Risk Sharing and Asset Prices: Evidence From a Natural Experiment

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ABSTRACT

When countries liberalize their stock markets, firms that become eligible for foreign purchase (investible), experience an average stock price revaluation of 15.1 percent. Since the historical covariance of the average investible firm's stock return with the local market is roughly 200 times larger than its historical covariance with the world market, liberalization reduces the systematic risk associated with holding investible securities. Consistent with this fact: (1) the average effect of the reduction in systematic risk is 6.8 percentage points, or roughly two fifths of the total revaluation; and (2) the firm-specific revaluations are directly proportional to the firm-specific changes in systematic risk.

Asset pricing theory predicts that capital will be allocated in such a way that risk-adjusted returns are equalized across assets. Levels of expected stock returns should vary cross-sectionally according to the degree of firm exposure to systematic risk (Sharpe (1964)). Research from the last several years provides little empirical evidence to support this prediction. Systematic risk factors show little indication that they are priced cross-sectionally, and many firm characteristics that are priced cross-sectionally do not resemble systematic risk (Fama (1991), Cochrane (1999), Campbell (2000)).

This paper adopts a different approach to the question of whether risk matters for asset prices. Instead of testing the implication of the theory in levels, the paper focuses on changes in levels. It does so by examining a natural experiment—stock market liberalization. A stock market liberalization is a decision by a country's government to allow foreigners to purchase shares in that country's stock market. Liberalizing a country's stock market changes the relevant source of systematic risk for pricing stocks from the local stock market index to a world stock market index. Consequently, expected returns should also change when countries liberalize.

Theory predicts that the direction of the change in expected returns will be firm specific. Expected returns will fall for firms whose exposure to systematic risk decreases and rise for those whose exposure increases. The change in expected returns will be reflected in stock prices. For example, a fall in a firm's expected return will cause an increase in its stock price. Since stock prices are observable, liberalization delivers a testable, cross-sectional implication of the theory. Specifically, define the variable DIFCOV as follows: The historical covariance of a firm's stock return with the local market index, minus the historical covariance of the firm's stock return with the world market index. All else equal, high DIFCOV firms should experience greater repricing than low DIFCOV firms.

Now, when countries liberalize, some publicly listed firms become eligible for foreign ownership (investible firms), while others remain off limits (non-investible firms). The investible/non-investible distinction provides two additional testable implications. First, take two firms that are identical except that one is investible and the other is not. Theory predicts that the stock price revaluations of the investible firms should be more strongly correlated with DIFCOV than the revaluations of the non-investible firms. The sample average of DIFCOV for investible firms is 0.018. We estimate that such an investible firm will experience a firm-specific revaluation of 6.8 percent during liberalization. In contrast, there is no firm-specific revaluation for non-investible firms.

Second, in addition to the firm-specific change, liberalization will also induce a common shock to expected returns—a fall in the risk-free rate as the country moves from financial autarky to financial integration with the rest of the world. Since the fall in the risk-free rate is a common shock to all firms in the economy, it should be the same across investible and non-investible firms. Empirically, this means that the common shock experienced by investible firms should be statistically indistinguishable from the common shock experienced by the non-investible firms.

Our estimations confirm that the common shock is the same for both sets of firms. The intercept term in our regressions measures the common shock. The intercept ranges from 5.9 percent to 9.1 percent in alternative specifications. All of the regressions also include a dummy variable for investible firms. The investible dummy is statistically insignificant in all specifications, indicating that the common shock is indeed the same for the investible and non-investible firms, as predicted by the theory.

The use of firm-level data in this paper departs from studies that use aggregate data to document the stock market revaluations that occur when emerging economies liberalize (Henry (2000a, 2003), Bekaert and Harvey (2000), Kim and Singal (2000)). The evidence in these papers suggests that liberalizations substantially reduce the cost of capital. However, these papers are silent about whether any of this reduction stems from increased risk sharing. In principle, the observed revaluations could be driven entirely by changes in the risk-free rate.

The problem is that we observe only one aggregate stock price revaluation per country when liberalizations occur. Therefore, analyses of aggregate data do not provide sufficient degrees of freedom with which to disentangle the contribution of changes in the risk-free rate from changes in risk sharing. In contrast, firm-level data provide more than sufficient degrees of freedom with which to disentangle the two effects.

The liberalization experiment also delivers power to detect cross-sectional relations between expected returns and covariances that are hard to detect in general. Covariances are measured with error. Measurement error reduces the statistical power of any regression. One way of circumventing the measurement problem is to focus on a setting where the true variation is large relative to any noise in the data. Liberalizations provide just such a setting (Frankel, 1994). In principle, the impact on expected returns of opening an emerging economy to foreign capital flows is large (Lucas (1990) and Stulz (1999a)). Therefore, the magnitude of the liberalization-induced changes in expected returns may simply dominate the attenuating effects of measurement error that usually plague efforts to find cross-sectional pricing relations.

While firm-level data offer distinct advantages relative to aggregate data, there are several reasons why the results need to be interpreted with caution. The first concern is that the repricing of stocks during liberalization may not reflect risk sharing, but price pressure. In the

context of liberalization, price pressure would manifest itself in the following way. A country liberalizes. Foreigners are permitted to invest in a subset of that country's firms. These investible firms get included in an emerging market index, which increases demand and drives up their prices a la Shleifer (1986) and Harris and Guerel (1986).

The investible/non-investible feature of our data helps address this concern. If price pressure is operative, then investible firms should experience a common shock that is larger than that of the non-investible firms—a combination of the fall in the risk-free rate and price pressure. Since the common shock is the same for both groups of firms, index-inclusion-induced price pressure does not appear to drive our results. We also test alternative versions of the price pressure story, none of which seem to explain our findings.

The second concern is that the decision to liberalize may be endogenous—policy makers may choose to open up when the stock market is doing well. Endogeneity may bias estimates of the mean liberalization effect in aggregate studies, but with cross-country, firm-level data, the bias will be picked up by the country-specific fixed effects. However, if the bias also has a component that is correlated with the firm-specific covariance structure of returns, then the point estimates may overstate the fraction of the revaluation that is due to increased risk sharing. On the other hand, the results may understate the full impact of liberalization, because the revaluation is measured as the stock price change that occurs on the implementation date. The market may anticipate liberalizations, and prices may have adjusted prior to that date.

Third, stock price revaluations may be driven by changes in expected returns or future cash flows. Unexpected stock price changes are a reasonable proxy for changes in expected returns only if earnings growth is unaltered by liberalization. The analysis uses firm-level data on the actual growth rate of real earnings per share to control for changes in expected future cash

flows. Studies that focus on aggregate data use variables such as GDP growth rates to proxy for expected future cash flows. In comparison, firm-level data on actual earnings growth outcomes would seem to provide a more direct, albeit imperfect, measure of future earnings prospects.

Despite these limitations, the evidence is useful for evaluating whether stock prices respond to changes in risk sharing. It is important to understand whether stock prices respond to changes in risk sharing, because stock prices provide public signals of real investment opportunities (Fischer and Merton (1984), Tobin and Brainard (1977), Summers (1985)).[1] If liberalization decreases the riskiness of a firm, then, all else equal, its stock price should increase. The price increase signals to managers that they can increase shareholder welfare by investing in physical capital. On the other hand, if liberalizations are associated with stock price increases that are unrelated to changes in risk, then the optimal investment response is less clear (Blanchard, Rhee, and Summers (1993), Morck, Shleifer, and Vishny (1990)). Therefore, analyzing whether stock prices move in line with changes in systematic risk also provides a first step towards understanding whether physical investment is efficiently reallocated when countries reduce barriers to international capital movements.

I. Theoretical Motivation and Descriptive Findings

The analysis builds on Stulz (1999c).[2] Assume a small country whose equity market is completely segmented from world equity markets. Also assume that all investors in the world are risk averse and care only about the expected return and variance of their investment. Since domestic investors care only about the expected return and volatility of their portfolio, it follows that the capital asset pricing model (CAPM) will hold. For any individual stock in the segmented equity market we have:

$$E[\tilde{R}_i] = r_f + \beta_{iM}(E[\tilde{R}_M] - r_f) \quad (1)$$

where $E[\tilde{R}_i]$ is the required rate of return on firm $i's$ stock, r_f is the risk-free rate in the domestic market, β_{iM} is the beta coefficient of firm i with the domestic market portfolio before liberalization, and $E[\tilde{R}_M]$ is the expected return on the domestic market.

The aggregate risk premium on the small country's equity market before stock market liberalization, $(E[\tilde{R}_M] - r_f)$, can be written as $E[\tilde{R}_M] - r_f = \gamma(W)\sigma_M^2$, where $\gamma(W)$ is the coefficient of relative risk aversion and σ_M^2 is the variance of the return on the small country's market portfolio. Assume that all investors have constant relative risk aversion, so that $\gamma(W) = \gamma$. It follows that the risk premium for firm i before liberalization is $\beta_{iM}\gamma\sigma_M^2$. Therefore, we may write:

$$E[\tilde{R}_i] = r_f + \beta_{iM}\gamma\sigma_M^2. \quad (2)$$

A. Complete Liberalization

Now consider the impact on firm $i's$ required rate of return when the country opens its stock market to the rest of the world and also allows its residents to invest abroad. Assume also that the expected value and variance of the profits from domestic production activities are unaltered by the liberalization.

After liberalization, the small country's equity market becomes part of the global equity market and expands the diversification opportunities for foreign investors. Since foreign investors can invest in the country's stock market and domestic investors can invest abroad, the risks associated with domestic production are now borne by both foreign and domestic investors. Note that adding a small country to the world portfolio has a negligible effect on the risk premium of the world market portfolio.

With completely open capital markets, the relevant source of systematic risk becomes the world market. Therefore, the CAPM holds for the world market and the risk premium on any risky asset is proportional to its world beta. Let $E[\tilde{R}_i^*]$ be the required rate of return on firm i in the integrated capital market equilibrium. It follows that

$$E[\tilde{R}_i^*] = r_f^* + \beta_{iW}(E[\tilde{R}_W] - r_f^*) \tag{3}$$

where β_{iW} denotes firm i's beta with the world market, $E[\tilde{R}_W]$ denotes the required rate of return on the world equity market portfolio, and r_f^* the world risk-free rate. Under our assumptions, the aggregate risk premium on the world market portfolio is $\gamma\sigma_W^2$, where σ_W^2 is the variance of the return on the world portfolio. Therefore, the required rate of return on firm i after liberalization is

$$E[\tilde{R}_i^*] = r_f^* + \beta_{iW}\gamma\sigma_W^2 . \tag{4}$$

The link between the liberalization-induced change in the required rate of return on firm i and its diversification properties can now be made transparent. Subtracting equation (4) from equation (2) and performing a step of algebra using the definitions of local and world betas yields the following result:

$$\Delta E[\tilde{R}_i] = E[\tilde{R}_i] - E[\tilde{R}_i^*] = (r_f - r_f^*) + \gamma DIFCOV \tag{5}$$

where $\Delta E[\tilde{R}_i]$ is the change in the required rate of return on impact and $DIFCOV = [Cov(\tilde{R}_i, \tilde{R}_M) - Cov(\tilde{R}_i, \tilde{R}_W)]$. Equation (5) highlights the two channels through which liberalization affects firm-level required rates of return. The first effect, a change in the risk-free rate, is common to all firms.[3] The second effect of liberalization is idiosyncratic to firm i and depends on the covariance of firm i's stock return with the local market minus the covariance of firm i's stock return with the world market.

B. Partial Liberalization

In practice, we do not always see complete liberalizations. So it is useful to examine the theoretical predictions that emerge due to two commonly observed departures from complete liberalization.

B.1. Departure I: Mild Segmentation

The first departure is mild segmentation. Mild segmentation occurs when governments introduce one restriction to the benchmark case of complete liberalization: While domestic investors are permitted to invest in the world market portfolio, foreign investors can hold only a subset of domestic securities.

When a country moves from autarky to mild segmentation, the representative foreign investor becomes the marginal investor that determines the pricing of investible securities. Since the world market portfolio is the relevant source of systematic risk for the foreign investors, the pricing of investible securities under mild segmentation will be identical to that under complete integration. It follows that the revaluation of investible securities under mild segmentation will continue to be given by: $\Delta E[\tilde{R}_i] = E[\tilde{R}_i] - E[\tilde{R}_i^*] = (r_f - r_f^*) + \gamma DIFCOV$.

What determines the revaluation of the non-investible securities? Errunza and Losq (1985) consider this question in an environment where unrestricted domestic investors have a coefficient of risk aversion γ_U and restricted foreign investors have a coefficient of risk aversion γ. So long as the unrestricted domestic investors share the same coefficient of risk aversion as the restricted foreign investors, DIFCOV will continue to explain the repricing of non-investible securities. In other words, when $\gamma = \gamma_U$, the repricing of non-investible securities under mild segmentation is given by: $\Delta E[\tilde{R}_i] = E[\tilde{R}_i] - E[\tilde{R}_i^*] = (r_f - r_f^*) + \gamma DIFCOV$.

In the case where the coefficient of risk aversion differs across domestic and foreign investors, the revaluation of the non-investible securities is given by:

$$\Delta E[\tilde{R}_i] = E[\tilde{R}_i] - E[\tilde{R}_i^*] = (r_f - r_f^*) + \gamma(W)DIFCOV + [\gamma(W) - \gamma_U(W)]Cov(\tilde{R}_i, \tilde{R}_N \,|\, \tilde{R}_I) \quad (6)$$

where $\tilde{R}_N$ and $\tilde{R}_I$ are the returns on the portfolio of non-investible and investible securities, respectively. The variable $Cov(\tilde{R}_i, \tilde{R}_N \,|\, \tilde{R}_I)$ is the covariance of firm i's return with the return on the portfolio of non-investible stocks, taking the return on the investible securities as given.

The last term on the right-hand-side of (6) is a "super risk premium," which arises because of differing domestic and foreign risk aversion. Intuitively, the super risk premium compensates domestic investors for bearing the risk associated with holding all of the non-investible stocks. Since this paper seeks to explain repricing without resorting to heterogeneity in risk aversion, we do not pursue the empirical implications of the super risk premium. Instead, we now turn to the theoretical implications of the second departure from the benchmark case of complete liberalization.

B.2. Departure II: Strong Segmentation

Strong segmentation occurs when, in addition to mild segmentation, domestic investors are not allowed to invest in the world market portfolio. In the move from autarky to strong segmentation, the revaluation of investible securities continues to be given by equation (5). The reason is the same as under the move from autarky to mild segmentation. Following liberalization, the marginal investor is the foreigner whose relevant source of systematic risk is the world market portfolio.

What drives the change in the required rate of return for the non-investible securities? Here we get a different repricing relation than under mild segmentation, even when unrestricted

domestic investors have the same coefficient of risk aversion as the restricted foreign investors.

By the definition of strong segmentation, domestic investors hold only domestic securities following the liberalization. Hietala (1989) shows that under strong segmentation the required rate of return on any security held by a domestic investor in equilibrium is $E[\tilde{R}_i^*] = r_f^* + \gamma Cov(\tilde{R}_i, \tilde{R}_D)$, where $\tilde{R}_D$ is the return on the post-liberalization portfolio of securities held by the representative domestic investor.

It follows that the revaluation of any one of the securities in the domestic investor's portfolio will be given by:

$$\Delta E[\tilde{R}_i] = E[\tilde{R}_i] - E[\tilde{R}_i^*] = (r_f - r_f^*) + \gamma DIFCOV1 \qquad (8)$$

where $DIFCOV1 = [Cov(\tilde{R}_i, \tilde{R}_M) - Cov(\tilde{R}_i, \tilde{R}_D)]$. The domestic investor's portfolio will be heavily tilted towards non-investible securities after liberalization (Hietala (1989)). If the set of securities in the domestic investor's portfolio is the same as the set of non-investible securities post liberalization, then equation (8) also yields the repricing relation for the non-investible securities.

In other words, the repricing of the non-investible securities should be positively correlated with DIFCOV1, all else being equal. This result has the following intuition. Since the domestic investor cannot hold any foreign stocks, the post-liberalization portfolio of domestic securities constitutes the only relevant source of systematic risk. Therefore, the lower the covariance of a given stock with the post-liberalization domestic portfolio, the more its required rate of return will tend to fall with the liberalization.[4]

C. Mapping Theory to Data: Descriptive Findings

Table I presents a decomposition of DIFCOV for the typical firm in the sample. The table makes two central points. First, Panel A shows that investible firms present the representative foreign investor with considerable scope for diversification. Columns 4 and 5 show that the covariance of the average investible firm's stock return with the local market is roughly 185 times larger than its covariance with the world market. In contrast, the magnitudes for the non-investible firms in Panel B are less striking. Columns 4 and 5 of Panel B show that the covariance of the average non-investible firm's stock return with the local market is only 10 times larger than its covariance with the world market.

[Insert Table I about here]

Second, Columns 6 through 10 in both panels demonstrate the second point. There are two key factors that drive the difference between local and world covariances: (1) The average firm's correlation with the local market is roughly 10 times larger than its correlation with the world market—0.620 versus 0.060 for investible and 0.425 versus 0.048 for non-investible firms; (2) The average standard deviation of the local market, 0.142, is roughly three times as large as the standard deviation of the world market, 0.047, for both sets of firms.

Under the assumption that firms' expected future cash flows are unaffected by liberalization, the unexpected response of firm $i's$ stock price to news of the liberalization will mirror the change in the required rate of return on firm $i's$ stock. The stock price will increase if liberalization lowers the required rate of return, and conversely, the stock price will decrease if liberalization raises the required rate of return.

Accordingly, the unexpected stock price response to liberalization can be used to confront the theory with data. Equation (5) predicts that the revaluation will have an intercept effect and a slope effect. The intercept term should be the same across investible and non-

investible firms within a given country. Equation (5) also predicts that the revaluation should be an increasing function of DIFCOV.[5]

Figure 1 reveals that the stock price revaluation for investible firms is an increasing function of DIFCOV, as theory predicts. It plots the unexpected stock price change for investible firms on the y-axis and DIFCOV on the x-axis. The statistical relationship between the revaluation of investible firms and DIFCOV is given by the following equation (robust t-statistics in parentheses, R-Squared 0.27, N 248):

$$\Delta \ln(StockPrice_{ij}^{Investible}[0]) = -0.05 + 9.20 * DIFCOV_{ij} \qquad (9)$$
$$(-1.3) \quad (4.0)$$

where $\Delta \ln(StockPrice_{ij}^{Investible}[0])$ is the liberalization-month stock price change for investible firm i in country j.

[Insert Figure 1 about here]

Figure 2 presents the scatter plot for non-investible firms. The statistical relationship between the revaluation of non-investible firms and DIFCOV is given by the following equation (robust t-statistics in parentheses, R-Squared 0.06, N 181):

$$\Delta \ln(StockPrice_{ij}^{Non-Investible}[0]) = 0.053 + 3.69 * DIFCOV_{ij} \qquad (10)$$
$$(3.2) \quad (2.3)$$

where $\Delta \ln(StockPrice_{ij}^{Investible}[0])$ is the liberalization-month stock price change for non-investible firm i in country j. Like Figure 1, this graph also reveals a positive statistical relation between the revaluation of non-investible firms and DIFCOV.

[Insert Figure 2 about here]

However, there are also some distinct differences between Figure 1 and Figure 2. First, the positive relation between the revaluation and DIFCOV is more pronounced for investible

firms (Figure 1) than non-investible firms (Figure 2). The slope of the line in equation (5) is 9.20, whereas the slope of the line in equation (6) is 3.69. Second, the difference in covariance explains almost 30 percent of the cross-sectional variation in investible firms' stock price revaluations, but only six percent for non-investible firms. Thus, a first pass at the data indicates that DIFCOV has more predictive power for the revaluation of investible firms than non-investible firms.

Figure 3 examines whether the repricing of non-investible firms is related to the difference between their covariance with the local market portfolio and their covariances with the entire portfolio of non-investible securities. The graph plots the unexpected stock price change for non-investible firms on the y-axis and *DIFCOV*1 on the x-axis. The statistical relation between the revaluation of non-investible firms and *DIFCOV*1 is given by the following equation (robust t-statistics in parentheses, R-Squared 0.01, N 181):

$$\Delta \ln(StockPrice_{ij}^{Non-Investible}[0]) = \underset{(3.6)}{0.07} + \underset{(1.5)}{1.44} * DIFCOV1_{ij} . \qquad (11)$$

It appears that *DIFCOV1* has no explanatory power for the repricing of non-investible securities.

[Insert Figure 3 about here]

This initial perusal of the data suggests that there are differences between investible and non-investible firms, but only so much can be inferred from pictures. For example, the unexpected stock price change is a reasonable proxy for the change in required return if earnings growth is unchanged by liberalization. If this assumption is not reasonable, then it may be important to control for changes in the expected growth rate of earnings.

Additionally, there is a more general concern. The goal is to estimate the impact of liberalization on a randomly selected firm from the population of all firms. If the investible firms are not randomly selected, then they may have unobservable characteristics that cause them

to respond differently to liberalization than non-investible firms. These issues can be explored more transparently once the data have been described in more detail. This data description takes place in the next section of the paper.

II. Data

The analysis requires three types of data: (1) stock returns for the liberalizing countries in question; (2) stock market liberalization dates; and (3) a means of discriminating between those firms that become eligible for foreign ownership when the market is liberalized and those that do not. Section II.A describes the basic stock returns data. Section II.B gives the stock market liberalization dates. Section II.C explains the procedure for discriminating between investible and non-investible firms. Section II.D presents descriptive statistics for the two sets of firms. Section II.E discusses the potential importance of selection bias issues in examining investible versus non-investible firms.

A. The Basic Stock Returns Series

The principal source of stock market data is the International Finance Corporation's (IFC) Emerging Markets Data Base (EMDB).[6] Stock price indices for individual firms are the dividend-inclusive, U.S. dollar-denominated, IFC Global Index (IFCG). The IFC selects stocks for inclusion in the IFCG index by reviewing a stock's trading activity. Any share selected must be among the most actively traded shares in terms of value traded during the annual review period; it must have traded frequently during the review period (i.e., preventing one large block trade from skewing the value traded statistics); and it must have reasonable prospects for a continued trading presence in the stock exchange (e.g., it must not be in imminent danger of

being suspended or delisted). Stocks are selected in order of trading criteria until the market capitalization coverage target of 60 to 75 percent of total market capitalization is met. Once the actively traded and market capitalization requirements are met, IFC analysts may suggest substituting one company's shares for another on the list if the suggested shares have reasonably similar trading characteristics, but represent an industry group which may be underrepresented in the current composition of the IFCG index (IFC (1999)).

In order to be included in the sample, a firm must have been actively traded for at least five years prior to the liberalization date. This ensures that there are at least five years worth of data with which to calculate historical covariances. Each country's U.S. dollar-denominated total return index is deflated by the U.S. consumer price index (CPI), which comes from the IFS. All of the data are monthly. Returns are calculated as the first difference of the natural logarithm of the real stock total return index.

Calculation of the covariance of firm-level stock returns with the local and world markets requires data on market returns as well as firm-level returns. For each country, the real, dollar-denominated IFCG Total Return Index is used as the benchmark local market index. The world benchmark market index is the real, dollar-denominated MSCI World Total Return Index.

B. Identifying Stock Market Liberalization Dates

A stock market liberalization is a decision by a country's government to open its stock market to foreign investors. When a stock market liberalization occurs, some of the firms in the domestic economy become eligible for purchase by foreigners, while others remain off-limits. Establishing the liberalization date is the first step in the process of distinguishing between these two types of firms. These dates are listed in Table II. The entire sample consists of 410 firms in

11 countries. The 11 countries are: Argentina, Brazil, Chile, Colombia, India, Korea, Mexico, Pakistan, Taiwan, Turkey, and Venezuela.

[Insert Table II about here]

C. Discriminating Between Investible and Non-Investible Firms

Investible firms are defined to be that subset of firms in the IFCG that are also in the IFC Investible Index (IFCI). The IFCI's determination of investibility is a three-step process. First, the IFC determines which securities foreigners may legally hold. Next, the IFC applies two further screening criteria for practicality of investment. Both screens must be passed for IFCI index eligibility. The first criterion screens for a minimum investible market capitalization of $50 million or more over the 12 months prior to a stock's addition to an IFCI index. This investible market capitalization is determined after applying the foreign investment rules and after any adjustments because of cross-holdings or government ownership.

The second criterion screens firms for liquidity. A stock must trade at least $20 million over the prior year for inclusion in an IFCI index. It must also have traded on at least half the local exchange's trading days. Thus, the IFC Investible indexes are designed to measure the returns that foreign portfolio investors might receive from investing in emerging market securities that are legally and practically available to them.

The IFCI was initiated in December of 1988. This fact implies that for stock market liberalizations that occurred prior to December of 1988, it is not possible to discriminate between those firms that became investible and those that did not. The countries and dates in Table II reflect this constraint. Specifically, Table II lists the earliest stock liberalization date occurring after December of 1988 for every country that implemented at least one countrywide stock market liberalization after this date.

D. Descriptive Statistics on Investible and Non-Investible Firms

The average size of *DIFCOV* is 0.018 for investible firms and 0.0096 for non-investible firms. This feature of the data suggests that investible firms should experience larger revaluations than non-investible firms, given the common shock. Table III explores whether the raw differences in the stock price revaluations of investible and non-investible firms are roughly consistent with this prediction. The table shows that the average stock price revaluation is 15.1 percent in real dollar terms for investible firms and 9.9 percent for non-investible firms. The last column of the table reports that the 5.2 percentage-point difference between these two means is statistically significant. There are two possible concerns with these numbers.

[Insert Table III about here]

First, they are reported in dollar terms. This choice of unit may lead to an overstatement of the revaluations if liberalizations are accompanied by large appreciations of the domestic currency vis-à-vis the dollar. In order to see if the dollar-denominated revaluations are driven by domestic currency gains, the behavior of exchange rates in the sample countries was examined. On average, countries actually experience a 1.2 percent depreciation of their exchange rates during the liberalization month. The average depreciation during the month after liberalization is 1.5 percent. This suggests that the dollar-denominated numbers may actually understate the true size of the revaluation in local currency terms. Second, the numbers may understate the true revaluations if the liberalization events are anticipated.[7] Analysis of returns during the months preceding the liberalization revealed no evidence of significant stock price appreciation in anticipation of the liberalizations.

Turning to comparisons of medians, the median revaluation for investible firms is 12.1 percent. Forty-three of the 248 investible firms in the sample had liberalization-month stock

price changes below their median monthly stock price change. The p-value is 0.00 for observing at most this many investible firms with liberalization-month stock price responses below their median monthly stock price change for non-liberalization months.[8] The median revaluation for non-investible firms is 8.6 percent. Eighty-three of the 181 non-investible firms experienced liberalization-month stock price changes below their median monthly stock price change. The p-value is 0.15 for observing at most this many stock price responses below the median. Hence, sign tests confirm that the stock price revaluations for investible firms are more uniformly positive than for non-investible firms.

E. Is There a Sample Selection Problem?

Those firms that become investible may not represent a random sampling from the distribution of all firms in the IFCG, which are themselves not randomly selected. To explore whether selection bias may prejudice the results, this section systematically examines the structural differences between investible and non-investible firms.

Table IV provides a comparison of *ex ante* observable differences in investible and non-investible firms, as a second step in exploring the extent to which selection bias may prejudice inferences about the differential impact of liberalization on the two sets of firms. Summary statistics on six variables are provided for investible and non-investible firms in the pre-liberalization period: SIZE, market capitalization as a fraction of total market capitalization; LIQUIDITY, the turnover rate; EARNINGS, the growth rate of real earnings per share; MARKET TO BOOK, the ratio of the market value of equity to the book value of equity; RETURN, the average real return in dollars; and DIFCOV, the difference in covariance between

the local and world markets. There is no significant difference between the size of investible and non-investible firms. Investible firms are significantly more liquid than non-investible firms.

[Insert Table IV about here]

The average growth rate of real earnings per share for investible firms is significantly higher than that of non-investible firms. Investible firms also have significantly higher market-to-book ratios than non-investible firms. This may indicate that investible firms have higher expected future profitability than non-investible firms. If higher market-to-book ratios and historical growth rates of real earnings per share rationally forecast that investible firms have higher expected profitability than non-investible firms, then we should see differences in *ex post* earnings growth outcomes, on average.

Hence, Table V reports a comparison of the actual growth rate of real earnings per share for investible and non-investible firms in each of the three years following liberalization ([+1], [+2], [+3]), as a further means of exploring selection bias. In the second and third years after liberalization, there are no significant differences. In the year after liberalization, the growth rate of earnings per share for non-investible firms is significantly lower than for investible firms. Although there are no dramatic differences in *ex post* profitability of investible and non-investible firms, overall the data do suggest that there are some differences between these two types of firms. The empirical analysis in Section IV controls directly for the influence of earnings on the revaluations, so some of these differences will be accounted for. However, it is possible that these differences could be correlated with characteristics that influence the way in which investible and non-investible stock prices respond to liberalization.

[Insert Table V about here]

Another possible concern is the process by which firms become legally investible. If decisions concerning the permissibility of foreign ownership are made at the country level (by government officials), then stock market liberalization may be an exogenous event from the perspective of any given firm. On the other hand, if legal investibility is determined on a firm-by-firm basis, then sample selection may be an issue. For example, if a firm must lobby the government to allow foreign institutions to buy its shares, then those firms that are most attractive to foreigners will be most likely to engage in the lobbying process. This discussion suggests that those firms that are "investible" may not represent a random sampling from the distribution of all firms in the IFCG.

The extent to which liberalization may be regarded as exogenous was investigated. The variation in the "degree open factor" across firms for each country was examined. For 10 of the 11 countries in the sample, the degree open factor was identical across all firms at the time of the stock market liberalization.[9] The uniformity of the degree of openness across firms within a given country suggests that either the liberalization decision is exogenous to any given firm, or all firms within a given country uniformly prefer the same degree of permissible foreign ownership. However, the government's decision about which firms to make investible may be a function of firm-specific characteristics that determine the likely impact of liberalization on that firm, even if the liberalization decision is exogenous from the firm's perspective.

III. Methodology and Empirical Results

This section of the paper addresses the following question: Do diversification fundamentals help predict the unexpected stock price change in response to the news of stock market liberalization? The benchmark regression specification is as follows:

$$\Delta \ln(StockPrice_{ij}[0]) = \alpha + \beta_1 INVEST_{ij} + \gamma_1 DIFCOV_{ij} + \gamma_2 (DIFCOV * INVEST)_{ij} + COUNTRY_j + \varepsilon_{ij}. \quad (12)$$

The left-hand-side variable is the Month "0" unexpected stock price change. Month 0 is defined as the implementation month of a given liberalization. The IFC records the value of a country's stock market index at the end of the month, and the data on liberalization events do not provide the day of the month on which programs are implemented. These two facts imply that the implementation of a given liberalization may occur after the day of the month on which the IFC recorded prices. In such cases, the change in the stock market index in month [0] may not reflect the news of the liberalization event. Accordingly, the analysis looks at the cumulative unexpected change in the real dollar value of the stock market index in months [0, +1] as well as the change in month [0]. The unexpected stock price change for a given firm, i, is computed as the real dollar return for firm i in the liberalization month minus firm i's average, pre-liberalization, monthly return.

The symbol DIFCOV is an abbreviation for $[Cov(R_i, R_M) - Cov(R_i, R_W)]$, the difference between the historical covariance of firm i's stock return with the local market and its covariance with the MSCI world stock market index. The variable INVEST is a dummy variable that takes on a value of one for investible firms, and zero for non-investible firms. The coefficient on DIFCOV gives the effect of risk sharing conditional on being non-investible. The coefficient on DIFCOV*INVEST gives the marginal effect of risk sharing conditional on being investible. The sum of the coefficients on DIFCOV and DIFCOV*INVEST gives the total effect of risk sharing conditional on being investible. COUNTRY is a set of country-specific dummies to account for country-fixed effects.

The regression specification in equation (12) facilitates examination of the revaluation

effect for a pooled group of 410 investible and non-investible firms. The joint estimation procedure allows testing of the view that risk sharing drives the stock price revaluations that accompany stock market liberalizations for both investible and non-investible firms. The constant intercept term, α, imposes the assumption that the change in the risk-free rate is the same across all countries, after controlling for country-fixed effects. If the theory is correct, α should be the same for investible and non-investible firms. The coefficient on the dummy variable INVEST measures the marginal effect on α of being investible. If the theory is correct, the coefficient on INVEST should not be significantly different from zero.

In principle, estimating equation (12) without country-fixed effects would yield an estimate of the average change in the risk-free rate across all 11 countries. In practice, an estimate of α without fixed effects could pick up other level effects related to country-specific differences that are not addressed by the theory. Without a clear framework for interpreting such differences, it seems preferable not to try to interpret the country-fixed effects as country-specific changes in the risk-free rate. Rather, the empirical analysis simply asks whether the common shock is the same across all firms after controlling for country-fixed effects.

The usual assumption that the error term is random and uncorrelated across firms requires further discussion. Equation (12) is estimated using a panel regression with country-fixed effects. When aggregating abnormal returns, typical event studies assume that abnormal returns are not correlated across firms. Assuming no correlation across firms means that the covariance between individual firm abnormal returns is zero. Therefore, standard distributional results may be used to calculate the variance of aggregated abnormal returns. The assumption is reasonable if the event dates for individual firms do not overlap in calendar time.

However, in the case of a liberalization event, all firms in a country share an identical event date. Therefore, the covariances between individual firm abnormal returns may not be zero, in which case the standard distributional results no longer obtain. We address this problem of clustering in the standard fashion—by relaxing the assumption that abnormal returns are not correlated across firms. Specifically, we allow the off-diagonal (covariance) elements in the variance-covariance matrix to be different from zero. In short, the clustering procedure produces standard errors that are appropriately adjusted to reflect the cross-firm correlation of abnormal returns. The estimation procedure also corrects for potential heteroskedasticity across firms.

A. Benchmark Regression Results

Table VI shows the results. Panel A presents the estimates for the month [0] windows. Column (1a) shows the results for the benchmark specification given by equation (12). The estimate of the constant captures the common shock for both the investible and the non-investible firms. The magnitude of this coefficient is 0.059 and is significant at the one-percent confidence level. The INVEST dummy is statistically insignificant. This suggests that the common shock is in fact the same for both sets of firms, as theory would predict.

[Insert Table VI about here]

The coefficient on DIFCOV gives the effect of risk sharing conditional on being non-investible. The estimate is 0.331 and is statistically insignificant. Risk sharing does not explain the repricing for the non-investible firms. On the other hand, conditional on being investible, the marginal effect of risk sharing conditional is an important determinant of repricing. The estimate of the coefficients on DIFCOV*INVEST is 2.41 and significant at the one-percent level. The sum of the coefficients on DIFCOV and DIFCOV*INVEST gives the total effect of risk sharing

on the repricing of investible firms, 2.74. This means that if DIFCOV equals 0.01, then an investible firm can expect a stock price revaluation of 0.0274 or 2.74 percent in the month that the liberalization takes place.

Panel B presents the estimates for the month [0, +1] window. Column (1b) presents the estimates from the benchmark specification. Consistent with the results in Panel A, risk sharing is not a significant predictor of repricing for the non-investible firms. The estimate of DIFCOV is –0.4 statistically insignificant. In contrast, the conditional effect for the investible firms is significant. The point estimate of DIFCOV*INVEST is 4.42 and significant at the one-percent level. The total effect of risk sharing for the investible firms, the sum of DIFCOV and DIFCOV*INVEST, is 4.02. Therefore, if DIFCOV equals 0.01, an investible firm can expect a total stock price revaluation of 4.02 percent over the two-month window.

It is important to reiterate that the marginal effect of DIFCOV conditional on being an investible firm is captured by the coefficient on DIFCOV*INVEST. Therefore, the point estimates in the benchmark specifications (1a and 1b) also indicate that the marginal effect of DIFCOV for investible firms is significantly different from that of the non-investible firms. Overall, the benchmark estimates suggest that the stock price revaluation of investible firms is positively and significantly related to risk sharing. There is no significant statistical relation between the stock price revaluation of non-investible firms and diversification fundamentals.

B. Controlling for Earnings Growth

Stock price revaluations may be driven by changes in earnings or discount rates. If liberalization coincides with good news about earnings, then firms may experience stock price revaluations that are unrelated to liberalization-induced changes in the discount rate.

Specifications (2a) and (2b) of Table VI explore whether the differences in the effect of risk sharing on the stock price revaluation of investible and non-investible firms reported in specifications (1a) and (1b) are driven by shocks to the growth rate of earnings. The deviation of the growth rate of earnings from its pre-liberalization mean in year [+1] is added to the right-hand-side of equation (12) as a proxy for changes in expected future profitability.[10]

After controlling for earnings in Panel A, the sum of the coefficients on DIFCOV and DIFCOV*INVEST is 2.67, and statistically significant at the five-percent level. After controlling for earnings in Panel B, the sum of the coefficients on DIFCOV and DIFCOV*INVEST is 3.54, and significant at the five-percent level. Therefore, risk sharing continues to explain the repricing of investible firms even after controlling for earnings growth. The point estimate on DIFCOV, the risk-sharing effect for non-investible firms, remains statistically insignificant in both Panel A and Panel B.

C. Can Price Pressure Explain the Results?

Another potential concern is that the repricing of stocks during liberalization may not reflect risk sharing, but price pressure. In the context of our liberalization experiment, price pressure would manifest itself in the following way. A country liberalizes. Foreigners are permitted to invest in a subset of that country's firms. These investible firms gets included in an emerging market index, which increases demand and drives up their prices a la Shleifer (1986) and Harris and Guerel (1986).

The investible/non-investible feature of our data helps to address the price pressure concern in two ways. First, if index-inclusion-induced price pressure is operative, then investible firms should experience a common shock that is larger than that of the non-investible firms—a

combination of the fall in the risk-free rate and price pressure. Since the common shock is the same for both groups of firms, index-inclusion-induced price pressure does not drive our results.

It is also important to remember that price pressure is a concern only to the extent that it is positively correlated with DIFCOV. While it is plausible that price pressure—caused by the aggregate inflow of capital—exists at the country level, the use of firm level data helps to allay this concern. The theoretical rationale for price pressure at the firm level is unclear. While it is not obvious why price pressure should be positively correlated with DIFCOV, the investible/non-investible feature of the data allows us to devise a second test of the price pressure hypothesis that directly addresses the issue.

Specifically, we conduct the second test of the price pressure hypothesis within the class of investible firms. Regulatory guidelines within asset management companies often restrict portfolio managers to holding stocks that are included in investible indices such as IFCI. In order to be included in the IFCI, firms must pass minimum size and liquidity screens, in addition to being legally investible. Since large and liquid firms are more likely to be candidates for index inclusion than small illiquid ones, large and liquid firms may experience more price pressure. Therefore, to the extent that DIFCOV is positively correlated with size or liquidity, our results may overstate the effects of diversification.

In order to account for the potential impact that size and liquidity may have on the results, this subsection adds size and turnover measures to the right-hand-side of equation (12). The following regression examines the effect of risk sharing on revaluation after controlling for size:

$$\begin{aligned}\Delta \ln(StockPrice_{ij}[0]) &= \alpha + \beta_1 Invest_{ij} + \gamma_1 DIFCOV_{ij} + \gamma_2 (DIFCOV * INVEST)_{ij} \\ &+ \gamma_3 Earn_{ij} + \gamma_4 (SIZE * INVEST)_{ij} + \gamma_5 (SIZE * NONINVEST)_{ij} + COUNTRY_j + \varepsilon_{ij}.\end{aligned} \tag{13}$$

For a given firm, SIZE is defined as the ratio of that firm's market capitalization to the total domestic market capitalization as of one year prior to the liberalization date.

Regression (3a) in Panel A of Table VI shows that risk sharing remains an important determinant of the repricing of investible firms, after controlling for size. The coefficient on DIFCOV*INVEST is 2.38, and significant at the five-percent level. The sum of the coefficients on DIFCOV and DIFCOV*INVEST is 2.61. Similarly, in Panel B, the coefficient on DIFCOV*INVEST is 3.71, and significant at the five-percent level. The coefficients on DIFCOV and DIFCOV*INVEST is 3.45. In both Panels A and B, risk sharing has no explanatory power for the repricing of the non-investible firms. The coefficient on DIFCOV remains statistically insignificant. The coefficient on the SIZE variable is not significant in any of the specifications.

The following regression explores whether the positive relation between the unexpected stock price change and risk sharing persists after controlling for liquidity, as measured by turnover:

$$\Delta \ln(StockPrice_{ij}[0]) = \alpha + \beta_1 Invest_{ij} + \gamma_1 DIFCOV_{ij} + \gamma_2 (DIFCOV * INVEST)_{ij} + \gamma_3 Earn_{ij} + \gamma_4 (TURNOVER * INVEST)_{ij} + \gamma_5 (TURNOVER * NONINVEST)_{ij} + COUNTRY_{ij} + \varepsilon_{ij}. \quad (14)$$

For a given firm, the variable TURNOVER is defined as the sum of the dollar value of all shares traded over a 12-month period before the liberalization (*t* -24 to *t* -12) divided by that firm's total market capitalization. The total market capitalization number for the firm is taken at *t*-12.

Regression (4a) in Panel A of Table VI shows that after controlling for the effect of liquidity on the stock price revaluation for investible firms, the sum of the coefficients on DIFCOV and DIFCOV*INVEST is 2.95, and significant at the five-percent level. Regression (4b) in Panel B of Table VI shows that the sum of the coefficients on DIFCOV and

DIFCOV*INVEST is 3.69, and significant at the one-percent level. In both Panels A and B, the conditional effect of DIFCOV for non-investible firms remains statistically insignificant. The coefficient on DIFCOV*INVEST indicates that the marginal effect of DIFCOV for investible firms continues to be significantly larger than that of the non-investible firms. The variable TURNOVER is statistically insignificant for the investible firms and enters negatively and significantly for the non-investible firms. Specifications (5a) and (5b) indicate that risk sharing remains a significant explanatory variable for the repricing of investible firms, when simultaneously controlling for earning, size, and liquidity.

D. Alternative Measures of Abnormal Returns

The specifications in Table VI control for country-fixed effects and firm-specific shocks such as earnings, size and liquidity. However, there may be common world shocks, for which we have not yet accounted. For example, suppose that liberalizations occur when times are good for international products, so that during liberalization periods, firms that produce international products experience abnormally high returns. Since firms whose output have a large proportion of international products are likely to be correlated with the world market, the coefficient estimates of DIFCOV*INVEST in Table VI may not reflect risk sharing, but rather the exposure of domestic firms to the international product shock. The controls on future earnings help somewhat with this problem, but the proxy for expected future earnings is noisy and cannot entirely eliminate the concern.

In order to account for common global shocks we construct two additional measures of abnormal returns that are adjusted for world market exposure. First, we calculate the abnormal return as a firm's return in the liberalization month minus the return on the MSCI world index in

the liberalization month. Second, we calculate a risk-adjusted return using historical world market exposure. Specifically, abnormal returns are estimated using a world market return model, which is estimated in the pre-liberalization window using the MSCI world index. The pre-liberalization window consists of returns in the *t* -72 to *t* 0 window.

Table VII presents the results obtained from estimating specifications (1a and 1b) through (5a and 5b) using the first additional measure of abnormal returns as the left-hand-side variable. Table VIII presents the results obtained from estimating specifications (1a and 1b) through (5a and 5b) using the second additional measure of abnormal returns. Both sets of estimates corroborate the evidence from the baseline estimates in Table VI. After controlling for earnings size, and liquidity, the point estimate of DIFCOV*INVEST remains statistically significant at the 5-percent level.

[Insert Tables VII and VIII about here]

E. Summary

On balance, the evidence suggests that risk sharing helps explain the revaluation effect for investible firms only. The marginal effect of risk sharing for investible firms, the coefficient on DIFCOV*INVEST, is statistically significant in all specifications. In contrast, the effect of risk sharing on non-investible firms is never significant. The hypothesis that the impact of risk sharing on the stock price revaluation is the same for investible and non-investible firms is rejected in the benchmark specification as well as those that include controls for earnings, size, and liquidity. The common shock, as measured by the coefficient on the constant term, is positive and significant in all specifications. Importantly, the marginal effect of INVEST on the constant term is statistically insignificant in all but one specification. This suggests that the

intercept term is in fact the same for investible and non-investible firms. This second piece of evidence provides further confirming evidence in support of the theory.

It is useful to check the plausibility of the results by performing some crude calculations. For investible firms, the sample average of DIFCOV is 0.018. Multiplying this number by 3.59, the total effect of risk sharing on investible firms after controlling for other factors (specification (5b) in Table VI), gives 0.065. This number is the total repricing effect due to risk sharing for the average investible firm. The average revaluation in the raw data for investible firms is 15 percent (Table III). In other words, roughly two fifths of the typical investible firm's revaluation can be explained by risk sharing.

IV. Conclusion

Typical analyses of the gains from trade in risky assets calibrate the hypothetical welfare losses associated with the lack of international risk sharing (French and Poterba (1991), Obstfeld (1994), Lewis (1999, 2000), and Tesar (1995).[11] This paper takes a different approach. It measures the extent to which risk sharing drives the revaluation of stock prices that actually occurs when countries open their stock markets to foreign investors. Strictly speaking, revaluations measure the changes in real wealth that accrue to domestic shareholders, not utility gains per se. But revaluations have an important advantage in that they provide a direct empirical test of the view that there are gains to international risk sharing.

The data show that firm-specific risk sharing characteristics (DIFCOV) account for roughly two fifths of the revaluation of the typical investible stock. In contrast, Morck, Yeung, and Yu (2000) find that in general stock returns in emerging economies contain little firm-specific information. These two seemingly contrary findings need not be mutually inconsistent.

Changes in emerging market stock prices may convey little firm-specific information in general, but the evidence in this paper shows that they do convey information about firm-specific changes in risk sharing during liberalization episodes.

While asset prices move in response to changes in systematic risk, an important question for future research is whether firm-specific risk sharing also matters for physical investment. Optimal smoothing of production risk in an open-capital-market world also requires the reallocation of physical capital in accordance with changes in systematic risk. In the aftermath of liberalizations, we should observe relatively more investment by firms whose systematic risk falls and relatively less by those whose systematic risk rises. Consequently, high DIFCOV firms should experience faster capital stock growth than low DIFCOV firms following liberalization, all else equal.

However, it is important to remember that the data also show the common shock, or the fall in the risk-free rate, to be an equally important source of stock price revaluation. It is natural to ask which is the more important driver of the allocation of physical capital following liberalizations, risk sharing or the common shock? Previous work shows that aggregate investment rises following liberalizations (Henry (2000b, 2003)). But again, aggregate data cannot speak to the relative importance of risk sharing versus the common shock. The firm-level identification strategy applied to asset prices in this paper may provide a useful empirical approach for disentangling the relative importance of firm versus country-specific effects for the reallocation of physical capital when countries remove barriers to international capital movements (Chari and Henry (2003)).

REFERENCES

Adler, Michael and Bernard Dumas, 1983, International portfolio choice and corporate finance: A synthesis, *Journal of Finance* 38, 925-984.

Bekaert, Geert and Harvey Campbell, 2000, Foreign speculators and emerging equity markets, *Journal of Finance* 55, 565-613.

Blanchard, Olivier J., Chanyong Rhee and Lawrence Summers, 1993, The stock market, profit, and investment, *Quarterly Journal of Economics* 108, 115-136.

Campbell, John Y., 2000, Asset pricing at the millenium, *Journal of Finance* 55, 1,515-1,567.

Chari, Anusha and Peter Henry, 2003, The invisible hand in emerging markets: Discerning or indiscriminate? Working paper, Stanford University.

Cochrane, John, 1999, New facts in finance, *Economic Perspectives*, Federal Reserve Bank of Chicago 23, 36-58.

Errunza, Vihang and Etienne Losq, 1985, International asset pricing under mild segmentation: Theory and test, *Journal of Finance* 40, 105-124.

Fama, Eugene F., 1991, Efficient capital markets: II, *Journal of Finance* 46, 1,575-1,617.

Fischer, Stanley and Robert C. Merton, 1984, Macroeconomics and finance: The role of the stock market, *Carnegie-Rochester Conference Series on Public Policy* 21, 57-108.

Frankel, Jeffrey, 1994, Introduction, Jeffrey A. Frankel (ed.) in *The Internationalization of Equity Markets*, 231-271 (University of Chicago Press: Chicago and London).

French, Kenneth R. and James M. Poterba, 1991, International diversification and international equity markets, *American Economic Review* 81, 222-226.

Harris, Lawrence and Eitan Guerel, 1986, Price and volume effects associated with the new S&P 500 list: New evidence for the existence of price pressures, *Journal of Finance* 41, 815-829.

Henry, Peter Blair, 2003, Capital account liberalization, the cost of capital, and economic growth, *American Economic Review*, 93,2, 91-96.

Henry, Peter Blair, 2000a, Stock market liberalization, economic reform, and emerging market equity prices, *Journal of Finance* 55, 529-564.

Henry, Peter Blair, 2000b, Do stock market liberalizations cause investment booms? *Journal of Financial Economics* 58, 301-334.

Hietala, Pekka, 1989, Asset pricing in partially segmented markets: Evidence from the Finnish market, *Journal of Finance* 44, 697-718.

International Finance Corporation, 1999, *The IFC indexes: Methodology, definitions, and practices*, Washington, D.C.

Kim, Han E. and Vijay Singal, 2000, Stock market openings: Experience of emerging economies, *Journal of Business* 73, 25-66.

Lewis, Karen K., 2000, Why do stocks and consumption imply such different gains from international risk sharing? *Journal of International Economics* 52, 1-35.

Lewis, Karen K., 1999, Trying to explain home bias in equities and consumption, *Journal of Economic Literature*, 571-608.

Lucas, Robert E. Jr., 1990, Why doesn't capital flow from rich to poor countries? *The American Economic Review* 80, 92-96.

Morck, Randall, Andrei Shleifer and Robert Vishny, 1990, The stock market and investment: Is the market a sideshow? *Brookings Papers on Economic Activity*, 157-215.

Morck, Randall, Bernard Yeung and Wayne Yu, 2000, The information content of stock markets: Why do emerging markets have synchronous stock price movements? *Journal of Financial Economics* 58, 215-260.

Obstfeld, Maurice, 1994, Risk-taking, global diversification and growth, *American Economic Review* 84, 1,310-1,329.

Obstfeld, Maurice and Kenneth Rogoff, 1996, *Foundations of International Macroeconomics,* Ch. 5, 269-347 (MIT Press: Cambridge and London).

Sharpe, William F. 1964, Capital asset prices - A theory of market equilibrium under conditions of risk, *Journal of Finance* 1964, 425-442.

Shleifer, Andrei, 1986, Do demand curves for stocks slope down? *Journal of Finance* 41, 579-590.

Stulz, René M., 1999a, International portfolio flows and security markets, Martin Feldstein (ed.), in *International Capital Flows* (University of Chicago Press: Chicago).

Stulz, René M., 1999b, Globalization, corporate finance, and the cost of capital, *Journal of Applied Corporate Finance* 12, 8-25.

Stulz, René M., 1999c, Globalization of equity markets and the cost of capital, Working paper, Dice Center, Ohio State University.

Summers, Lawrence H., 1985, On economics and finance, *Journal of Finance* 40, 633-635.

Tesar, Linda, 1995, Evaluating the gains from international risk sharing, *Carnegie* Rochester Conference Series on Public Policy 42, 95-143.

Tobin, James and William C. Brainard, 1977, Asset markets and the cost of capital, B. Balassa and R. Nelson (eds.) in *Economic Progress, Private Values, and Public Policy,* 235-262, (North Holland, Amsterdam).

Wurgler, Jeffrey, 2000, Financial markets and the allocation of capital, *Journal of Financial Economics* 58, 187-214.

[1]Wurgler (2000) provides cross-country evidence on the empirical validity of this view.

[2]The partial equilibrium, mean variance framework highlights the critical intuition about risk sharing most succinctly. For a detailed discussion of more general international asset pricing models see Adler and Dumas (1983) and Chapter 5 of Obstfeld and Rogoff (1996).

[3]A priori, the impact of the common shock may be ambiguous. If countries are capital scarce in autarky, the average cost of capital may fall if liberalization results in a net capital inflow. On the other hand, if countries have followed policies of financial repression and interest rates were kept artificially low, the average cost of capital may increase if the stock market liberalization is accompanied by domestic financial deregulation. See Henry (2000b) for a more detailed discussion of these issues.

[4]When the representative domestic investor's portfolio consists of only non-investible securities, then $\tilde{R}_D$ is the rate of return on the portfolio on non-investible securities. Consequently, our empirical analysis calculates DIFCOV1 using the covariance of each security with the return on the portfolio of non-investible securities.

[5]Since the coefficient of relative risk aversion is assumed to be the same across countries, the slope coefficient is also implicitly the same and therefore does not require a country-specific adjustment.

[6]IFC data is used instead of Morgan Stanley Capital Index (MSCI) data, because MSCI company-level coverage for emerging markets begins only in January 1992 and therefore post-dates almost all of the liberalizations. Worldscope coverage begins even later than MSCI coverage.

[7]Anticipated events bias the analysis against finding any revaluation effect.

[8]The null hypothesis is that liberalization-month stock price responses come from the same distribution as non-liberalization-month stock price changes.

[9]The exception is Brazil where the investible weights range from five percent to 56 percent across firms**.**

[10]Estimations were also performed using years [0], [+1], [+2], and [+3]. These results are not reported because earnings in [0], [+2], and [+3] have no explanatory power.

[11]See chapter 5 of Obstfeld and Rogoff (1996) for a more extensive list of references.

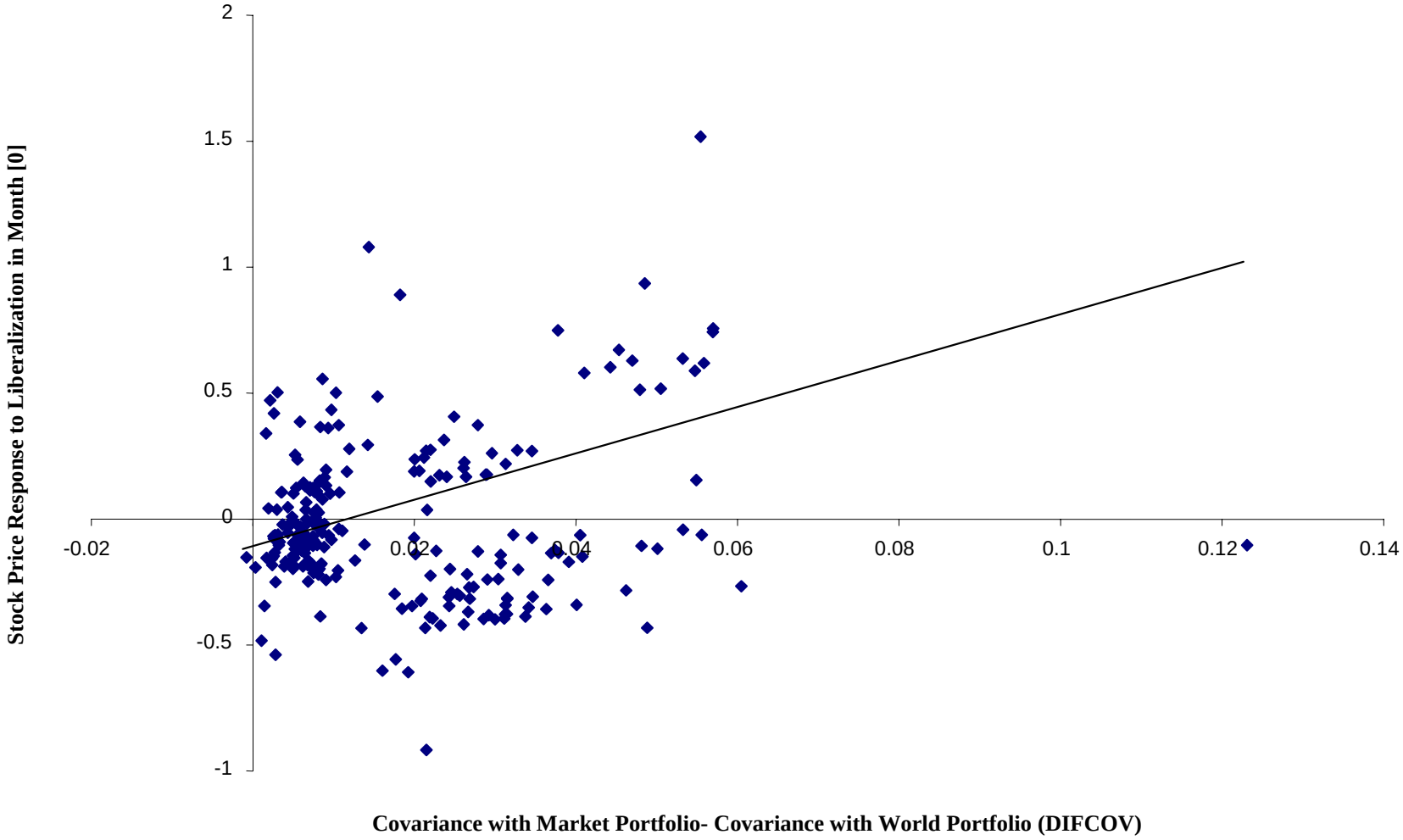

Figure 1. Differences Between Covariances with the Market and World Portfolio Help Explain the Repricing of Investible Firms.

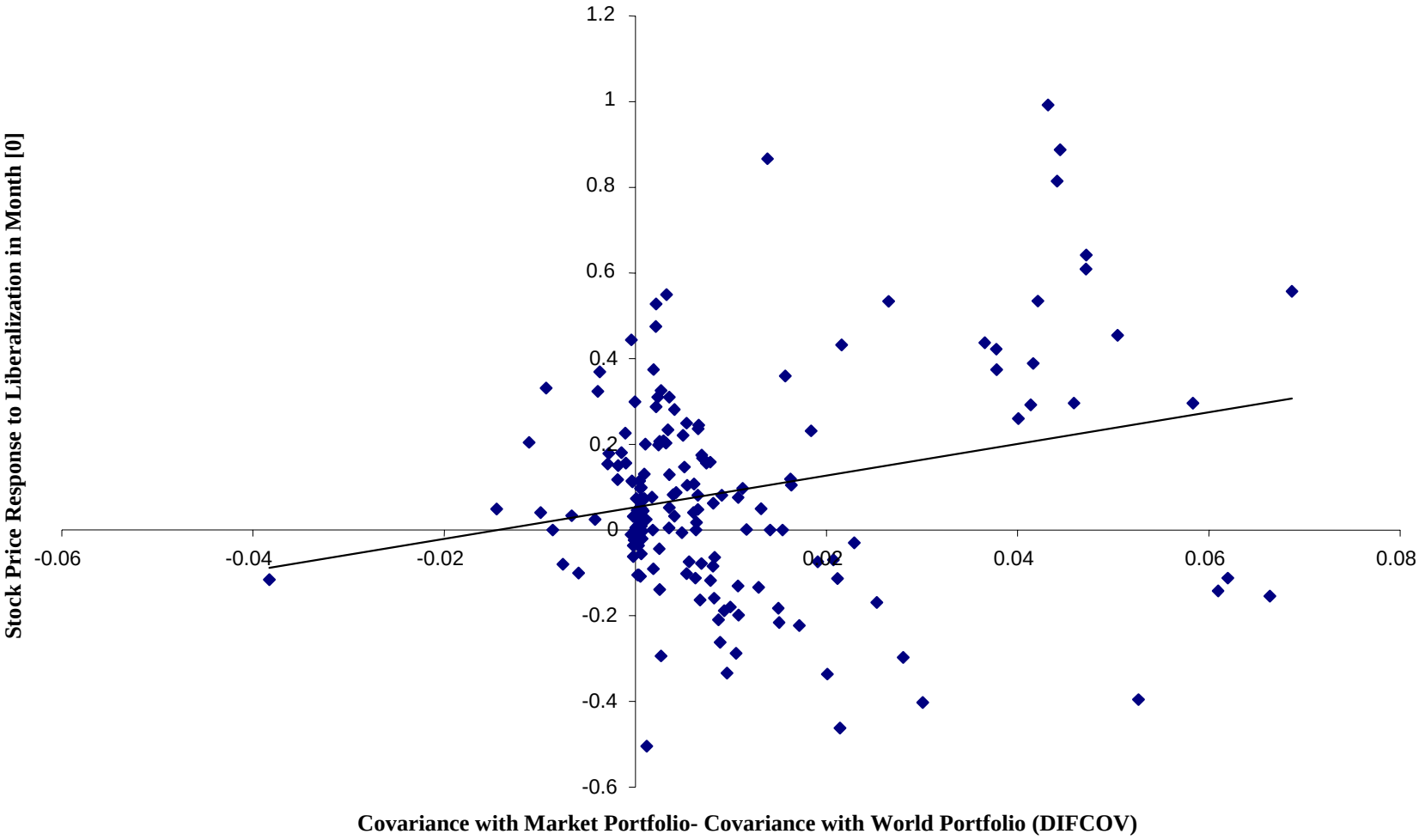

Figure 2. Differences Between Covariances with the Market and World Portfolio Do Not Help Explain the Repricing of Non-Investible Firms.

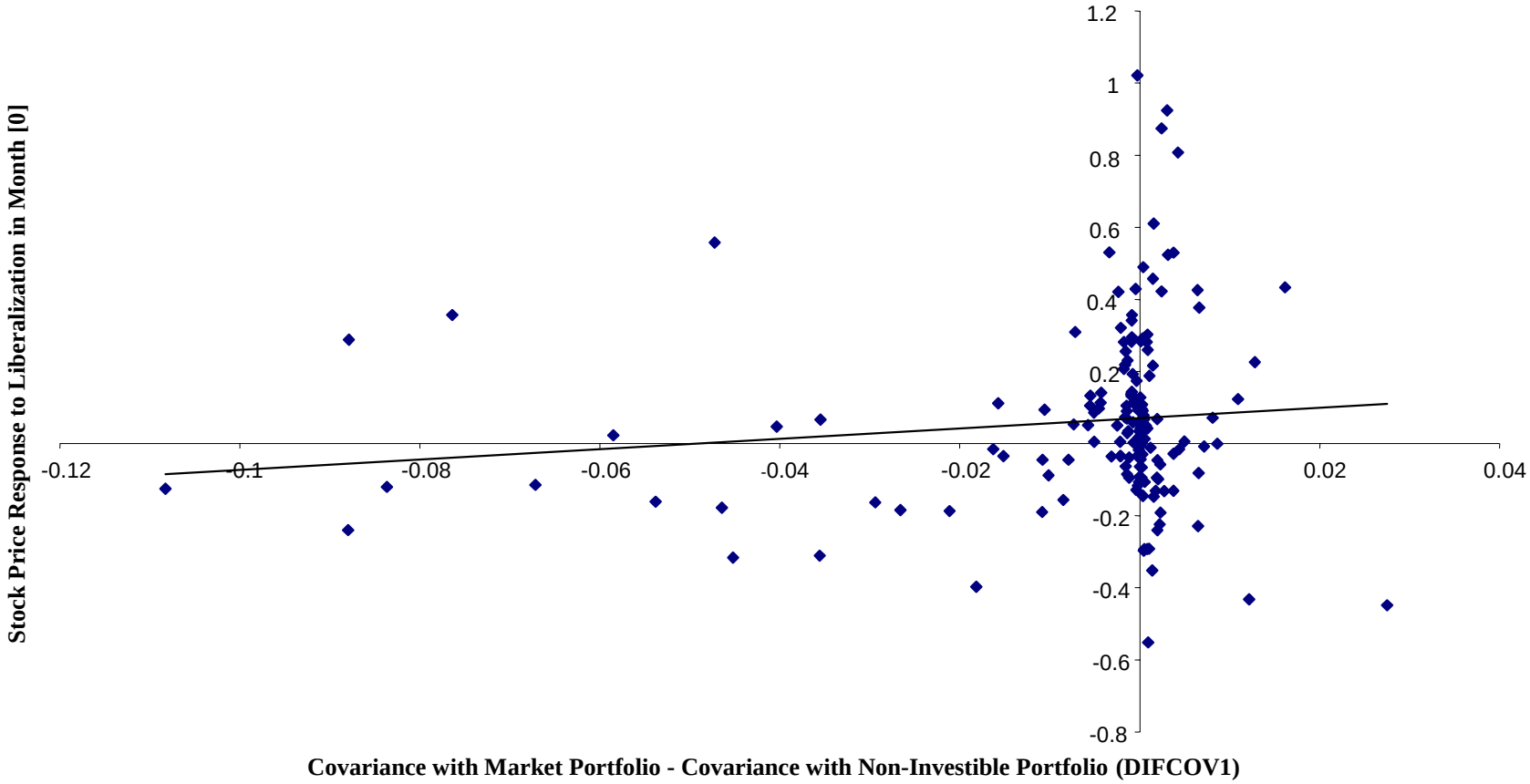

Figure 3. Differences Between Covariances with the Market and Non-Investible Portfolio Do Not Help Explain the Repricing of Non-Investible Securities.

Table I.
Decomposition of DIFCOV. Panel A: Means, Investible firms

	Number of Firms	*DIFCOV*	$COV(R_i, R_M)$	$COV(R_i, R_W)$	ρ_{iM}	ρ_{iW}	σ_i	σ_M	σ_W
Sample	238	0.0183	0.0185	0.0001	0.6202	0.0602	0.1955	0.142	0.047
Argentina	14	0.0476	0.0473	-0.0003	0.9048	-0.0171	0.3486	0.295	0.045
Brazil	21	0.0283	0.0289	0.0005	-0.0924	0.0107	0.2906	0.205	0.044
Chile	9	0.0065	0.0070	0.0005	0.6787	0.0905	0.1252	0.079	0.047
Colombia	5	0.0025	0.0029	0.0004	0.6613	0.0210	0.1079	0.077	0.048
India	39	0.0097	0.0097	0.0000	0.6382	0.0017	0.1411	0.099	0.045
Korea	66	0.0059	0.0061	0.0002	0.5934	0.1326	0.1613	0.086	0.047
Mexico	4	0.0053	0.0055	0.0001	0.1587	-0.0093	0.1584	0.292	0.044
Pakistan	3	0.0002	0.0010	0.0008	0.5868	0.0127	0.0941	0.058	0.048
Taiwan	63	0.0281	0.0283	0.0002	0.8094	0.0854	0.2146	0.158	0.049
Turkey	9	0.0425	0.0414	-0.0010	0.7305	-0.0312	0.2503	0.205	0.053
Venezuela	5	0.0174	0.0177	0.0003	0.6893	-0.1003	0.2115	0.145	0.049

This table decomposes DIFCOV into its constituent parts. The variable Number of firms is the number of firms in the specified country. All other numbers are the average value of the given variable across all of the firms in the specified country. All variables are computed at a monthly frequency. $COV(R_i, R_M)$ is the covariance of firm i with the local market. The variable $COV(R_i, R_W)$ is the covariance of firm i with the world market; ρ_{iM} is the correlation of firm i with the local market; ρ_{iW} is the correlation of firm *i* with the world market; σ_i is the standard deviation of firm i's stock return; σ_M is the standard deviation of the market; σ_W is the standard deviation of the world market.

Table I.
Panel B: Means, non-investible firms

	Number of Firms	*DIFCOV*	$COV(R_i, R_M)$	$COV(R_i, R_W)$	ρ_{iM}	ρ_{iW}	σ_i	σ_M	σ_W
Sample	172	0.0096	0.0105	0.0010	0.4250	0.0479	0.1921	0.142	0.047
Argentina	10	0.0382	0.0384	0.0002	0.7983	-0.0127	0.3683	0.295	0.045
Brazil	23	0.0214	0.0225	0.0011	-0.0963	0.0472	0.3061	0.205	0.044
Chile	17	0.0059	0.0067	0.0008	0.5459	0.1145	0.1366	0.079	0.047
Colombia	15	0.0024	0.0028	0.0004	0.5079	0.0464	0.1412	0.077	0.048
India	23	0.0126	0.0127	0.0001	0.6641	-0.0145	0.1752	0.099	0.045
Korea	6	0.0059	0.0064	0.0004	0.5877	0.0402	0.1878	0.086	0.047
Mexico	27	-0.0025	0.0014	0.0039	0.1025	0.3089	0.2375	0.292	0.044
Pakistan	38	0.0004	0.0007	0.0003	0.5196	-0.0701	0.0930	0.058	0.048
Taiwan	0	NA	NA	NA	NA	NA	NA	0.158	0.049
Turkey	5	0.0462	0.0456	-0.0006	0.7453	0.0127	0.2580	0.205	0.053
Venezuela	8	0.0162	0.0160	-0.0002	0.6746	-0.1259	0.1858	0.145	0.049

This table decomposes DIFCOV into its constituent parts. The variable Number of firms is the number of firms in the specified country. All other numbers are the average value of the given variable across all of the firms in the specified country. All variables are computed at a monthly frequency. $COV(R_i, R_M)$ is the covariance of firm i with the local market. The variable $COV(R_i, R_W)$ is the covariance of firm i with the world market; ρ_{iM} is the correlation of firm i with the local market; ρ_{iW} is the correlation of firm *i* with the world market; σ_i is the standard deviation of firm i's stock return; σ_M is the standard deviation of the market; σ_W is the standard deviation of the world market.

Table II
Stock Market Liberalization Dates

Country	Date of Stock Market Liberalization
Argentina	September 1989
Brazil	May 1991
Chile	October 1989
Colombia	December 1991
India	November 1992
Korea	January 1992
Mexico	May 1989
Pakistan	February 1991
Taiwan	January 1991
Turkey	August 1989
Venezuela	January 1990

Note: Each date corresponds to the earliest stock market liberalization that occurs after 12/88, which is the month when the IFC introduced its IFCI index.

Table III

The mean and median stock price response of investible firms to liberalization is larger than that of the non-investible firms.

	Panel A Investible Firms				Panel B Non-Investible Firms				T-test of difference in means
	Number Firms	Mean Lib Return	Median Lib Return	Number Negative	Number Firms	Mean Lib Return	Median Lib Return	Number Negative	Investible vs. Non-Investible
Entire Sample	248	0.151	0.121	43 (0.00)	181	0.099	0.086	83 (0.149)	Yes*
Argentina	14	0.639 (8.466)	0.609	0 (0.5)	10	0.391 (5.07)	0.302	0 (0.000)	Yes**
Brazil	21	-0.052 (-1.029)	-0.048	10 (0.00)	23	-0.198 (-3.802)	-0.048	11 (0.5)	Yes*
Chile	9	0.048 (1.20)	0.071	4 (0.5)	17	0.141 (5.023)	0.177	8 (0.5)	Yes**
Colombia	5	0.354 (4.223)	0.419	2 (0.5)	15	0.287 (6.312)	0.310	7 (0.5)	No
India	39	0.208 (4.663)	0.172	7 (0.00)	23	-0.024 (-0.435)	-0.054	17 (0.994)	Yes***
Korea	66	0.551 (11.37)	0.584	7 (0.00)	6	0.069 (0.406)	-0.047	3 (0.656)	Yes***
Mexico	5	0.288 (5.48)	0.319	2 (0.5)	36	0.247 (8.813)	0.223	12 (0.033)	No
Pakistan	5	-0.239 (–2.154)	-0.136	1 (0.188)	38	-.01 (-0.478)	0.004	19 (0.564)	Yes***
Taiwan	69	0.329 (11.899)	0.332	4 (0.00)	0	N/A	N/A	N/A	N/A
Turkey	10	0.654 (8.532)	0.577	4 (0.00)	5	0.509 (10.01)	0.577	2 (0.5)	Yes***
Venezuela	5	0.446 (4.223)	0.451	2 (0.5)	8	0.478 (4.723)	0.451	4 (0.637)	No

Notes: The mean liberalization return is the average stock price change in Month [0]. T-statistics are given in parentheses. The median liberalization return is the median stock price change in Month [0]. Column 4 in Panels A and B reports the number of firms that experienced liberalization month returns that were below their own historical median return. P-values for sign tests for the median returns are shown in parentheses. The final column reports results from a T-test of the difference in mean returns across investible and non-investible firms in Month [0]. The symbols (*), (**), and (***) refer to 10 percent, five percent and one percent levels of significance.

Table IV
Comparison of Investible and Non-Investible Firms Before Stock Market Liberalization

	Investible Firms					Non-InvestibleFirms					Significant Difference?
	Mean	Median	Min	Max	St. Dev	Mean	Median	Min	Max	St. Dev	(t-test Mean)
Size	0.015	0.006	0.0004	0.129	0.023	0.014	0.006	0.0002	0.135	0.019	No
Liquidity	2.66	0.43	0.003	26.9	5.11	0.249	0.083	0	2.35	0.364	Yes***
Earnings Growth	0.18	0.08	-4.20	5.80	1.02	0.10	0.05	-4.01	6.50	1.11	Yes**
Market to Book	3.30	1.72	-1.27	78.0	6.12	1.48	1.03	-3.30	7.75	1.50	Yes***
DIFCOV	0.018	0.01	-0.001	0.123	0.017	0.01	0.004	-0.038	0.069	0.016	Yes***

Notes: The variable Size is market capitalization as a fraction of total market capitalization; Liquidity is annual turnover; Earnings Growth is the annual growth rate of real earnings; Market to book is the ratio of the market value of equity to the book value of equity; DIFCOV is the difference in covariance between the local and world markets. The final column reports results from a t-test of statistical difference of the means of the two sub-samples. The symbols (*), (**) and (***) refer to 10 percent, five percent and one percent levels of significance, respectively.

Table V
Average Annual Growth Rate of Real Earnings Per Share Around Liberalization

	Investible	Non-Investible	Significant Difference? (F-Test)
[+1]	-0.217***	-0.393***	Yes**
	(0.066)	(0.090)	
[+2]	-0.230***	-0.113	No
	(0.068)	(0.099)	
[+3]	-0.106	-0.014	No
	(0.068)	(0.101)	
Constant	0.027	-0.036	
	(0.024)	(0.035)	

Notes: [+1], [+2], and [+3] report growth rates of real earnings in the first, second, and third year following the liberalization. Country-fixed effects are included in all regressions but are not reported. The F-test reports results about the statistical significance of the difference in the mean growth rates for investible and non-investible firms. The symbols (*), (**) and (***) refer to 10 percent, five percent and one percent levels of significance, repectively.

Table VI

Diversification drives the stock price revaluations for investible firms but not for non-investible firms.

	Panel A: Month [0] Window					Panel B: Month [0,+1]Window				
	(1a)	(2a)	(3a)	(4a)	(5a)	(1b)	(2b)	(3b)	(4b)	(5b)
DIFCOV	0.331	0.267	0.235	0.335	0.313	-0.403	-0.210	-0.258	-0.180	-0.222
	(1.01)	(1.104)	(1.103)	(1.098)	(1.099)	(1.231)	(1.340)	(1.336)	(1.341)	(1.339)
DIFCOV* INVEST	2.41***	2.407**	2.384**	2.612**	2.590**	4.42***	3.747**	3.708**	3.865***	3.812***
	(0.897)	(1.196)	(1.195)	(1.192)	(1.194)	(1.09)	(1.452)	(1.447)	(1.456)	(1.454)
Earnings Surprise [+1]		0.011	0.011	0.016	0.016		0.025	0.025	0.029	0.028
		(0.013)	(0.013)	(0.013)	(0.013)		(0.016)	(0.016)	(0.016)	(0.016)
SIZE*INVEST			-0.791		-0.630			-1.183*		-1.081
			(0.578)		(0.587)			(0.700)		(0.715)
SIZE* NONINVEST			0.528		0.238			0.931		0.772
			(0.759)		(0.765)			(0.919)		(0.932)
TURNOVER* INVEST				-0.001	-0.002				0.001	-0.0003
				(0.003)	(0.003)				(0.004)	(0.004)
TURNOVER* NONINVEST				-0.104***	-0.094**				-0.072	-0.052
				(0.040)	(0.041)				(0.048)	(0.050)
Constant	0.059***	0.061***	0.049**	0.091***	0.082***	0.073***	0.063**	0.044	0.083***	0.061*
	(0.015)	(0.022)	(0.024)	(0.024)	(0.028)	(0.018)	(0.026)	(0.029)	(0.030)	(0.034)
INVEST	0.006	0.003	0.032	-0.030	-0.007	0.039	0.033	0.078*	0.010	0.056
	(0.029)	(0.030)	(0.034)	(0.032)	(0.038)	(0.036)	(0.036)	(0.042)	(0.039)	(0.047)
Adjusted R-Squared	0.176	0.172	0.117	0.196	0.155	0.16	0.137	0.101	0.155	0.115
Number Obs.	410	410	410	410	410	410	410	410	410	410

Notes for Table VI: The LHS side variable in Panel A is the abnormal return in the liberalization month. The LHS variable in Panel B is the cumulative abnormal return in the liberalization month plus one month. The symbol DIFCOV is the difference between the historical covariance of firm i's stock return with the local market and its covariance with the Morgan Stanley Capital Market Index (MSCI) world stock market index. Country-fixed effects are included in all regressions but are not reported. INVEST is a dummy variable that takes on a value of one for investible firms, and zero for non-investible firms. The variable SIZE is defined as the ratio of that firm's market capitalization to the total domestic market capitalization as of one year prior to the liberalization date. The variable TURNOVER is defined as the sum of the dollar value of all shares traded over a 12-month period before the liberalization (t -24 to t -12) divided by that firm's total market capitalization. Earnings Surprise [+1] is the deviation of the growth rate of earnings from its pre-liberalization mean in year [+1] following the liberalization. The symbols (*), (**), and (***) indicate significance at the 10 percent, five percent and one percent, respectively. Robust standard errors adjusted for clustering within parentheses.

Table VII

Diversification drives the stock price revaluations for investible firms but not for non-investible firms. This result continues to hold when abnormal returns are calculated relative to the MSCI world return in the liberalization month.

	Panel A: Month [0] Window					Panel B: Month [0,+1]Window				
	(1a)	(2a)	(3a)	(4a)	(5a)	(1b)	(2b)	(3b)	(4b)	(5b)
DIFCOV	0.400	0.297	0.267	0.366	0.344	0.122	-0.174	-0.220	-0.142	-0.183
	(1.061)	(1.076)	(1.075)	(1.070)	(1.071)	(1.313)	(1.329)	(1.326)	(1.330)	(1.328)
DIFCOV* INVEST	2.041*	2.145*	2.117*	2.352**	2.321**	3.111**	3.410**	3.368**	3.535**	3.478**
	(1.152)	(1.166)	(1.165)	(1.162)	(1.163)	(1.425)	(1.441)	(1.436)	(1.444)	(1.442)
Earnings Surprise [+1]		0.008	0.008	0.013	0.012		0.022	0.022	0.026	0.025
		(0.013)	(0.013)	(0.013)	(0.013)		(0.016)	(0.016)	(0.016)	(0.016)
SIZE*INVEST			-0.674		-0.513			-1.089		-0.981
			(0.563)		(0.572)			(0.695)		(0.709)
SIZE* NONINVEST			0.791		0.502			1.097		0.930
			(0.740)		(0.746)			(0.912)		(0.925)
TURNOVER* INVEST				-0.001	-0.001				0.000	0.000
				(0.003)	(0.003)				(0.004)	(0.004)
TURNOVER* NONINVEST				-0.105**	-0.094**				-0.075	-0.055
				(0.039)	(0.040)				(0.048)	(0.049)
Constant	0.057***	0.06***	0.045*	0.090***	0.078***	0.032	0.040	0.019	0.060**	0.037
	(0.021)	(0.021)	(0.024)	(0.024)	(0.027)	(0.025)	(0.026)	(0.029)	(0.030)	(0.034)
INVEST	0.016	0.014	0.043	-0.020	0.004	0.049	0.044	0.088**	0.019	0.065
	(0.029)	(0.029)	(0.033)	(0.031)	(0.037)	(0.035)	(0.036)	(0.041)	(0.039)	(0.046)
Adjusted RSQ	0.114	0.111	0.072	0.142	0.110	0.095	0.094	0.069	0.106	0.079
Number Obs.	410	410	410	410	410	410	410	410	410	410

Notes for Table VII: The LHS side variable in Panel A is the abnormal return in the liberalization month. The LHS variable in Panel B is the cumulative abnormal return in the liberalization month plus one month. The abnormal returns are calculated by subtracting the returns on the MSCI world index from the firm returns in: (a) liberalization month and (b) liberalization month plus one month. The symbol DIFCOV is the difference between the historical covariance of firm i's stock return with the local market and its covariance with the Morgan Stanley Capital Market Index (MSCI) world stock market index. Country-fixed effects are included in all regressions but are not reported. INVEST is a dummy variable that takes on a value of one for investible firms and zero for non-investible firms. SIZE is defined as the ratio of that firm's market capitalization to the total domestic market capitalization as of one year prior to the liberalization date. TURNOVER is defined as the sum of the dollar value of all shares traded over a 12-month period before the liberalization (t -24 to t -12) divided by that firm's total market capitalization. Earnings Surprise [+1] is the deviation of the growth rate of earnings from its pre-liberalization mean in year [+1] following the liberalization. The symbols (*), (**), and (***) indicate significance at the 10 percent, five percent, and one percent, respectively. Robust standard errors adjusted for clustering within parentheses.

Table VIII

Diversification drives the stock price revaluations for investible firms but not for non-investible firms. This result continues to hold when abnormal returns are calculated using the world market model estimated in the pre-liberalization window.

	Panel A: Month [0] Window					Panel B: Month [0,+1]Window				
	(1a)	(2a)	(3a)	(4a)	(5a)	(1b)	(2b)	(3b)	(4b)	(5b)
DIFCOV	0.016	0.297	0.267	0.366	0.344	0.115	-0.180	-0.226	-0.149	-0.191
	(0.029)	(1.076)	(1.075)	(1.070)	(1.071)	(1.308)	(1.325)	(1.321)	(1.326)	(1.323)
DIFCOV* INVEST	2.04*	2.145*	2.117*	2.352**	2.321**	3.187**	3.485**	3.441**	3.605**	3.544**
	(1.061)	(1.166)	(1.165)	(1.162)	(1.163)	(1.420)	(1.436)	(1.431)	(1.439)	(1.437)
Earnings Surprise [+1]		0.008	0.008	0.013	0.012		0.022	0.022	0.026	0.024
		(0.013)	(0.013)	(0.013)	(0.013)		(0.016)	(0.016)	(0.016)	(0.016)
SIZE*INVEST			-0.674		-0.513			-1.066		-0.964
			(0.563)		(0.572)			(0.692)		(0.707)
SIZE* NONINVEST			0.791		0.502			1.194		1.037
			(0.740)		(0.746)			(0.909)		(0.922)
TURNOVER* INVEST				-0.001	-0.001				0.000	-0.0002
				(0.003)	(0.003)				(0.004)	(0.004)
TURNOVER* NONINVEST				-0.105***	-0.094				-0.073	-0.052
				(0.039)	(0.040)				(0.048)	(0.049)
Constant	0.018	0.021	0.006	0.051**	0.038	0.002	0.010	-0.013	0.030	0.005
	(0.021)	(0.021)	(0.024)	(0.024)	(0.027)	0.025	(0.026)	(0.029)	(0.030)	(0.033)
INVEST	0.015	0.014	0.043	-0.020	0.004	0.049	0.044	0.089**	0.020	0.067
	(0.029)	(0.029)	(0.033)	(0.031)	(0.037)	0.035	(0.035)	(0.041)	(0.039)	(0.046)
Adjusted RSQ	0.103	0.105	0.078	0.127	0.106	0.077	0.084	0.065	0.098	0.075
Number Obs.	410	410	410	410	410	410	410	410	410	410

Notes for Table 8: The LHS side variable in Panel A is the abnormal return in the liberalization month. The LHS variable in Panel B is the cumulative abnormal return in the liberalization month plus one month. The abnormal returns are estimated using a world market return model, which is estimated, in the pre-liberalization window using the MSCI world index. The pre-liberalization window consists of returns in the t=-72 to t=0 window. The symbol DIFCOV is the difference between the historical covariance of firm i's stock return with the local market and its covariance with the Morgan Stanley Capital Market Index (MSCI) world stock market index. Country-fixed effects are included in all regressions but are not reported. INVEST is a dummy variable that takes on a value of one for investible firms and zero for non-investible firms. SIZE is defined as the ratio of that firm's market capitalization to the total domestic market capitalization as of one year prior to the liberalization date. TURNOVER is defined as the sum of the dollar value of all shares traded over a 12-month period before the liberalization (t= -24 to t= -12) divided by that firm's total market capitalization. Earnings Surprise [+1] is the deviation of the growth rate of earnings from its pre-liberalization mean in year [+1] following the liberalization. (*), (**), and (***) indicate significance at the 10 percent, 5 percent and 1 percent, respectively. Robust standard errors adjusted for clustering within parentheses.