lesser) response to a financial liberalization. In his book on trade openness,

Rodrik (1999) argues that openness may not be suitable for all countries. Likewise financial liberalization may not bring the anticipated benefits depending on the strength of the domestic institutions and other factors. Whereas in recent work, Edwards (2001) and Quinn, Inclan and Toyoda (2001) suggest that the benefits of capital account liberalization are restricted to more developed countries, we do not find the growth effect to depend positively on development levels. We find that countries that are further along in terms of financial development experience a larger than average boost from equity market liberalization. In addition, countries with better legal systems, favorable conditions for foreign investment and investor protection, generate larger growth effects.

Although our regressions are predictive, it is important to keep in mind that they reveal association not causality. While our analysis describes a number of plausible channels through which the liberalization effect may have occurred, the answer to the question 'does' rather than 'did' financial liberalization affect economic growth? remains difficult to answer definitively. Interestingly, our broad cross-country growth results appear consistent with scattered micro-evidence and event studies. Levine and Zervos (1998b) find that stock markets become more liquid following stock market liberalizations in a study of 16 countries. Karolyi (1998) surveys a rich ADR literature, which shows that ADRs, which can be viewed as investment liberalizations, lead to reduced costs of capital. Chari and Henry (2002) show that individual firms experience reductions in the costs of capital post-equity market liberalization. Lins, Strickland and Zenner (2003) show that firms from emerging markets listing in the U.S. are able to relax financing constraints. Galindo, Schiantarelli and Weiss (2001) show that financial liberalization improves the efficiency of capital allocation for firms in 12 developing countries. Gupta and Yuan (2003) show that industries which depend more on external finance experience significantly higher growth following liberalization and grow faster through the creation of new plants (rather than investing in existing ones).

Finally, we measure an average growth effect. If true, the distribution of the welfare gain is an important social issue. Das and Mohapatra (2003) show that the gains from increased growth post-equity market liberalization are unequally distributed, accruing mostly to the top quintile of the population.

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Table 1
Description of the Variables
All data are employed at the annual frequency.

Variable	Description
Dating equity market liberalization	
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, presented in Table 2, 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 A.
First sign equity market liberalization indicator	"First Sign" equity market liberalization dates denote the year associated with the earliest of three dates: official liberalizations, first American Depositary Receipt (ADR) announcement and first country fund launch. The first sign indicator takes a value of one on and after the first sign year, and zero otherwise. As with the official liberalization indicator, 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 are reported in Appendix A.
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.
Other important dates	
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 particular category. The category that we focus on is the "restrictions on payments for the capital account transaction." These dates are reported in Appendix A.
Banking sector crisis indicator	Caprio and Klingebiel (2001) document systemic and borderline banking sector crises. We construct banking crisis indicators that take a value of one when a) a country is undergoing a systemic banking sector crisis or b) when a country is undergoing either a systemic or borderline banking sector crisis. We also construct post-banking crisis indicators that take a value of one in the last year and each subsequent year following a) a systemic banking sector crisis or b) either a systemic or borderline banking sector crisis.
Insider trading law indicator	Bhattacharya and Daouk (2002) document the enactment of insider trading laws and the first prosecution of these laws. We construct two indicator variables. The first takes the value of one following the introduction of an insider trading law. The second takes the value of one after the law's first prosecution.

Table 1
(Continued)

Variable	Description

Macroeconomic and demographic measures

Gross domestic product (GDP) growth	Growth of real per capita gross domestic product. Available for all countries from 1980 through 1997. Source: *World Bank Development Indicators* CD-ROM.
Initial GDP	Logarithm of real per capita gross domestic product in 1980. Available for all countries. Source: *World Bank Development Indicators* CD-ROM.
Government consumption/GDP	Government consumption divided by gross domestic product. General government final consumption expenditure includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and security, but excludes government military expenditures that are part of government capital formation. Available for all countries from 1980 through 1997. Source: *World Bank Development Indicators* CD-ROM.
Secondary school enrollment	Secondary school enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the secondary level of education. Accordingly, the reported value can exceed (or average) more than 100%. Available for all countries from 1980 through 1997 to the secondary level of education. Available for all countries from 1980 through 1997. Source: *World Bank Development Indicators* CD-ROM.
Population growth	Growth rate of total population which counts all residents regardless of legal status or citizenship. Available for all countries from 1980 through 1997. Source: *World Bank Development Indicators* CD-ROM.
Log life expectancy	Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life. Available for all countries from 1980 through 1997. Source: *World Bank Development Indicators* CD-ROM.
OECD GDP growth	Growth of real per capita gross domestic product for high-income OECD members. High-income economies are those in which 1998 GNP per capita was $9,361 or more. Source: *World Bank Development Indicators* CD-ROM.
World real interest rate	Constructed from each country's real interest rates. The GDP weighted real interest rate for the G-7 countries, where the real rate for each country is the lending interest rate adjusted for inflation as measured by the GDP deflator. Source: *World Bank Development Indicators* CD-ROM.

Macroeconomic reforms

Trade/GDP	The trade dependency ratio is the sum of exports and imports of goods and services measured as a share of gross domestic product. Available for all countries from 1980 through 1997. Source: *World Bank Development Indicators* CD-ROM.
Inflation	Inflation as measured by the log annual growth rate of the gross domestic product implicit deflator. We use the CPI if the GDP-deflator is not available. Available for all countries from 1980 through 1997. Source: *World Bank Development Indicators* CD-ROM.
Black market premium	The black market premium is defined as (parallel FXrate/official FXrate-1)*100, where parallel FXrate is the black market rate. The variable measures the premium market participants must pay, relative to the official exchange rate, to exchange the domestic currency for dollars in the black market. Available for all countries from 1980 through 1997. Source: Easterly (2001).
Fiscal deficit	The overall budget deficit is total expenditure and lending minus repayments less current and capital revenue and official grants received; shown as a percentage of GDP. Data are available for central governments only. Available for 28 countries from 1980 through 1997. Source: *World Bank Development Indicators* CD-ROM.

Table 1
(Continued)

Variable	Description

Variables used in endogeneity analysis

Growth Opportunities

An implied measure of country-specific growth opportunities that reflects the growth prospects for each industry (at the global level) weighted by the industrial composition for each country. We construct an annual measure of the 3-digit SIC industry composition for each country by their output shares according to UNIDO Industrial Statistics Database. For each SIC code, we also measure price-earnings (PE) ratios for that industry at the global level, from which we construct an implied measure of growth opportunities for each country by weighting each global industry PE ratio by its relative share for that country. We subtract from this measure the overall world market PE ratio to remove the world discount rate effect (and we remove a 5-year moving average), and call the difference "growth opportunities" (GO). Available for 92 countries from 1980 through 1997. Source: Bekaert et al. (2003).

Political risk rating

The value of the the Political Risk Service (PRS) Group's political risk indicator (which ranges between 0 and 100). The risk rating is a combination of 12 subcomponents (documented below). Overall, a political risk rating of 0.0% to 49.9% indicates a Very High Risk; 50.0% to 59.9% High Risk; 60.0% to 69.9% Moderate Risk; 70.0% to 79.9% Low Risk; and 80.0% or more Very Low Risk. The data are available for 75 countries from 1984 through 1997. For each country, we backfill the 1984 value to 1980. Source: Various issues of the *International Country Risk Guide.* There are 12 subcomponents to this index. We create four sub-indices: POL1 (Political Conditions), POL2 (Quality of Institutions), POL3 (Socio-economic conditions), and POL4 (Conflict).

POL1 (Political Conditions)

The sum of ICRG subcomponents: Military in Politics and Democratic Accountability

Military in Politics (POL1)

ICRG political risk sub-component (6% weight). The military is not elected by anyone. Therefore, its involvement in politics, even at a peripheral level, is a diminution of democratic accountability. However, it also has other significant implications. The military might, for example, become involved in government because of an actual or created internal or external threat. Such a situation would imply the distortion of government policy in order to meet this threat, for example by increasing the defense budget at the expense of other budget allocations. In some countries, the threat of military take-over can force an elected government to change policy or cause its replacement by another government more amenable to the military's wishes. A military takeover or threat of a takeover may also represent a high risk if it is an indication that the government is unable to function effectively and that the country therefore has an uneasy environment for foreign businesses. A full-scale military regime poses the greatest risk.

Democratic Accountability (POL1)

ICRG political risk sub-component (6% weight). This is a measure of how responsive government is to its people, on the basis that the less responsive it is, the more likely it is that the government will fall, peacefully in a democratic society, but possibly violently in a non-democratic one. However, assessing democratic accountability is more complex than simply determining whether the country has free and fair elections. Even democratically elected governments, particularly those that are apparently popular, can delude themselves into thinking they know what is good for their people even when the people have made it abundantly clear that they do not approve particular policies. Therefore, it is possible for an accountable democracy to have a lower score, i.e. a higher risk, for this component than a less democratic form of government.

Table 1
(Continued)

Variable	Description
POL2 (Quality of Institutions)	The sum of ICRG subcomponents: Corruption, Law and Order, and Bureaucratic Quality.
Corruption (POL2)	ICRG political risk sub-component (6% weight). This is a measure of corruption within the political system. Such corruption: distorts the economic and financial environment, reduces the efficiency of government and business by enabling people to assume positions of power through patronage rather than ability, and introduces an inherent instability into the political process. The most common form of corruption met directly by business is financial corruption in the form of demands for special payments and bribes connected with import and export licenses, exchange controls, tax assessments, police protection, or loans. Although the PRS measure takes such corruption into account, it is more concerned with actual or potential corruption in the form of excessive patronage, nepotism, job reservations, "favor-for-favors," secret party funding, and suspiciously close ties between politics and business. In PRS's view these sorts of corruption pose risk to foreign business, potentially leading to popular discontent, unrealistic and inefficient controls on the state economy, and encourage the development of the black market.
Law and Order (POL2)	ICRG political risk sub-component (6% weight). PRS assesses Law and Order separately, with each sub-component comprising zero to three points. The Law sub-component is an assessment of the strength and impartiality of the legal system, while the Order sub-component is an assessment of popular observance of the law. Thus, a country can enjoy a high rating (3.0) in terms of its judicial system, but a low rating (1.0) if the law is ignored for a political aim.
Bureaucratic Quality (POL2)	ICRG political risk sub-component (4% weight). The institutional strength and quality of the bureaucracy can act as a shock absorber that tends to minimize revisions of policy when governments change. Therefore, high points are given to countries where the bureaucracy has the strength and expertise to govern without drastic changes in policy or interruptions in government services. In these low-risk countries, the bureaucracy tends to be somewhat autonomous from political pressure and to have an established mechanism for recruitment and training. Countries that lack the cushioning effect of a strong bureaucracy receive low points because a change in government tends to be traumatic in terms of policy formulation and day-to-day administrative functions.
POL3 (Socio-economic Conditions)	The sum of ICRG subcomponents: Government Stability, Socioeconomic Conditions, and Investment Profile.
Government stability (POL3)	ICRG political risk sub-component (12% weight). This is a measure both of the government's ability to carry out its declared program(s), and its ability to stay in office. This will depend on the type of governance, the cohesion of the government and governing party or parties, the closeness of the next election, the government's command of the legislature, and popular approval of government policies.
Socioeconomic Conditions (POL3)	ICRG political risk sub-component (12% weight). This is an attempt to measure general public satisfaction, or dissatisfaction, with the government's economic policies. In general terms, the greater the popular dissatisfaction with a government's policies, the greater the chances that the government will be forced to change direction, possibly to the detriment of business, or will fall. Socioeconomic conditions cover a broad spectrum of factors ranging from infant mortality and medical provision to housing and interest rates. Within this range different factors will have different weight in different societies. PRS attempts to identify those factors that are important for the society in question, i.e. those with the greatest political impact, and assess the country on that basis.
Investment Profile (POL3)	ICRG political risk sub-component (12% weight). This is a measure of the government's attitude to inward investment. The investment profile is determined by PRS's assessment of three sub-components: (i) risk of expropriation or contract viability; (ii) payment delays; and (iii) repatriation of profits. Each sub-component is scored on a scale from zero [very high risk] to four [very low risk].

Table 1
(Continued)

Variable	Description
POL4 (Conflict)	The sum of ICRG subcomponents: Internal Conflict, External Conflict, Religious Tensions, Ethnic Tensions.
Internal Conflict (POL4)	ICRG political risk sub-component (12% weight). This is an assessment of political violence in the country and its actual or potential impact on governance. The highest rating is given to those countries where there is no armed opposition to the government and the government does not indulge in arbitrary violence, direct or indirect, against its own people. The lowest rating is given to a country embroiled in an on-going civil war. The intermediate ratings are awarded on the basis of whether the threat posed is to government and business or only business (e.g. kidnapping for ransom); whether acts of violence are carried out for a political objective (i.e. terrorist operations); whether such groups are composed of a few individuals with little support, or are well-organized movements operating with the tacit support of the people they purport to represent; whether acts of violence are sporadic or sustained; and whether they are restricted to a particular locality or region, or are carried out nationwide.
External Conflict (POL4)	ICRG political risk sub-component (12% weight). The external conflict measure is an assessment of the risk to both the incumbent government and inward investment. It ranges from trade restrictions and embargoes, whether imposed by a single country, a group of countries, or the whole international community, through geopolitical disputes, armed threats, exchanges of fire on borders, border incursions, foreign-supported insurgency, and full-scale warfare.
Religion in Politics (POL4)	ICRG political risk sub-component (6% weight). Religious tensions may stem from the domination of society and/or governance by a single religious group that seeks to replace civil law by religious law and to exclude other religions from the political and/or social process; the desire of a single religious group to dominate governance; the suppression of religious freedom; the desire of a religious group to express its own identity, separate from the country as a whole. The risk involved in these situations range from inexperienced people imposing inappropriate policies through civil dissent to civil war.
Ethnic Tensions (POL4)	ICRG political risk sub-component (6% weight). This component measures the degree of tension within a country attributable to racial, nationality, or language divisions. Lower ratings are given to countries where racial and nationality tensions are high because opposing groups are intolerant and unwilling to compromise. Higher ratings are given to countries where tensions are minimal, even though such differences may still exist.

Financial development

Private credit/GDP	Private credit divided by gross domestic product. Credit to private sector refers to financial resources provided to the private sector, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable that establish a claim for repayment. Available for all countries from 1980 through 1997. Source: *World Bank Development Indicators* CD-ROM.
Equity market turnover	The ratio of equity market value traded to the market capitalization. The data are available for 50 countries from 1980 through 1997. Source: Standard and Poor's/International Finance Corporation's *Emerging Stock Markets Factbook*.

Table 1
(Continued)

Variable	Description

Legal environment

Legal origin

Identifies the legal origin of the company law or commercial code of each country (English, French, Socialist, German, Scandinavian). We construct three indicators that take the value of one when the legal origin is Anglo-Saxon (English Law), French (French Law), or other (Law Other), and zero otherwise; legal origin is available for all countries. This variable is purely cross-sectional, and available for all countries. Source: La Porta et al. (1999).

Judicial Efficiency

Assessment of the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms" produced by the country risk rating agency Business International Corp. It may be taken to "represent investors' assessments of conditions in the country in question." Average between 1980 and 1983. Scale from 0 to 10, with lower scores, lower efficiency levels. This variable is purely cross-sectional, and available for 47 countries. Source: La Porta et al. (1998).

Speed of Judicial Process

The total estimated speed in calendar days of the procedure (to evict a tenant for nonpayment of rent or to collect a bounced check) under the factual and procedural assumptions provided. It equals the sum of (i) duration until completion of service of process, (ii) duration of trial, and (iii) duration of enforcement. This variable is purely cross-sectional, and available for 69 countries. Source: Djankov et al. (2003).

Investment environment

Economic risk rating

The value of the the Political Risk Service (PRS) Group's economic risk indicator (which ranges between 0 and 50). The risk rating is a combination of 5 subcomponents: GDP levels and growth, respectively, inflation, balanced budgets, and the current account. The minimum number of points for each component is zero, while the maximum number of points depends on the fixed weight that component is given in the overall economics risk assessment.

Anti-director rights

Assessment of the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms" produced by the country risk rating agency Business International Corp. It may be taken to "represent investors' assessments of conditions in the country in question." Average between 1980 and 1983. Scale from 0 to 10, with lower scores, lower efficiency levels. This variable is purely cross-sectional, and available for 47 countries. Source: La Porta et al. (1998).

Creditor rights

An index aggregating different creditor rights. The index is formed by adding 1 when (1) the country imposes restrictions, such as creditors' consent or minimum dividends to file for reorganizations; (2) secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay); (3) secured creditors are ranked first in the distribution of the proceeds that results from the disposition of the assets of a bankrupt firm; and (4) the debtor does not retain the administration of its property pending the resolution of ther reorganization. The index ranged from 0 to 4. This variable is purely cross-sectional, and available for 45 countries. Source: La Porta et al. (1998).

Accounting Standards

Index created by examining and rating companies' 1990 annual reports on their inclusion or omission of 90 items. These items fall into seven categories (general information, income statements, balance sheets, funds flow statements, accounting standards, stock data, and special items). A minimum of three companies in each country were studied. The companies represent a cross section of various industry groups; industrial companies represented 70 percent, and financial companies represented the remaining 30 percent. This variable is purely cross-sectional, and available for 39 countries. Source: La Porta et al. (1998).

Table 2
Summary Statistics

Variable	Pre-Liberalization	Post-Liberalization		Fully Liberalized	Never Liberalized	
Real GDP growth (3-year)	0.0160	0.0265	**	0.0201	-0.0016	***
Real GDP growth (5-year)	0.0159	0.0276	***			
Real GDP growth (7-year)	0.0153	0.0264	***			
Govt/GDP	0.1379	0.1328		0.1885	0.1581	***
Enrollment	0.5573	0.6115	**	0.9974	0.3439	***
Population Growth	0.0203	0.0169	**	0.0060	0.0255	***
Life Expectancy	65.7	67.7	**	75.7	56.9	***
Growth Opportunity	-0.0301	0.0076	***	-0.0016	-0.0012	
ICRG Political Index (75 countries)	0.5681	0.6494	***	0.8384	0.5116	***
Pol1 (Political Conditions)	0.5855	0.6505	***	0.9648	0.4542	***
Pol2 (Quality of Institutions)	0.5273	0.6033	***	0.9333	0.4158	***
Pol3 (Socio-Economic)	0.4863	0.5472	***	0.6534	0.4522	***
Pol4 (Conflict)	0.6671	0.7843	***	0.9364	0.6350	***
Trade/GDP	0.6229	0.6383		0.8429	0.6970	***
Log(1+Inflation) (Latin)	0.1890	0.1411		NA	0.0596	
Log(1+Inflation) (Not Latin)	0.0993	0.0857		0.0411	0.0934	***
Log(1+Black Market Premium)	0.1499	0.0724	***	0.0007	0.2211	***
Fiscal Deficit (28 countries)	0.0606	0.0333	***	0.0307	NA	
Private Credit/GDP	0.3831	0.4263		0.8095	0.2286	***
Turnover (50 countries)	0.1814	0.2664		0.4938	NA	
Banking Crisis (systematic)	0.3243	0.2941		0.1131	0.3300	***
Banking Crisis (systematic and borderline)	0.5243	0.5784		0.3891	0.4190	
Law and Order (75 countries)	0.4875	0.6065	***	0.9510	0.4472	***
Insider Trading Law	0.4205	0.7241	***	0.6540	0.0836	***
Insider Trading Prosecution	0.0667	0.1149	*	0.4325	NA	
Judicial efficiency (47countries)				0.9456	NA	
Speed of process (checks+eviction) (69 countries)				408.3	363.4	
ICRG Economic Index (75 countries)	0.5895	0.6765	***	0.7845	0.5909	
Investment profile (75 countries)	0.4660	0.5312	***	0.6494	0.4680	***
Anti-director rights (47countries)				0.4902	NA	
Creditor rights (45 countries)				0.4853	NA	
Accounting standards (39 countries)				0.6950	NA	

We explore the 3, 5, and 7-year averages of the growth rate of real per capita gross domestic product and the 5-year averages of the other variables employed in the paper (and summarized in Table 1) before and after the equity market liberalization (including the liberalization year in the "after" period). For some countries, we do not have a full 3, 5, or 7 years available given the timing of the liberalization, so we simply take the available years in the average. For all variables, unless otherwise stated, the summary statistics reflect data for 95 countries from 1980-1997. Official liberalization means that the equity market is liberalized. Fully Liberalized denotes countries that are fully liberalized throughout our sample, whereas Never Liberalized denotes countries that never undergo financial liberalization. Statistical significance is denoted by a * for 10%, ** for 5%, and *** for 1%.

Table 3
Classic Growth Regressions and the Impact of Liberalization
Annual Average Real GDP growth (Five-year horizon) for Sample I (95 countries)

Fixed Effects	Constant	Initial Log(GDP)	Gov/GDP	Secondary-School Enrollment	Population Growth	Log(Life)	**Official Liberalization Indicator**
No	-0.0038	0.0014					**0.0129**
	0.0043	*0.0006*					*0.0023*
No	-0.0027	0.0021	-0.0362				**0.0120**
	0.0043	*0.0006*	*0.0134*				*0.0022*
No	0.0157	-0.0033		0.0326			**0.0092**
	0.0054	*0.0010*		*0.0048*			*0.0022*
No	0.0088	0.0005			-0.2671		**0.0107**
	0.0061	*0.0007*			*0.0886*		*0.0023*
No	-0.3550	-0.0082				0.1027	**0.0116**
	0.0232	*0.0008*				*0.0066*	*0.0019*
No	-0.3277	-0.0082	-0.0144	0.0004	-0.1911	0.0975	**0.0097**
	0.0286	*0.0010*	*0.0131*	*0.0048*	*0.0774*	*0.0076*	*0.0020*
Yes	not reported						**0.0056**
							0.0012
Average of 3 separate regressions on non-overlapping 5-year periods							
Yes	not reported						**0.0103**
							0.0014

I refers to a sample of 95 countries detailed in the data appendix. For all estimates (except the last row), the dependent variable is the 5-year overlapping average growth rate of real per capita gross domestic product. Log(GDP) is the log real per capita GDP level in 1980. Govt/GDP is the ratio of government consumption to GDP; Enrollment is the secondary school enrollment ratio; Population growth is the growth rate of total population; Log(Life Expectancy) is the log life expectancy of the total population; and the official liberalization variable takes a value of one when the equity market is liberalized, and zero otherwise.

We first consider each control variable separately, then all together. If the column denoted "fixed effects" contains a "No", we employ one constant since initial Log(GDP) is constant through time for each country. If the column denoted "fixed effects" contains a "Yes", we drop the Log(GDP) and the other control variables, and include in the regressions, but do not report, fixed country effects. In the last row, we report the simple average of 3 coefficients (and standard errors) associated with separate regressions (over 1981-1995, 1982-1996, and 1983-1997) for which the dependent variable is 3 non-overlapping 5-year GDP average growth rates. That is, each regression has three time-series observations with no overlap; we conduct each regression separately, and then average the resulting coefficients. 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; however, in the last row, no overlap is present.

Table 4

Robustness of the Liberalization Effect
Annual Average Real GDP growth (Five-year horizon)

A: Alternative measurements of liberalization

	Sample I	II	III	IV
Official Liberalization Indicator	0.0097	0.0081	0.0088	0.0108
Std. error	0.0020	0.0021	0.0021	0.0044
First Sign Liberalization Indicator	0.0122	0.0111	0.0122	0.0096
Std. error	0.0020	0.0021	0.0022	0.0045
IMF Capital Account Liberalization Indicator	0.0002	-0.0003	0.0053	0.0024
Std. error	0.0017	0.0018	0.0020	0.0024
IMF Capital Account Liberalization Indicator	-0.0011	0.0012	0.0043	0.0011
Std. error	0.0017	0.0017	0.0020	0.0022
Official Liberalization Indicator	0.0094	0.0078	0.0071	0.0092
Std. error	0.0021	0.0021	0.0021	0.0044

B: Sensitivity to Regional Influences

	Sample I	II	III	IV
Official Liberalization Indicator (Latin)	0.0065	0.0043	0.0052	0.0090
Std. error	0.0041	0.0042	0.0051	0.0087
Official Liberalization Indicator (Not-Latin)	0.0100	0.0084	0.0098	0.0129
Std. error	0.0022	0.0023	0.0022	0.0047

C: Sensitivity to Contemporaneous World Growth and Real Interest Rates

	Sample I	II	III	IV
OECD GDP growth (contemporaneous)	0.5049	0.3001	0.6552	0.8752
Std. error	0.0846	0.0949	0.0942	0.1132
World real interest rate (contemporaneous)	-0.2240	-0.2076	-0.1734	-0.1157
Std. error	0.0670	0.0750	0.0735	0.0885
Official Liberalization Indicator	**0.0108**	**0.0086**	**0.0112**	**0.0142**
Std. error	0.0019	0.0020	0.0021	0.0037

I, II, III, and IV refer to samples of 95, 75, 50 and 28 countries detailed in the data appendix. The dependent variable is the 5-year average growth rate of real per capita gross domestic product. We include in the regressions, but do not report, the same control variables as presented in the main regression of Table 3. We report the coefficient on the official liberalization variable that takes a value of one when the equity market is liberalized, and zero otherwise. The first sign liberalization indicator takes the value of one after the first of the following events: the officially liberalization date, the introduction of an ADR, or the introduction of a country fund. In Panel B, Latin refers to an indicator that takes the value of one if the country is in Latin America. In Panel C, the World real interest rate is the contemporaneous GDP-weighted real interest rate for the G-7 countries. OECD GDP growth is the 5-year average real GDP growth of OECD 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.

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Table 5
Endogeneity

A: Growth Opportunities

5-year average GDP growth	Sample I	II	III	IV
Official Liberalization Indicator	**0.0092**	**0.0080**	**0.0087**	**0.0109**
Std. error	*0.0020*	*0.0021*	*0.0021*	*0.0042*
Growth Opportunties	0.0106	0.0101	0.0122	0.0167
Std. error	*0.0038*	*0.0040*	*0.0039*	*0.0046*

B: Probit Analysis: Predicting Liberalization

68 liberalizing and segmented countries	Probit Est.	Std. error
Constant	10.45	*12.81*
Initial Log(GDP)	-0.81	*0.35*
Gov/GDP	-1.89	*2.90*
Secondary-School Enrollment	6.30	*2.67*
Population Growth	11.19	*25.80*
Log(Life)	-2.76	*3.28*
Past GDPGrowth	2.63	*7.63*
Growth Opportunities	-16.84	*7.94*
Private Credit/GDP	3.49	*1.74*
ICRG Political Index	5.53	*2.48*
POL1 (Political)	1.88	*1.15*
POL2 (Institutions)	5.79	*1.91*
POL3 (Socio-Economic)	4.07	*2.20*
POL4 (Conflict)	2.27	*1.93*

C: Segmented Countries: Annual Average Real GDP growth

27 countries (5-year average growth)	FE	No FE
ICRG Political Index	0.0667	0.0279
Std. error	*0.0173*	*0.0097*
POL1 (Political Conditions)	-0.0209	0.0047
Std. error	*0.0096*	*0.0049*
POL2 (Quality of Institutions)	0.0178	0.0094
Std. error	*0.0143*	*0.0057*
POL3 (Socio-Economic)	-0.0148	0.0177
Std. error	*0.0129*	*0.0105*
POL4 (Conflict)	0.0798	0.0191
Std. error	*0.0114*	*0.0070*

D: Instrument Variables Estimation (Quality of Institutions)

5-year average GDP growth	Sample II	III	IV
Official Liberalization Indicator (GMM)	0.0081	0.0088	0.0108
Std. error	*0.0021*	*0.0021*	*0.0044*
Official Liberalization Indicator (GMM-IV)	0.0057	0.0099	0.0181
Std. error	*0.0022*	*0.0026*	*0.0051*
ICRG Political Index	0.0035	0.0139	0.0528
Std. error	*0.0076*	*0.0102*	*0.0155*
Official Liberalization Indicator (GMM-IV)	0.0057	0.0085	0.0080
Std. error	*0.0023*	*0.0026*	*0.0045*
POL4 (Conflict)	-0.0088	-0.0078	0.0228
Std. error	*0.0056*	*0.0072*	*0.0123*
Official Liberalization Indicator (GMM-IV)	0.0068	0.0088	0.0158
Std. error	*0.0022*	*0.0027*	*0.0049*

I, II, III, and IV refer to samples of 95, 75, 50 and 28 countries detailed in data appendix. In Panels A, C, and D, we report analysis from a regression which has the 5-year average growth rate of real per capita gross domestic product as the dependent variable. We report the coefficients for the official liberalization variable which takes a value of one when the equity market is liberalized, and zero otherwise. In Panel A, we include in the regressions, but do not report, the same control variables as presented in the main regression of Table 3. Further, we augment the control group to include a measure of implied growth opportunities detailed in Table 1.

In Panel B, we present probit estimates, where the dependent variable takes a value of zero if the country never liberalizes and a one if the country liberalizes in sample; to focus on the probability of the liberalization decision, we ignore countries that have liberalized before 1980. We have 68 countries that either liberalize after 1980 or do not liberalize at all. For countries that liberalize, the right-hand-side predictive variables are averaged over the 5-years preceding liberalization; for those countries that do not liberalize, the right-hand-side predictive variables are averaged over the 5-years preceding the liberalization date of their closest geographic neighbor. As predictive variables, we include a constant, Log(GDP), Govt/GDP, secondary-school enrollment, population growth, Log(Life Expectancy), past GDP growth, a measure of industry growth opportunities, and private credit/GDP. In addition, we consider one-by-one each of the political risk indicators. Quasi-Maximum Likelihood adjusted standard errors are reported.

In Panels C and D, we conduct growth regressions, where the dependent variable is the 5-year average growth rate of real per capita gross domestic product. In Panel C, to abstract from any liberalization effects, we focus solely on 27 segmented countries. We present two sets of estimates: 1) when fixed effects are included (FE) but not reported, we regress growth on each political variable one-by-one with no additional controls; 2) when fixed effects are excluded (No FE), we include in the regressions, but do not report, the same control variables as presented in the main regression of Table 3. In Panel D, for sample II, III, and IV (for which ICRG data are available, we reproduce our main GMM regression estimates from Table 3. We employ an instrumental variables (IV) estimation within our GMM framework, where we use all the regressors as instruments, but instrument the liberalization indicator with the Pol2 (Quality of Institutions) Variable. That is, we report the coefficient on the official liberalization variable that takes a value of one when the equity market is liberalized, and zero otherwise, but the liberalization indicator is instrumented by the quality of institutions for each country.

For Panels A, C and D, 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
The Influence of the Reform Environment on Liberalization
Annual Average Real GDP growth (Five-year horizon)

A: Main GMM Liberalization Effect	Sample I	II	III	IV
Official Liberalization Indicator	**0.0097**	**0.0081**	**0.0088**	**0.0108**
Std. error	*0.0020*	*0.0021*	*0.0021*	*0.0044*

B: Macroeconomic Reforms	Sample I	II	III	IV
Trade	0.0074	0.0098	0.0100	0.0112
Std. error	*0.0014*	*0.0016*	*0.0017*	*0.0016*
Log(1+Inflation) (Latin)	-0.0006	-0.0017	0.0008	0.0002
Std. error	*0.0023*	*0.0024*	*0.0017*	*0.0030*
Log(1+Inflation) (Not Latin)	0.0092	0.0068	0.0127	-0.0244
Std. error	*0.0042*	*0.0047*	*0.0078*	*0.0201*
Log(1+Black Market Premium)	-0.0092	-0.0084	-0.0067	-0.0022
Std. error	*0.0018*	*0.0020*	*0.0032*	*0.0069*
Fiscal Deficit				-0.0960
				0.0219
Official Liberalization Indicator	**0.0074**	**0.0054**	**0.0066**	**0.0079**
Std. error	*0.0019*	*0.0020*	*0.0021*	*0.0040*

C: Financial Development	Sample I	II	III	IV
Private Credit	0.0125	0.0129	0.0084	0.0091
Std. error	*0.0031*	*0.0032*	*0.0032*	*0.0038*
Turnover			0.0152	0.0044
Std. error			*0.0026*	*0.0022*
Official Liberalization Indicator	**0.0077**	**0.0061**	**0.0069**	**0.0091**
Std. error	*0.0020*	*0.0020*	*0.0019*	*0.0043*

D: Law and Order & Insider Trading	Sample I	II	III	IV
Official Liberalization Indicator		**0.0090**	**0.0070**	**0.0081**
Std. error		*0.0022*	*0.0020*	*0.0045*
ICRG Law and Order		-0.0001	0.0020	0.0028
Std. error		*0.0007*	*0.0008*	*0.0013*
Official Liberalization Indicator	**0.0087**	**0.0068**	**0.0080**	**0.0103**
Std. error	*0.0020*	*0.0021*	*0.0021*	*0.0043*
Insider Trading Law	0.0003	0.0007	-0.0003	-0.0007
Std. error	*0.0014*	*0.0015*	*0.0015*	*0.0019*
Official Liberalization Indicator	**0.0088**	**0.0072**	**0.0077**	**0.0098**
Std. error	*0.0020*	*0.0021*	*0.0021*	*0.0044*
Insider Trading Prosecution	0.0032	0.0027	0.0033	0.0022
Std. error	*0.0024*	*0.0024*	*0.0024*	*0.0023*

E: Banking Crises	Sample I	II	III	IV
During Systemic Crisis	-0.0072	-0.0093	-0.0085	-0.0116
Std. error	*0.0014*	*0.0016*	*0.0015*	*0.0027*
Official Liberalization Indicator	**0.0094**	**0.0073**	**0.0084**	**0.0075**
Std. error	*0.0021*	*0.0022*	*0.0020*	*0.0043*
During Systemic and Borderline Crisis	-0.0081	-0.0109	-0.0126	-0.0117
Std. error	*0.0011*	*0.0013*	*0.0013*	*0.0018*
Official Liberalization Indicator	**0.0101**	**0.0074**	**0.0081**	**0.0090**
Std. error	*0.0019*	*0.0020*	*0.0021*	*0.0039*
Post Systemic Crisis	0.0058	0.0069	0.0022	-0.0032
Std. error	*0.0019*	*0.0022*	*0.0027*	*0.0048*
Official Liberalization Indicator	**0.0097**	**0.0083**	**0.0087**	**0.0109**
Std. error	*0.0020*	*0.0021*	*0.0021*	*0.0043*
Post Systemic and Borderline Crisis	0.0056	0.0065	0.0062	0.0056
Std. error	*0.0014*	*0.0016*	*0.0017*	*0.0021*
Official Liberalization Indicator	**0.0091**	**0.0076**	**0.0076**	**0.0097**
Std. error	*0.0020*	*0.0022*	*0.0021*	*0.0044*

I, II, III, and IV refer to samples of 95, 75, 50 and 28 countries detailed in data appendix. We report analysis from a regression which has the 5-year average growth rate of real per capita gross domestic product as the dependent variable. We include in the regressions, but do not report, the same control variables as presented in the main regression of Table 3. We report the coefficients for the official liberalization variable which takes a value of one when the equity market is liberalized, and zero otherwise. ; we reproduce the main liberalization effect in panel A. In panel B, we augment the control group to include: the openness of the trade sector measured by the sum of exports plus imports divided by GDP, the log of one plus the level of inflation, the log of one plus the level of the black market premium for foreign exchange and the size of the government deficit. In Panel C, we consider financial development variables: the ratio of private credit to GDP, which is a banking development indicator, and the value of trading scaled by market capitalization.

In Panel D, we also consider Law and Order (higher values denoting improvements, rescaled to fall between 0 and 1) taken from ICRG, and Insider Trading Law and Insider Trading Prosecution, which are indicators representing either the introduction of laws prohibiting insider trading or actual prosecutions, respectively. In Panel E, we include two indicators of banking crises: systemic and systemic and borderline. In the first case, we introduce a dummy variable that is set to one during a banking crisis contemporaneously with the left-hand side variable. In the second case, we add a variable that takes on a value of one after a banking crisis. 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

Why does the growth effect from liberalizations differ across countries?

Annual Average Real GDP growth (Five-year horizon)

A: Liberalization Intensity	Sample I	II	III	IV
Intensity Indicator A	0.0107	0.0087	0.0132	0.0130
Std. error	*0.0023*	*0.0025*	*0.0029*	*0.0048*
Intensity Indicator B	0.0115	0.0115	0.0174	0.0168
Std. error	*0.0027*	*0.0027*	*0.0028*	*0.0046*

B: Impact on growth resulting from liberalization	Fully Liberalized	from low level of variable	from high level of variable		Direct Effect of Interaction Variable		Number of countries	Time-series available
Financial development								
Private Credit	0.0084	0.0048	0.0105	***	0.0116	**	95	Yes
Turnover	0.0134	0.0017	0.0094	***	0.0152	***	50	Yes
Legal environment								
French vs. English law	0.0072	0.0068	0.0124	**			95	No
Other vs. English law	0.0072	0.0097	0.0124				95	No
Judicial efficiency	0.0105	0.0069	0.0099		0.0057		47	No
Speed of process (combined)	0.0065	0.0029	0.0084		-0.0002		69	No
Investment conditions/protection								
ICRGE	0.0049	0.0071	0.0075		0.0696	***	75	Yes
Investment profile	0.0060	0.0019	0.0085	***	0.0210	***	75	Yes
Anti-director rights	0.0117	0.0018	0.0089	**	0.0084	***	47	No
Creditor rights	0.0102	0.0035	0.0089		0.0190	***	45	No
Accounting standards	0.0094	0.0004	0.0110	***	0.0058		39	No

I, II, III, and IV refer to samples of 95, 75, 50 and 28 countries detailed in the data appendix. We report analysis from a regression which has the 5-year average growth rate of real per capita gross domestic product as the dependent variable. We include in the regressions, but do not report, the same control variables as presented in Table 2. In Panel A, Intensity Measure A is the ratio of IFC Investables to Global market capitalization. Intensity Measure B is the ratio of IFC Investables to Global number of companies.

In Panel B, for each interaction variable, we separately conduct regressions which have the 5-year average growth rate of real per capita gross domestic product as the dependent variable. We include in the regressions the same control variables as presented in Table 2. We also separate the liberalization effect for fullly liberalized and liberalizing countries. For liberalizing countries, we estimate interaction effects with the financial development, legal, and investment condition variables; we report the associated impact on GDP growth for a liberalizing country for a low level (below the median of the associated interaction variable for liberalizing countries) and for a liberalizing country at a high level (above the median of the associated interaction variable for liberalizing countries). We provide the significance of a Wald test, for which the null hypothesis is that the high-low effects are equivalent. We also report the statistical significance of the interaction coefficient; statistical significance is denoted by a * for 10%, ** for 5%, and *** for 1%.

The financial development variables we consider are the ratio of private credit to GDP and equity market turnover. The legal environment variables we consider are legal origin (English, French, or "other"), judicial efficiency, and the combined speed of the process to resolve a bounced check or tenant eviction (longer duration implies a lower speed). For all interaction indices, larger values denote improvements. The investment conditions variables we consider are a measure of economic risk, the investment profile, anti-director (minority shareholders) rights, creditor rights, and accounting standards. The number of countries for which the interaction variable is available is also provided. Finally, some of the variables are available as time-series, while others are only available in the cross-section; we denote this in the column laballed "time-series available". 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 A
Dating Equity Market Liberalization

Country	Official Liberalization Year	Year of First ADR Introduction	Year of First Country Fund Introduction
Argentina (ARG)	1989	1991	1991
Bangladesh (BGD)	1991	n/a	n/a
Botswana (BWA)	1990	n/a	n/a
Brazil (BRA)	1991	1992	1987
Chile (CHL)	1992	1990	1989
Colombia (COL)	1991	1992	1992
Cote d'Voire (CIV)	1995	n/a	n/a
Ecuador (ECU)	1994	1994*	n/a
Egypt (EGY)	1992	1996*	n/a
Ghana (GHA)	1993	1995*	n/a
Greece (GRC)	1987	1988	1988
Iceland (ISL)	1991	n/a	n/a
India (IND)	1992	1992	1986
Indonesia (IDN)	1989	1991	1989
Israel (ISR)	1993	1987*	1992
Jamaica (JAM)	1991	1993*	n/a
Japan (JPN)	1983	before 1980	n/a
Jordan (JOR)	1995	1997*	n/a
Kenya (KEN)	1995	n/a	n/a
Korea (KOR)	1992	1990	1984
Malaysia (MYS)	1988	1992	1987
Malta (MLT)	1992	1998*	n/a
Mauritius (MUS)	1994	n/a	n/a
Mexico (MEX)	1989	1989	1981
Morocco (MAR)	1988	1996*	n/a
New Zealand (NZL)	1987	1983*	n/a
Nigeria (NGA)	1995	1998*	n/a
Oman (OMN)	1999	n/a	n/a
Pakistan (PAK)	1991	1994*	1991
Peru (PER)	1992	1994*	n/a
Philippines (PHL)	1991	1991	1987
Portugal (PRT)	1986	1990	1987
Saudi Arabia (SAU)	1999	n/a	1997
South Africa (ZAF)	1996	1994*	1994
Spain (ESP)	1985	1988*	n/a
Sri Lanka (LKA)	1991	1994*	n/a
Taiwan (TWN)	1991	1991	1986
Thailand (THA)	1987	1991	1985
Trinidad & Tobago (TTO)	1997	n/a	n/a
Tunisia (TUN)	1995	1998*	n/a
Turkey (TUR)	1989	1990	1989
Venezuela (VEN)	1990	1991	n/a
Zimbabwe (ZWE)	1993	n/a	n/a

The official liberalization dates, date of first ADR issuance, and first country fund are based on Bekaert and Harvey (2000), augmented here to include 10 additional emerging markets, plus Iceland, Japan, Malta, New Zealand and Spain. For countries with a *, we obtain "effective dates" from the Bank of New York (http://www.adrbny.com). Note, the other ADR "announcement" dates are from Miller's (1999); however, he notes that the announcement usually only preceeds the issue by 40 days, on average. For South Africa, the first ADR introduction date is associated with the post-apartheid period; there were many ADRs in the early 1980's which we ignore. All other countries are considered fully liberalized (industrialized) or fully segmented (less developed) from 1980-1997. n/a represents not available; either ADR or country funds (or reliable dates) are not available. Taiwan (TWN) does not enter the samples employed in this paper.

Appendix B
Data Sample Inclusion

Country	Code	Samples	Country	Code	Samples	Country	Code	Samples
Algeria	DZA	I,II	Greece	GRC	I,II,III,IV	Nigeria	NGA	I,II,III
Argentina	ARG	I,II,III,IV	Guatemala	GTM	I,II	Norway	NOR	I,II,III,IV
Australia	AUS	I,II,III,IV	Guyana	GUY	I	Oman	OMN	I,II
Austria	AUT	I,II,III,IV	Haiti	HTI	I	Pakistan	PAK	I,II,III
Bangladesh	BGD	I,II,III	Honduras	HND	I,II	Paraguay	PRY	I,II
Belgium	BEL	I,II,III,IV	Iceland	ISL	I,II	Peru	PER	I,II
Barbados	BRB	I	India	IND	I,II,III,IV	Philippines	PHL	I,II,III
Benin	BEN	I	Indonesia	IDN	I,II,III	Portugal	PRT	I,II,III
Botswana	BWA	I	Iran	IRN	I,II	Rwanda	RWA	I
Brazil	BRA	I,II,III,IV	Ireland	IRL	I,II,III,IV	Saudi Arabia	SAU	I,II
Burkina Faso	BFA	I	Israel	ISR	I,II,III	Senegal	SEN	I,II
Cameroon	CMR	I,II	Italy	ITA	I,II,III,IV	Sierra Leone	SLE	I,II
Canada	CAN	I,II,III,IV	Jamaica	JAM	I,II,III	Singapore	SGP	I,II,III,IV
Central African Rep.	CAF	I	Japan	JPN	I,II,III,IV	South Africa	ZAF	I,II,III,IV
Chad	TCD	I	Jordan	JOR	I,II,III	Spain	ESP	I,II,III,IV
Chile	CHL	I,II,III,IV	Kenya	KEN	I,II,III	Sri Lanka	LKA	I,II,III
Colombia	COL	I,II,III	Korea, Rep.	KOR	I,II,III,IV	Swaziland	SWZ	I
Congo, Rep.	COG	I,II	Kuwait	KWT	I,II	Sweden	SWE	I,II,III,IV
Costa Rica	CRI	I,II	Lesotho	LSO	I	Switzerland	CHE	I,II,III,IV
Cote d'Ivoire	CIV	I,II,III	Madagascar	MDG	I	Syria	SYR	I,II
Denmark	DNK	I,II,III,IV	Malawi	MWI	I,II	Thailand	THA	I,II,III,IV
Dominican Rep.	DOM	I,II	Malaysia	MYS	I,II,III,IV	Togo	TGO	I
Ecuador	ECU	I,II	Mali	MLI	I	Trinidad & Tobago	TTO	I,II,III
Egypt, Arab Rep.	EGY	I,II,III	Malta	MLT	I	Tunisia	TUN	I,II,III
El Salvador	SLV	I,II	Mauritius	MUS	I,II	Turkey	TUR	I,II,III
Fiji	FJI	I	Mexico	MEX	I,II,III,IV	United Kingdom	GBR	I,II,III,IV
Finland	FIN	I,II,III	Morocco	MAR	I,II,III	United States	USA	I,II,III,IV
France	FRA	I,II,III,IV	Nepal	NPL	I	Uruguay	URY	I,II
Gabon	GAB	I,II	Netherlands	NLD	I,II,III,IV	Venezuela	VEN	I,II,III
Gambia	GMB	I	New Zealand	NZL	I,II,III	Zambia	ZMB	I,II
Germany	DEU	I,II,III,IV	Nicaragua	NIC	I,II	Zimbabwe	ZWE	I,II,III,IV
Ghana	GHA	I	Niger	NER	I			

This table reports the countries employed in this study. Sample I includes 95 countries, Sample II includes 75 countries, Sample III includes 50 countries, and Sample IV includes 28 countries.

Appendix C
Monte Carlo Analysis of the Liberalization Effect
Annual Average Real GDP Growth Rate (Five-Year Horizon)
1000 Replications

| | **Randomized Lib Indicator** | |
	Coefficient	T-stat
Mean	0.0000	0.0252
Median	0.0002	0.1637
2.50%	-0.0059	-3.2316
5.00%	-0.0052	-2.9489
95.00%	0.0048	2.9365
97.50%	0.0057	3.2546

This Table presents evidence from a Monte Carlo procedure (with 1000 replications) that mimics the GMM estimation presented in Table 2, for our largest sample of 95 countries. The dependent variable is the 5-year average growth rate of real per capita gross domestic product. The independent variables are the ones used in Table 2 but the liberalization variable is randomized using the procedure documented in the text. The weighting matrix we employ in our GMM estimation provides a correction for cross-sectional heteroskedasticity. We present the 2.5%, 5.0%, 50%, 95%, and 97.5% percentile for the estimated coefficients and t-statistics on the liberalization coefficient.

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