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Financial integration, globalization, and real activity

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Financial Integration, Globalization, and Real Activity

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Financial Integration, Globalization, and Real Activity

Abstract

Using data for a large number of advanced and emerging market economies during 1982-2009, this paper examines the distinct impact of financial integration *and* globalization on several dimensions of real activity. We find that: (a) financial integration has progressed significantly worldwide, particularly in emerging markets, as well as within regions; (b) advances in financial integration predict better growth prospects; (c) both advances in financial integration and globalization are associated with higher growth, lower growth volatility, and lower probabilities of severe declines in real activity. Advances in financial integration and globalization indeed foster countries' growth, and there appears to be no trade-off between these advances and macroeconomic stability.

JEL-Code: F360, G150.

Keywords: financial integration, globalization, real activity.

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I. INTRODUCTION

The vast empirical literature surveyed by Kose, Prasad, Rogoff and Wei (2009) offers contrasting results regarding the real effects of financial globalization. Broner and Ventura (2010) point out that the absence of a consensus regarding the real effects of financial liberalization policies is in part due to the difficulty in separating the effects of such policies from other policies. Many studies use *de-jure*, rather than *de-facto* liberalization measures.

In this paper we examine the *distinct* impact of *de-facto* measures of financial integration and globalization on several dimensions of real activity. Financial integration is defined as the movement towards equality of discount factors used to price traded assets, as dictated by standard finance theory; globalization is an increase in financial openness. The distinction between financial integration and globalization is important: globalization may be necessary for financial integration to occur, but it may not be sufficient to guarantee that a country's financial system is integrated with world markets in ways that foster an efficient capital allocation.[1]

Our contribution to the literature is threefold. First, we document advances in financial integration worldwide using a large dataset that includes data for fifty two countries during the period 1985-2008 by applying techniques borrowed from growth theory. From this analysis, we construct a simple proxy measure of financial integration. Second, we test the predictive power of our measure of financial integration on measures of growth prospects that factor in uncertainty in expectations about growth. This complements and extends the analysis of Bekeart et al. (2007), who do not account for uncertainty in growth prospects. Finally, we assess the impact of measures of financial integration and globalization on growth, growth volatility, and the probability of a severe decline in real activity. To our knowledge, no study has examined the *distinct* impact of financial integration and globalization measures on these dimensions of real activity simultaneously.

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[1] For example, Stultz (2005) pointed out how poor corporate governance can be an impediment to financial integration. More generally, in recent models by Gourinchas and Jeanne (2006), Heathcote and Perri (2004, 2009) and Mendoza, Quadrini, and Rios-Rull (2009), different degrees of financial integration across countries do not necessarily yield unequivocal predictions on the size and direction of capital flows, hence, on financial openness. For a simple model illustrating the effect of financial integration on efficient capital allocation and and related empirical tests, see Abiad, Oomes and Ueda (2008)

Building on Adjaouté and Danthine (2004), we begin our analysis by testing cross-country convergence of the mean and volatility of equity excess returns globally, by region and within regions, with a methodology akin to the one used in the growth literature. We find strong evidence of advances in financial integration with such advances being primarily driven by advances of financial integration in emerging markets countries.

We then assess the predictive power of financial integration and globalization for growth prospects. To this end, we use a proxy measure of financial integration and one of growth prospects. Financial integration is proxied by a *distance* measure of a country's excess returns from the group average at each date, which is meant to capture a ranking of countries' financial integration within a group. Growth prospects are proxied by a country's market price-to-earnings (PE) ratio relative to the world PE ratio standardized by its volatility. Then, we use monthly frequency data to assess whether financial integration predicts growth prospects (as well as the converse) globally, by region and within regions. We find that advances in financial integration significantly predict better growth prospects, but better growth prospects do not necessarily predict advances in financial integration.

The analysis just described focuses on financial integration only, and concerns growth prospects rather than actual growth. Therefore, we consider the impact of financial integration *and* globalization on growth, growth volatility and a proxy measure of severe declines in real activity. Financial globalization is measured by the growth rate of financial openness, defined as the ratio of the sum of external assets and liabilities constructed by Lane and Milesi-Ferretti (2007) and updated up to 2008, standardized by GDP. We also construct two measures of capital flow volatility to capture uncertainty and the potential for instability in the globalization dimension.

We find that higher levels of financial integration and globalization are both associated with higher growth and lower growth volatility, whereas the volatility of capital flows does not have any significant impact on both variables. We also find that higher levels of financial integration and globalization robustly and significantly predict *lower* probabilities of severe declines in real activity, and this predictive power is stronger for emerging markets. These latter results are especially important, since the 2007-2008 financial crisis and the attendant historically sharp drop in real activity has raised the question of whether financial integration and unfettered globalization can be sources of macroeconomic

instability (see, e.g. Stiglitz, 2010).. Our evidence is at odds with the view that financial integration and globalization in and of themselves are sources of macroeconomic instability.

Finally, we document the cross-sectional relationship between financial integration, globalization and proxy measures of the quality of the institutional environment and corporate governance. Perhaps unsurprisingly, we find that better institutions and corporate governance are associated with higher levels of financial integration and globalization. Notably, however, the quantitative impact of improvements in both institutions and corporate governance is significantly larger for financial integration than globalization.

All in all, our results indicate that financial integration and globalization appear to yield *benefits* in the form of enhanced countries' growth prospects, growth, lower growth volatility, while we find no evidence of *costs* in terms of macroeconomic instability.

The remainder of the paper consists of five sections. Section II assesses convergence in equity market excess returns and defines our measure of financial integration. Section III introduces risk-adjusted growth prospects, documents its predictive power for growth, and assesses the predictive power of financial integration for risk-adjusted growth prospects. Section IV presents the analysis of the relationship between financial integration, globalization and capital flow volatility for growth, growth volatility, and systemic real risk, and examines the impact of indicators of quality of institutions and corporate governance on financial integration and globalization.. Section V concludes. The Appendix details countries, data sources and measurements of all variables used.

II. FINANCIAL INTEGRATION DYNAMICS

If financial markets become more integrated, the price of risk should converge, As stressed by Stulz (1999), such convergence can be associated with a convergence in the cost of capital. By equalizing the price of risk and allowing agents to achieve better diversification, financial integration should also result in a more efficient allocation of capital (see, e.g. see Abiad, Oomes and Ueda (2008) .

Following Bekaert and Harvey (1995), the simple metric of financial integration we use in our empirical analysis is motivated as follows. Consider a region composed of N countries, and denote with $E_t R^i_{t+1}$ the expected conditional market excess return in country

$i \in N$. Suppose that the CAPM holds and there is no exchange rate risk. Under full integration, for each $i \in N$, $E_t R^i_{t+1}$ satisfies:

$$E_t R^i_{t+1} = \lambda_t \operatorname{cov}(R^i_{t+1}, R^N_{t+1}) \quad (1)$$

where R^N_{t+1} is the return on a value-weighted region portfolio, and λ_t is the expected price of (covariance) risk in the region. By contrast, in a fully segmented market

$$E_t R^i_{t+1} = \lambda^i_t \operatorname{var}(R^i_{t+1}) \quad (2)$$

where λ^i_t is the expected *local* price of risk. As shown in Bekaert and Harvey (1995), in a partially integrated region, expected excess returns can be proxied by:

$$E_t R^i_{t+1} = \alpha^i_t \lambda_t \operatorname{cov}(R^i_{t+1}, R^W_{t+1}) + (1-\alpha^i_t)\lambda^i_t \operatorname{var}(R^i_{t+1}) \qquad (3)$$

where $\alpha^i_t \in [0,1]$ is an estimate of the likelihood that a market is integrated. Although Equation (3) cannot be viewed as a restriction on expected returns implied by an explicit asset pricing model, it can be useful to obtain a proxy measure of financial integration. If α^i_t 's move towards unity then, as discussed in Adjaouté and Danthine (2004), convergence in expected excess returns can be interpreted as the result of increased integration.

Thus, we gauge advances in financial integration by testing whether there is a significant decline in the cross-country dispersion of equity market *ex-post* excess returns. [2] Ex-post excess returns may be an imperfect measure of expected excess returns for several well-known reasons. For our purposes, temporary deviations from convergence may occur because of differences in countries' savings rates or investment opportunities. Moreover, equity market excess returns in each country could converge because financial assets in each country may be increasingly affected by common factors (the term $\operatorname{cov}(R^i_{t+1}, R^W_{t+1})$ in Equation (3) may be time varying and become increasingly similar across countries), independently of convergence in the price of risk. This is why in our statistical model for excess return we control explicitly for these common factors.

Convergence in excess returns is assessed with a metric germane to that used to gauge growth convergence in the growth literature (see Barro and Sala-i-Martin, 2003). To

[2] As shown by Solnik and Roulet (2000), if excess returns follow a single factor model, then the evolution of their cross-country dispersion is inversely related to their pairwise correlation. A similar approach in the context of a multifactor model is followed by Eiling and Gerard (2007).

implement this metric, we formulate the following statistical model for the dynamics of the cross-country dispersion of market excess returns.

Let R_t^i denote the market excess return in country i at date t, We assume that R_t^i follows a factor GARCH(1,1) model:

$$R_t^i = \alpha_{it} + \beta_i F_t + \gamma_i R_{t-1}^i + h_{it}\varepsilon_{it} \qquad (4)$$

$$h_{it}^2 = a_{it} + b\varepsilon_{it-1}^2 + ch_{it-1}^2 . \qquad (5)$$

The term F_t in Equation (4) is a risk factor common to all countries, and the innovations ε_{it} are assumed to be *i.i.d.* and normally distributed with zero mean and unit variance. Equation (5) describes the evolution of country-specific volatility. The conditional mean of R_t^i is given by $m_{t-1}(R_t^i) \equiv \alpha_{it} + \beta_i F_t + \gamma R_{t-1}^i$, while the conditional variance is given by $\text{var}_{t-1}(R_t^i) \equiv \beta_i^2 \sigma_F^2(t) + h_{it}^2$. To obtain a model for the cross-country variance of excess returns and their country-specific volatility, we assume that the coefficients $\{\alpha_{it}, \beta_i, \gamma_i, a_i\}$ are distributed cross-sectionally with means $\{\alpha_t, \beta, \gamma, a\}$ and variances $\{\sigma_{\alpha t}^2, \sigma_\beta^2, \sigma_\gamma^2, \sigma_a^2\}$, and that co-variances among all these random variables, as well as that of R_{t-1}^i and F_t, and each of these is approximately nil. Under these assumptions, the *cross-sectional variance* of $m_{t-1}(R_t^i)$ and h_{it}^2 are given by

$$\sigma_R^2(t) \equiv E(m_{t-1}(R_t^i) - Em_{t-1}(R_t^i))^2 = \sigma_{\alpha t}^2 + \sigma_\beta^2 F_t^2 + \sigma_\gamma^2 \sigma_R^2(t-1) \qquad (6)$$

$$\sigma_{h^2}^2(t) \equiv E(h_{it}^2 - Eh_{it}^2)^2 = \sigma_{at}^2 + b^2 \sigma_{\varepsilon^2}^2(t-1) + c^2 \sigma_{h^2}^2(t-1) . \qquad (7)$$

We take the first principal component of countries' excess returns as a proxy measure of their *common risk factor*. As noted, taking into account common shocks is important, as a decline in $\sigma_X^2(t)$ exclusively driven by a decline in the magnitude of common shocks F_t^2 would *not* necessarily indicate increased integration, since disconnected economies hit by the same shock could exhibit the same decline. Increased convergence in the mean of excess

returns occurs if $\sigma_{\alpha t}^2$ exhibits a declining path. Similarly, increased convergence in the country-specific volatility of equity excess returns occurs if σ_{at}^2 exhibits a declining path.

We estimate the following GARCH(1,1) counterpart of Equations (6)-(7) :

$$\bar{\sigma}_R^2(t) = A_0 + A_1 t + A_2 F_t^2 + A_3 \bar{\sigma}_R^2(t-1) + H_t \eta_t \qquad (8)$$

$$H_t^2 = B_0 + B_1 t + B_2 \eta_{t-1}^2 + B_3 H_{t-1}^2 \qquad (9),$$

where $\bar{\sigma}_R^2(t)$ is the cross-country variance of equity market excess returns at each date. Convergence in the cross-country dispersion of the *mean* of excess returns occurs if A_1 is negative. Similarly, convergence in the cross-country dispersion of the country-specific *volatility* of excess returns occurs if B_1 is negative.

We use monthly equity market data from DataStream and Standard & Poor's for the period February 1985-April 2009. The risk-free rate is the yield on government securities at maturities ranging from one month to three months, depending on data availability. Our sample consists of 52 countries, including 24 developed countries and 28 emerging market countries in Europe, Asia and America. Data sources and the list of countries can be found in the Appendix.

By estimating Equations (8)-(9) including all countries, we test world convergence in excess returns. Estimates of Equation (8)-(9) are also presented for two different types of country subsamples. The first type of subsample *excludes* from the entire sample countries that belong to a particular region. In this case, a comparison of the estimated coefficient obtained when all countries are included, with that obtained by excluding a subsample, gauges the relative contribution of that subsample to worldwide convergence of excess returns. This amounts to comparing estimates of the trend coefficients (A_1 and B_1)—when $\bar{\sigma}_R^2(t)$ and H_t^2 are computed by including all countries in the sample—with estimates of the trend coefficient when $\bar{\sigma}_R^2(t)$ and H_t^2 are computed *excluding* all countries in a given subsample. The second type of subsample *includes only* countries in a particular region. Thus, estimates of the trend coefficients provide a gauge of convergence of excess returns *within* a region-- that is, a measure of *regional* financial integration.

Table 1 reports the results of the estimation of Equations (8)-(9). As shown in the estimates including all countries (Regression (1)), both trend coefficients A_1 and B_1 are negative and significant, indicating strong world convergence in the mean as well as in the country-specific volatility of equity market excess returns. As shown in Regression (2), world convergence is significantly driven by convergence in emerging markets countries, as the trend coefficients in both the mean and variance equations are *lower* (in absolute value) than the coefficients obtained when all countries are included. By the same token, as shown in Regressions (3)-(5), all regions have contributed to increased financial integration as convergence in the mean of excess returns, although convergence in country-specific volatility appears significant especially in Latin America.

Turning to regional integration, we find that convergence in the mean of excess returns occurred in each of the regions (Regressions (6)-(8))). With regard to European financial integration, the estimate of the trend coefficient obtained in Regression (8) is significantly larger, in absolute value, than that estimated when emerging European countries are excluded (Regression (9)). Thus, countries in emerging Europe have experienced a faster convergence than the group of other countries, thereby significantly contributing to convergence in the mean of excess returns *within* that region. In sum, financial integration has progressed significantly worldwide, and progress has been primarily driven by advances in emerging markets countries, particularly in Europe[3]

These results support the construction of a proxy measure of the "relative" degree of financial integration of a given set of countries. This measure is given by the *distance* of the market excess returns of a country from a measure of central tendency of the cross-country distribution of market excess returns in a particular sample. Specifically, for country j in year t and a sample of N countries, this measure, called *ISPEED*, is given by

[3] Our results are consistent with those obtained by Bekeart et al. (2009), using measures of market segmentation., and with those obtained by Garcia-Herrero and Wooldridge (2007), who find evidence of a decreasing correlation between domestic investment and savings for samples that do not include the period of the global financial crisis: such decrease in correlation is a broad implication of increased financial integration.

$$ISPEED_{jt} = (R_t^j - \frac{1}{N}\sum_{i=1}^{N} R_t^j)^2 , \quad (10)$$

In essence, *ISPEED* records the position of the market excess return of a country relative to the average excess return of a group of countries. The higher is the level of financial integration in a region, the smaller should be the cross-sectional average of the (quadratic) distance of countries' excess returns from the region's central tendency.

III. FINANCIAL INTEGRATION AND GROWTH PROSPECTS

As noted, advances in financial integration should have a positive impact on a country's growth prospects, since integration would foster a more efficient allocation of capital across firms and sectors in each country. To test this broad implication of theory, we construct proxy measures of countries' growth prospects at a monthly frequency with the important property that they have significant predictive power for GDP growth. We test for this property using data at an annual frequency, but then proceed to examine the predictive power of financial integration for growth prospects using data at a monthly frequency, which is a frequency seldom used in this kind of tests.

A. Measures of Growth Prospects Predict Growth

A forward-looking measure of growth prospects is given by a market price/earnings ratio PE (see, e.g. Bekaert et al, 2007). Our measure of growth prospects is given by the ratio of the local market PE ratio to the world PE ratio, divided by its *volatility*. Thus, our measures of growth prospects can be viewed as embedding an adjustment for risk.

We consider the local market PE relative to the world PE ratio to control for different industry compositions within a country relative to the world aggregate, which may impact country growth differentially. The volatility adjustment is important since PE ratios may exhibit significant fluctuations that can arise from both market uncertainties regarding future growth of the economy, as well as from the temporary appearance of "bubble" components

in prices of some domestic equity markets. Thus, volatility-adjusted PE ratios may be better predictors of growth than unadjusted ratios. As we show below, this is indeed the case.[4]

Thus, our measure of risk-adjusted growth prospects of country *j* in month *t*, is a Sharpe ratio-type measure given by

$$RAGP_{jt} = \frac{SPE_{jt}}{\sigma(SPE_{jt})}, \qquad (7)$$

where $SPE_{jt} = PE_{jt} / PE_{wt}$ denotes the ratio of country *j*'s market PE ratio to the world PE ratio PE_{wt}. This measure is computed in each month using a rolling window of data of the preceding twelve months.[5]

To test the predictive power of $RAGP$ for GDP growth using data at an annual frequency, we estimate the following dynamic panel regressions using the Blundell and Bond (1998) system GMM estimator with country and time fixed effects:

$$GDPG_{jt} = \alpha_{1j} + \alpha_{2t} + \beta RAGP_{jt-1} + \gamma GDPG_{jt-1} + \varepsilon_{jt}, \qquad (8)$$

where $GDPG_{jt}$ is real GDP growth in country *j* in year *t*, α_{1j} and α_{2j} are country-specific fixed effects. As shown in Table 2, an increase in risk-adjusted growth opportunities strongly and significantly predicts future growth. Notably, this predictive relationship is strong and significant for *both* developed and emerging markets economies. As noted, this result supports the use of our measure of growth opportunities in our higher frequency samples to examine the predictive power of financial integration for future real activity.

B. Financial Integration Predicts Risk-Adjusted Growth Prospects

Does financial integration have a positive impact on growth prospects? The finding of a positive impact would suggest that financial integration indeed has positive expected *real* effects. Conversely, the finding that improvements in growth prospects have a positive

[4] More generally, a measure of risk-adjusted growth prospects may be viewed as more closely associated with welfare, as welfare is likely to be lower in an economy with very high, but very uncertain, growth prospects, compared with an economy in which growth relative to growth volatility is lower.

[5] The results we present below are essentially unchanged when we use a 24 months' window.

impact on financial integration would suggest that these improvements may spur subsequent financial integration.

We assume that the dynamics of *RAGP* and *ISPEED* follows autoregressive processes conditioned on their own past values in a VAR-type fashion. Specifically, the coefficient associated with past values of *ISPEED* in the *RAGP* equation yields an estimate of the predictive power of integration on a country's growth prospects. Conversely, the coefficient associated with past values of *RAGP* in the equation of *ISPEED* as dependent variable yields an estimate of the impact of *RAGP* on future financial integration. Thus, the impact of financial integration (growth prospects) on future growth prospects (financial integration) is assessed by positing the following panel models for *RAGP* and *ISPEED*:

$$RAGP_{jt} = \alpha_{1j} + \beta_1 ISPEED_{jt-1} + \gamma_1 RAGP_{jt-1} + \delta Y_{1t-1} + \varepsilon_{1jt} \quad (9),$$

$$ISPEED_{jt} = \alpha_{2j} + \beta_2 RAGP_{jt-1} + \gamma_2 ISPEED_{jt-1} + \delta Y_{2t-1} + \varepsilon_{2jt} \quad (10).$$

In both equations, α_{1j} and α_{2j} are country-specific effects and Y_{it-1}, i=1,2, is a vector of time-specific controls to be defined momentarily. Our main focus is on estimates of the coefficients β_1 and β_2, and on testing whether their values are negative and significantly different from zero. These tests essentially aim at establishing whether a country that experiences increased integration, in the form of a *reduction* in the distance of its excess returns from the group average, also witnesses a *subsequent increase* in its growth prospects. The finding of a *negative* relationship between the country-specific measure of integration and growth prospects would thus suggest that such growth prospects indeed improve with integration.

One important statistical issue is the possible presence of unit roots in the (panel) data-generating process for *RAGP* and *ISPEED*, since these measures generally exhibit high persistence. This could make it difficult to carry out valid inference on the coefficients of interest if the unit root hypothesis is not rejected. We address this problem by adopting a specification of Equations (9) and (10) along the lines suggested by Pesaran (2007). Doing

that makes it feasible to test *both* whether the unit root hypothesis can be rejected and whether the coefficients β_1 and β_2 are negative and significant.

As in Pesaran (2007), we subtract the lagged value of the dependent variable from Equations (9) and (10), set the vector of time-specific controls equal to the cross-sectional average of the lagged level and first difference of the dependent variable, denote with Δ first differences, and estimate the following two equations:

$$\Delta RAGP_{jt} = \alpha_{1j} + \beta_1 ISPEED_{jt-1} + (\gamma_1 - 1) RAGP_{jt-1} + \delta_{11} ARAGP_{t-1} + \delta_{12} A\Delta RAGP_{t-1} + \varepsilon_{1jt} \qquad (11),$$

$$\Delta ISPEED_{jt} = \alpha_{2j} + \beta_2 RAGP_{jt-1} + (\gamma_2 - 1) ISPEED_{jt-1} + \delta_{12} AISPEED_{jt-1} + \\ + \delta_{22} A\Delta ISPEED_{jt-1} + \varepsilon_{2jt} \qquad (12).$$

In Equation (11), $ARAGP_{t-1} = N^{-1} \sum_{j=1}^{N} RAGP_{jt-1}$ is the cross-sectional average of lagged values of *RAGP,* and $A\Delta RAGP_{t-1} = N^{-1} \sum_{j=1}^{N} \Delta RAGP_{jt-1}$ is its first difference. Similarly, in Equation (12), $AISPEED_{t-1} = N^{-1} \sum_{j=1}^{N} ISPEED_{jt-1}$ is the cross-sectional average of lagged values of *ISPEED,* and $A\Delta ISPEED_{t-1} = N^{-1} \sum_{j=1}^{N} \Delta ISPEED_{jt-1}$ is its first difference. The (panel) unit root hypothesis is rejected if $\gamma_i - 1 < 0$, i=1,2.

Table 3 shows the results of these specifications for the entire sample, for Europe, Asia, and Latin America. First note that in all estimates, the unit root hypothesis is rejected with high confidence, since the robust t-statistics associated with $\gamma_i - 1 < 0$, i=1,2 are well below the cross-sectionally augmented Dickey-Fuller critical values reported in Pesaran (2007) at 1 percent confidence levels.

In the entire sample (Regressions (1) and (5)), both coefficients β_1 and β_2 are negative and significant at conventional significance levels. This finding suggests the existence of a virtuous dynamics, whereby financial integration improves future growth prospects and, in turn, improved growth prospects advance financial integration.

When we look at the same relationships in the context of *regional* integration, as opposed to world integration, we obtain results consistent with the convergence results in

excess returns described previously. The European sample exhibits the same pattern of the world sample: The coefficient β_1 is negative in Regression (2), and both coefficients β_1 and β_2 are negative and significant in Regression (6)), indicating that the virtuous dynamics between financial integration and growth prospects also holds at the regional level. By contrast, such dynamics appears weaker for the Asian and Latin American samples (Regressions (3)-(4) and (7)-(8)), suggesting a higher degree of heterogeneity of the financial integration process in the countries included in these subsamples.

In sum, a proxy measure of financial integration *predicts* a measure of a country's growth prospects. Regional financial integration appears to have played a particularly significant growth-enhancing role in Europe. Conversely, better future growth prospects may, but need not to, foster future advances in integration.

IV. FINANCIAL INTEGRATION, GLOBALIZATION, AND GROWTH DIMENSIONS

Obstfeld (2009, p.63) observed that "there is strikingly little convincing documentation of direct positive impacts of financial opening on the economic welfare levels or growth rates of developing countries." Work by Quinn and Toyoda (2008) indicates that some of the inconclusive results of the literature may be due to problems of measurement of financial openness following liberalization. Moreover, some recent studies (e.g. Bonfiglioli, 2008, and Bekaert, Harvey, Lundblad and Siegel, 2009) find a positive impact of financial openness on productivity growth, which is a key driver of growth.[6] On the other hand, few studies have examined the relationship between increased openness and growth volatility. Buch, Dopke and Pierdzioch (2005) do not find a significant impact of financial openness on growth volatility. Some studies that use sectoral or firm level data find positive effects of increased openness on both growth and volatility. (see e.g. Levchenko et al., 2009, and Kalemni-Ozcan, Sorensen and Volosovych, 2010).

[6] Few studies examne the relationship between openness and growth volatility. Buch, Dopke and Pierdzioch (2005) do not find a significant impact of financial openness on growth volatility. Some recent literature has focused on growth volatility at a sectoral or firm level, using a variety of measures of financial openness: a recent review of this literature is in Kalemni-Ozcan, Sorensen and Volosovych (2010). This is openness...to refine

Differing from existing studies, here we focus on the *distinct* impact of financial integration and *de-facto* globalization on three dimensions of growth: growth levels, growth volatility and the probability of severe declines in real activity. Our measures of globalization are based on the data on external assets and liabilities constructed by Lane and Milesi-Ferretti (2007). As dictated by Lane and Milesi-Ferretti dataset, we use data at annual frequency. Our measure of globalization, called *FGLOB,* is the *growth rate of financial openness*, defined as the growth rate of the ratio of the sum of external assets and liabilities to GDP. In addition, we examine capital flow volatility as an important dimension of financial globalization. We construct two proxy measures of capital flows volatility: volatility of capital *outflows,* called $COFV$, computed for each country as the absolute value of the difference between the growth rate of the ratio of external assets to GDP and its sample average; and volatility of capital *inflows,* called $CIFV$, which is computed for each country as the absolute value of the difference between the growth rate of the ratio of external liabilities assets to GDP and its sample average. As before, financial integration is proxied by the *ISPEED* measure we have introduced previously, where the monthly *ISPEED* measure is averaged for each year.

A. Growth and Growth Volatility

We estimate dynamic panel models of the following form, using Blundell and Bond (1998) GMM estimators with country and time fixed effects:

$$Y_{jt} = \alpha_{1j} + \alpha_{2t} + \beta ISPEED_{jt} + \gamma FGLOB_{jt-1} + \delta CFV_{jt-1} + \rho Y_{jt-1} + \varepsilon_{jt}, \quad (13)$$

The dependent variable Y_{jt} is either GDP growth, or a proxy measure of volatility of GDP growth, termed *GDPGV,* which is computed for each country as the absolute value of the difference between GDP growth and its historical mean. Note that country fixed effects control for unobserved country characteristics that do not change through time, or change very slowly.[7]

[7] Among these characteristics, variables capturing the quality of institutions have been used extensively as explanatory variables in many empirical specifications of growth-type regressions (see, for example, Bekaert, Harvey and Lundblad, 2005 and Bekaert, Harvey, Lundblad and Siegel, 2007).

Table 4 reports the results with GDP growth as the dependent variable for the pooled sample, the advanced economies sample, and the emerging market sample. In the pooled sample (Regressions (1)-(3)), *ISPEED* is negatively and significantly associated with growth. Thus, an increase in financial integration, captured by a reduction in *ISPEED*, is associated with a higher GDP growth rate. Likewise, the coefficient associated with the lagged value of *FGLOB* is positive and significant, implying that higher financial globalization is associated with higher subsequent GDP growth. Furthermore, the coefficient associated with the volatility of capital *outflows* is not significant, indicating that this dimension of openness does not have an impact on growth. By contrast, the coefficient associated with the volatility of capital *inflows* (Regression (4)) is *positive* and significant, albeit weakly. .

The results of the regressions for the sample of advanced economies (Regressions (4)-(6)) and that of emerging markets (Regressions ((7)-(8)) overall indicate differential strengths of the positive effects of financial integration and globalization on growth. For advanced economies, the coefficient associated with *ISPEED* is still positive but not significant, while it is positive and highly significant for the emerging market economies, signaling a stronger positive impact of financial integration for these countries. By contrast, the positive impact of globalization appears comparatively stronger in advanced economies. Lastly, while the volatility of capital outflows does not appear to have a significant impact for both country groups, the coefficient associated with the volatility of capital inflows is positive and highly significant for emerging market economies, while it remains not significant for advanced economies.

In sum, both financial integration and globalization are associated with higher growth levels in all economies in our sample. Moreover, financial integration appears to have a comparatively stronger positive impact on growth in emerging market economies, while globalization has a comparatively stronger impact on growth in advanced economies.

Table 5 reports the same regressions presented in Table 4 with our proxy measure of GDP growth volatility as the dependent variable. In the pooled sample (Regressions (1)-(3)), *ISPEED* is positively and significantly associated with growth volatility. Thus, an increase in financial integration, captured by a reduction in *ISPEED*, is associated with *lower* growth volatility. Likewise, the coefficient associated with the lagged value of *FGLOB* is *negative* and significant, implying that higher financial globalization is associated, again,

with *lower* growth volatility. Interestingly, both measures of volatility of capital flows have no significant impact on growth volatility.

Similarly to the growth regression results, the regressions for the sample of advanced economies (Regressions (4)-(6)) and that of emerging markets (Regressions ((7)-(8)) indicate that the strength of the negative impact of advances in financial integration and globalization on growth volatility varies across these country groups. For advanced economies, the coefficient associated with *ISPEED* is positive but not significant, while it is positive and highly significant for emerging market economies, indicating a stronger volatility-reducing effect of financial integration for these countries. On the other hand, for both advanced and emerging market economies the coefficient associated with FGLOB is negative but not significant in most regressions. This result is likely due to the lack of sufficient cross-country variation of *FGLOB* within the two samples. Lastly, for all samples, the volatility of capital flows does not have a significant impact on growth volatility

In sum, both advances in financial integration and globalization are associated with lower growth volatility. In addition, the volatility of capital flows does not seem to have any significant impact on growth volatility.[8]

B. Systemic Real Risk

Kose, Prasad, Rogoff and Wei (2009) observe that "there is little formal empirical evidence to support the oft-cited claim that financial globalization in and of itself is responsible for the spate of financial crises that the world has seen over the last three decades" (op. cit., 2009, p.28). Several studies focusing on the impact of financial openness on financial crises find little support for a positive relationship between openness and financial instability. More recently, Bekaert, Harvey and Lumblad (2009) examine the impact of measures of financial openness on a binary indicator of "banking crisis", and find no significant relationship between financial openness and the probability of a "banking crisis". Boyd, De Nicolò and Loukoianova (2010) find some evidence of a positive relationship

[8] Our findings can be also viewed as consistent with those obtained by Beckaert, Harvey and Lundblad (2006), who find that consumption growth volatility is lower as a result of de-jure measures of financial liberalization,

between financial openness and indicators of systemic bank shocks for country level data, but no relationship between financial openness and the probability of systemic bank failures in Logit regressions based on firm-level data.

Differing from most studies that focus on systemic *financial* risk, here we assess whether there exists a significant relationship between financial integration, globalization, and indicators of systemic *real* risk, defined as in De Nicolò and Lucchetta (2011). Indicators of systemic real risk capture tail realizations of declines in real activity**.** The main advantage of using these indicators is eschewing the challenging task of defining and dating episodes of bank or financial fragility. Whenever financial instability carries significant adverse real effects, these effects will be reflected in declines in real activity and will be captured by our indicators.

We construct two measures of systemic real risk. The first one, called SR5, is a binary variables that take the value of one if in a given year a country's ratio of GDP growth to its standard deviation, which is computed for the entire length of the sample, is in the lowest 5th percentile of its cross country distribution, and zero otherwise. The second measure, called SR0, can be viewed as a lower bound to systemic real risk realizations: it is a binary variable that takes the value of one if GDP growth in a given year is negative, and zero otherwise. To maximize the size of the empirical distribution of GDP growth, *SR5* and *SR0* are computed on the basis of GDP growth data since the year 1960.

Similarly to the specification of equation (13), we estimate the following Logit model:

$$P(SR_{jt}=1) = Logit(\alpha + \beta ISPEED_{jt} + \gamma FGLOB_{jt-1} + \delta CFV_{jt-1} + \rho GDPG_{jt-1}) \quad (14)$$

Table 6 reports the results for the pooled sample, as well as the samples of advanced and emerging market economies.. In the pooled sample (Regressions (1)-(3) of panel A), the probability of a systemic risk realization SR5 is *lower* the higher is financial integration, as the coefficient associated with *ISPEED* is positive and significant. The coefficients associated with *FGLOB* and capital flow volatility are all negative but not significant. By contrast, in the regressions with SR0 as the dependent variable, the coefficients of *ISPEED* remain positive but not significant, that associated with *FGLOB* is positive and highly significant, and the coefficients associated with capital flow volatility are positive and

(weakly) significant. These results suggests that higher levels of financial integration may be associated with lower macroeconomic instability, while higher levels of globalization and capital flow volatility may be associated with lower probabilities of milder systemic real risk realizations, such as recessions.

The results for the sample of advanced economies (Table 6, Panel B) and those of emerging markets (Table 6, Panel C) indicate differential strengths of the positive effects of financial integration and globalization on systemic real risk across these two country groups. For advanced economies, the coefficient associated with *ISPEED* is positive but not significant, while it is positive and significant for the emerging market economies, indicating a stronger impact of financial integration in reducing systemic real risk for these countries. By contrast, the coefficient of *FGLOB* is negative in all regressions in both country groups, but is significant only for SR0, suggesting that financial globalization is associated with lower probabilities of recessions. Lastly, the coefficients associated with capital outflow volatility are not significant, while that associated with capital inflow volatility is negative and significant in the regressions with SR0 as the dependent variable in the emerging market sample.

Summing up, we generally find a significant negative relationship between financial integration, globalization and the probability of a systemic real risk realization, and a negative relationship between capital inflow volatility and the probability of a recession. These results, together with the evidence on growth volatility reported previously, are at odds with the conjecture that there is a trade-off between financial integration, globalization , growth and macroeconomic stability.

C. The Role of the Quality of Institutions and Corporate Governance

If financial integration and globalization are important drivers of growth prospects and in and of themselves, and do not pose risks of macroeconomic instability, a natural question is: what are their main determinants? Here we present evidence on the relationship between our integration and globalization measures and two sets of potential determinants that many contributions in the literature have singled out as impacting on the levels of financial integration and globalization: the quality of institutions, and that of corporate governance.

As measures of the quality of institutions, we take the governance indicators constructed by Kaufmann, Krey and Mastruzzi (2009). These include six survey-based measures of institutional quality: *Control of Corruption (*the extent to which public power is exercised for private gain); *Voice and Accountability (*citizens' ability to participate in selecting their government); *Political Stability (*the stability of elected government bodies); *Government Effectiveness (*the quality of public services and that of policy formulation and implementation); *Regulatory Quality (*the ability of the government to implement regulations that permit and promote private sector development); and *Rule of Law (*the quality of contract enforcement and protection of property rights).

As measures of the quality of corporate governance, we take the two indicators of corporate governance quality based on accounting data of firms listed in equity markets constructed by De Nicolò, Laeven and Ueda (2008), and updated to the year 2008. These indicators capture the quality of accounting disclosure and transparency, and are standardized so that an increase of an indicator signals better corporate governance. The first indicator, *Accounting Standards,* captures the degree of accounting disclosure of firms in a country. The second indicator, *Earning Smoothing*, is a measure of "earnings opacity" that tracks the extent to which managers may conceal the true performance of firms using accruals to smooth fluctuations of annual profits.

The relationship between financial integration, globalization, and the quality of institutions and corporate governance was estimated by means of the following random effect model:

$$Y_{jt} = \alpha + \alpha_{1t} + \beta X_{jt} + \eta_{jt} + \varepsilon_{jt}, \qquad (15)$$

where Y_{jt} is either *ISPEED* or *FGLOB,* X_{jt} are the indicators of quality of institutions and corporate governance, α_{1t} are time fixed effects, and η_{jt} are random effects.

Table 7 reports the results of the estimates of the coefficients associated with each institutional and corporate governance variable. Next to each estimate, we also report the quantitative impact of each variable on the dependent variable whenever the relevant coefficient is significant at least at a 10 percent confidence level. This is measured as the

change in Y_{jt} implied by a standard deviation increase in X_{jt} as a fraction of the sample mean of Y_{jt}.

Each indicator of the quality of institutions has a positive and quantitatively significant impact on both financial integration and globalization. Remarkably, the quantitative impact of the quality of institutions on our measure of financial integration is larger than that on globalization for each of the quality categories. These results are consistent with the view that the poorly developed institutions contribute to keep capital markets segmented (see Bekaert, 1995) and discourage foreign direct investment. With regard to corporate governance, better corporate governance is generally associated with a higher level of integration and globalization, although the coefficients in the relevant regressions are not significant, and the quantitative impact of these variables is generally smaller than the more encompassing measure of quality of institutions

In sum, the quality of institutions and corporate governance are important determinants of both financial integration and globalization. Remarkably, the positive impact of good institutions and corporate governance appears comparatively stronger for financial integration.

D. Robustness

As pointed out in the literature, the possible endogeneity of the financial integration and globalization variables and the potential impact of omitted variables are the typical problems that may induce biases in the estimated coefficients of the type of regressions we have presented.

We assess the robustness of our results to these problems in Table 8. Columns (1)-(2) report GMM dynamic panel estimations of our baseline growth and growth volatility regressions for the pooled sample, with the matrix of instruments designed to treat the variables *ISPEED* and *FGLOB* as *endogenous*. It can be easily seen that the results are basically the same as those of the correspondent regressions reported in Tables 4 and 5. Similar results (not reported) are obtained when all other previous specifications are run with the integration and globalization variable treated as endogenous.

Columns (3)-(4) we report GMM dynamic panel estimations of our baseline growth and growth volatility regressions for the pooled sample using the "double differencing" estimation implemented by De Nicolò, Laeven and Ueda (2008), which can control for the omission of all variables whose dynamics can be approximated by a stochastic trend.[9]. Again, the results are basically the same as those reported in columns (1)-(2).

Lastly, in columns (5)-(6) we report Logit regressions where we replace the financial integration variable with the fitted values of the regressions reported in Table 7 , with the variables indexing the quality of institutions as explanatory variables. This amounts to "instrument" *ISPEED* with the variables tracking the quality of institutions. However, we continue to treat lagged values of *FGLOB* as exogenous. It can be seen that the results are basically the same as those of the correspondent regressions reported in Panel A of Tables 6.

In sum, our results appear robust to the potential endogeneity of the financial integration and globalization variables, as well as to a large set of omitted variables.

V. CONCLUSIONS

This paper has examined the distinct impact of financial integration and globalization on four dimensions of real activity: growth prospects, growth, growth volatility and a measure of macroeconomic instability. Financial integration predicts better growth prospects, but the converse does not necessarily holds; and both financial integration and globalization are associated with higher growth, lower growth volatility and lower probabilities of sharp declines in real activity.

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[9] Consider the regression (a): $Y_{it} = \alpha_i + X_{it}\beta + ln(Z_{it})\gamma + \delta Y_{it-1} + \varepsilon_{it}$ and suppose that the vector of variables $\ln(Z_{it})$ includes *all* variables that affect Y_{it}. Defining $\Delta x_t \equiv x_t - x_{t-1}$, (a) can be expressed as: (b) $\Delta Y_{it} = \Delta X_{it}\beta + \Delta ln(Z_{it})\gamma + \delta \Delta Y_{it-1} + \Delta \varepsilon_{it}$. Suppose vector Z_{it} satisfies $\Delta ln(Z_{it}) = G_i + \nu_{it}$, where ν_{it} are identically, independently distributed. and uncorrelated over time and across units (countries), define $A_i \equiv G_i\gamma$ and $\eta_{it} \equiv \nu_{it}\gamma + \Delta\varepsilon_{it}$, and assume *all* ν_{it} are uncorrelated with X_{it} and $\Delta\varepsilon_{it}$. Then, one can write (c) $\Delta Y_{it} = A_i + \Delta X_{it}\beta + \delta \Delta Y_{it-1} + \eta_{it}$. Estimation of β is obtained by applying the *difference* GMM estimation procedure developed by Blundell and Bond (1998) to equation (c), which is implemented through to "double" differencing equation (a)..

Overall, these results suggest that financial integration and globalization are likely to yield the beneficial real effects resulting from a more efficient resource allocation predicted by theory. We do not find direct evidence of costs in the dimension of macroeconomic instability. Policies aimed at fostering financial integration of capital markets and financial sectors, as well as continuing removing impediments to financial globalization, may be necessary, albeit not sufficient, to allow countries to reap these benefits.

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Table 1. Convergence of Cross-Country Variances and Idiosyncratic Volatility of Equity Market Excess Returns

The estimated model is:

$$\bar{\sigma}_X^2(t) = A_0 + A_1 t + A_2 F_t^2 + A_3 \bar{\sigma}_X^2(t-1) + H_t \eta_t$$
$$H_t^2 = B_0 + B_1 t + B_2 \eta_{t-1}^2 + B_3 H_{t-1}^2$$

$\bar{\sigma}_X^2(t)$ is the cross-sectional variance of equity premiums, and H_t^2 is the variance of $\bar{\sigma}_X^2(t)$ net of the variance of the common risk factor F_t, estimated as the first principal component of countries' equity premiums. p-values are reported in brackets; * denotes p <0.10, ** p <0.05, *** p<0.01. The range of monthly data is 1985:1-2009:04 (280 observations).

A. World Integration

	(1) All Countries	(2) Excluding Emerging Markets	(3) Excluding Asia	(4) Excluding Latin America	(5) Excluding Europe
Mean Equation					
A0	99.743***	0.903**	224.825***	5.327***	-37.260***
	[0.00]	[0.02]	[0.00]	[0.00]	[0.00]
A1	**-0.370*** **	**-0.002*** **	**-0.247*** **	**-0.205*** **	**-0.092*** **
	[0.00]	**[0.05]**	**[0.00]**	**[0.00]**	**[0.00]**
A2	0.020***	0.001***	0.031***	0.027***	0.017
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
A3	-0.062**	0.805***	-0.103	0.098	0.368***
	[0.04]	[0.00]	[0.27]	[0.00]	[0.00]
Variance Equation					
B0	121.548***	0.006	155.165	21.924***	2.214
	[0.00]	[0.91]	[0.11]	[0.00]	[0.87]
B1	**-0.380*** **	**0.001**	**-0.423**	**1.512*** **	**-0.005**
	[0.00]	**[0.93]**	**[0.13]**	**[0.00]**	**[0.90]**
B2	6.809***	0.557***	4.167***	0.197***	1.059***
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
B3	0.006	0.576***	0.014	-0.033***	0.486***
	[0.34]	[0.00]	[0.29]	[0.00]	[0.00]

B. Regional Integration

	(6) Asia	(7) Latin America	(8) Europe	(9) Europe Excluding Emerging Europe
Mean Equation				
A0	8.764***	-9.929***	16.757***	0.575**
	[0.00]	[0.00]	[0.00]	[0.03]
A1	**-0.042*** **	**-0.226*** **	**-0.120*** **	**-0.002** **
	[0.00]	**[0.00]**	**[0.00]**	**[0.04]**
A2	0.049***	0.007***	0.042***	0.001***
	[0.00]	[0.00]	[0.00]	[0.00]
A3	0.107**	0.504***	0.255***	0.855***
	[0.02]	[0.00]	[0.00]	[0.00]
Variance Equation				
B0	11.168***	60.733***	-6.528	-0.003
	[0.00]	[0.00]	[0.26]	[0.83]
B1	**-0.022**	**-0.183*** **	**0.111**	**-0.001**
	[0.25]	**[0.00]**	**[0.16]**	**[0.83]**
B2	1.133***	6.681	1.867***	0.441***
	[0.00]	[0.75]	[0.00]	[0.00]
B3	0.271***	0.098***	0.091	0.707***
	[0.00]	[0.00]	[0.17]	[0.00]

Table 2. Risk-Adjusted Growth Opportunities Predict Growth

The estimated model is: $GDPG_{jt} = \alpha_{1j} + \alpha_{2t} + \beta RAGP_{jt-1} + \gamma GDPG_{jt-1} + \varepsilon_{jt}$,

GDPG is real GDP growth, *RAGP* is the measure of risk-adjusted growth prospects. α_{1j} are country fixed effects, and α_{2t} are time fixed-effects Estimates are obtained by the GMM System estimator of Blundell and Bond (1998). M1 and M2 are the p-values of the Arellano-Bond statistics for first and second order correlation of residuals; Sargan is the p-value obtained by estimates of the two-step version of the models. Robust p-values are reported in brackets; * denotes p <0.10, ** p <0.05, *** p<0.01. The range of annual data is 1985-2009.

	Pooled	**Advanced**	**Emerging**
	(1)	(2)	(3)
	GDPG(t)	GDPG(t)	GDPG(t)
GDPG(t-1)	0.365***	0.443***	0.284***
	[0.00]	[0.00]	[0.00]
RAGP(t-1)	1.962***	2.120**	1.286**
	[0.00]	[0.02]	[0.04]
Constant	-0.670	2.190***	8.447***
	[0.39]	[0.00]	[0.00]
M1(p-value)	0.00	0.00	0.00
M2(p-value)	0.61	0.11	0.61
Sargan(p-value)	1.00	1.00	1.00
Observations/Countries	916/50	529/24	387/26

Table 3. Financial Integration and Risk-Adjusted Growth Opportunities

The estimated models are:

$$\Delta RAGP_{jt} = \alpha_{1j} + \beta_1 ISPEED_{jt-1} + (\gamma_1 - 1)RAGP_{jt-1} + \delta_{11} ARAGP_{t-1} + \delta_{12} A\Delta RAGP_{t-1} + \varepsilon_{1jt}$$

$$\Delta ISPEED_{jt} = \alpha_{2j} + \beta_2 RAGP_{jt-1} + (\gamma_2 - 1)ISPEED_{jt-1} + \delta_{12} AISPEED_{jt-1} + \delta_{22} A\Delta ISPEED_{jt-1} + \varepsilon_{2jt}$$

RAGP is the measure of risk-adjusted growthprospects, and *ISPEED* is the measure of financial integration. The other variables are explained in the text. Estimates are obtained with country fixed effects regressions. Standard errors are clustered by country. Robust p-values are reported in brackets; * denotes p <0.10, ** p <0.05, *** p<0.01. The range of monthly data is 1085:01-2009:04.

	(1) All countries	**(2) Europe**	**(3) Asia**	**(4) Latin America**
	DRAGP(t)	DRAGP(t)	DRAGP(t)	DRAGP(t)
ISPEED(t-1)	-0.001**	-0.001**	-0.001**	-0.003***
	[0.02]	[0.03]	[0.04]	[0.00]
RAGP(t-1)	-0.192***	-0.143*	-0.078***	-0.306**
	[0.00]	[0.08]	[0.00]	[0.03]
ARAGP(t-1)	0.111**	0.0687	-0.003	0.221*
	[0.08]	[0.17]	[0.80]	[0.08]
ADRAGP(t-1)	0.513***	0.533***	0.475***	0.507***
	[0.00]	[0.00]	[0.00]	[0.00]
R-squared (within)	0.232	0.225	0.256	0.264
R-squared (between)	0.004	0.023	0.022	0.049
	(5) All countries	**(6) Europe**	**(7) Asia**	**(8) Latin America**
	DISPEED(t)	DISPEED(t)	DISPEED(t)	DISPEED(t)
RAGP(t-1)	-0.122*	-0.206*	-0.037	-0.171*
	[0.07]	[0.06]	[0.25]	[0.09]
ISPEED(t-1)	-0.280***	-0.310***	-0.218***	-0.167***
	[0.00]	[0.00]	[0.00]	[0.00]
AISPEED(t-1)	0.193**	0.194**	0.089**	0.051
	[0.02]	[0.03]	[0.02]	[0.21
ADISPEED(t-1)	-0.265***	-0.238***	-0.470***	-0.035
	[0.00]	[0.01]	[0.00]	[0.39]
R-squared (within)	0.133	0.144	0.160	0.071
R-squared (between)	0.061	0.077	0.230	0.116
Observations/countries	10317/50	5563/28	3164/14	1566/8

Table 4. Growth Regressions

The estimated models are:

$$GDPG_{jt} = \alpha_{1j} + \alpha_{2t} + \beta ISPEED_{jt} + \gamma FGLOB_{jt-1} + \delta CFV_{jt-1} + \rho GDPG_{jt-1} + \varepsilon_{jt}$$

GDPG is GDP growth, *ISPEED* is the financial integration measure, *FGLOB is* the financial globalization measure, and *CFV* denotes the proxy measures of volatility of capital outflows (*COFV*) and capital inflows (*CIFV*) as defined in the text. α_{1j} are country fixed effects, and α_{2t} are time fixed-effects. Estimates are obtained by the GMM System estimator of Blundell and Bond (1998). M1 and M2 are the p-values of the Arellano-Bond statistics for first and second order correlation of residuals; Sargan is the p-value obtained by estimates of the two-step version of the models: a p-value of 1 implies that the null hypothesis that the overidentifying restrictions are valid cannot be rejected. Robust p-values are reported in brackets; * denotes p <0.10, ** p <0.05, *** p<0.01. The range of annual data is 1992-2008.

	Pooled			**Advanced**			**Emerging**		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GDPG(t)	GDPG(t)	GDPG(t)	GDPG(t)	GDPG(t)	GDPG(t)	GDPG(t)	GDPG(t)	GDPG(t)
GDPG(t-1)	0.417***	0.434***	0.436***	0.447***	0.447***	0.446***	0.352***	0.374***	0.387***
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
ISPEED(t)	-0.0004***	-0.0004***	-0.0004***	0.009	0.009	0.009	-0.0004***	-0.0004***	-0.0004***
	[0.00]	[0.00]	[0.00]	[0.26]	[0.26]	[0.27]	[0.00]	[0.00]	[0.00]
FGLOB(t-1)	0.046***	0.034**	0.034**	0.038***	0.038***	0.041***	0.045***	0.035*	0.024
	[0.00]	[0.02]	[0.01]	[0.00]	[0.00]	[0.00]	[0.00]	[0.09]	[0.17]
COFV(t-1)		0.035			0.004			0.028	
		[0.15]			[0.853]			[0.35]	
CIFV(t-1)			0.0540*			-0.014			0.086***
			[0.07]			[0.30]			[0.00]
Constant	2.654***	2.203**	2.016**	0.763	1.949**	2.163**	1.151	0.772	0.206
	[0.00]	[0.02]	[0.04]	[0.15]	[0.03]	[0.03]	[0.66]	[0.79]	[0.94]
M1(p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M2(p-value)	0.56	0.45	0.37	0.10	0.10	0.10	0.71	0.75	0.88
Sargan(p-value)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Observations/Countries	939/48	939/48	939/48	544/24	544/24	544/24	395/24	395/24	395/24

Table 5. Growth Volatility Regressions

The estimated models are:

$$GDPGV_{jt} = \alpha_{1j} + \alpha_{2t} + \beta ISPEED_{jt} + \gamma FGLOB_{jt-1} + \delta CFV_{jt-1} + \rho GDPGV_{jt-1} + \varepsilon_{jt}$$

GDPGV is the proxy measure of GDP growth volatility, *ISPEED* is the financial integration measure, *FGLOB is* the financial globalization measure, and *CFV* denotes the proxy measures of volatility of capital outflows (*COFV*) and capital inflows (*CIFV*) as defined in the text. α_{1j} are country fixed effects, and α_{2t} are time fixed-effects. Estimates are obtained by the GMM System estimator of Blundell and Bond (1998). M1 and M2 are the p-values of the Arellano-Bond statistics for first and second order correlation of residuals; Sargan is the p-value obtained by estimates of the two-step version of the models: a p-value of 1 implies that the null hypothesis that the overidentifying restrictions are valid cannot be rejected . Robust p-values are reported in brackets; * denotes p <0.10, ** p <0.05, *** p<0.01. The range of annual data is 1992-2008.

	Pooled			**Advanced**			**Emerging**		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GDPGV(t)	GDPGV(t)	GDPGV(t)	GDPGV(t)	GDPGV(t)	GDPGV(t)	GDPGV(t)	GDPGV(t)	GDPGV(t)
GDPGV(t-1)	0.225***	0.213***	0.222***	0.232***	0.233***	0.231***	0.186***	0.143*	0.162**
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.08]	[0.04]
ISPEED(t)	0.0002***	0.0002***	0.0002***	-0.007	-0.006	-0.007	0.0002**	0.0002**	0.0002**
	[0.00]	[0.00]	[0.00]	[0.13]	[0.15]	[0.14]	[0.01]	[0.01]	[0.01]
FGLOB(t-1)	-0.025***	-0.026***	-0.025***	-0.005	-0.004	-0.005	-0.017	-0.025*	-0.021
	[0.00]	[0.00]	[0.00]	[0.58]	[0.67]	[0.60]	[0.18]	[0.073]	[0.124]
COFV(t-1)		0.007			-0.006			0.0244	
		[0.56]			[0.60]			[0.109]	
CIFV(t-1)			0.002			0.003			0.016
			[0.84]			[0.80]			[0.30]
Constant	1.917***	2.000***	2.042***	1.387***	1.501***	1.366***	2.550**	3.951***	3.953**
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.03]	[0.00]	[0.01]
M1(p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M2(p-value)	0.12	0.14	0.13	0.05	0.05	0.05	0.82	0.94	0.94
Sargan(p-value)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Observations/Countries	939/48	939/48	939/48	544/24	544/24	544/24	395/24	395/24	395/24

Table 6. Systemic Real Risk Regressions

The estimated models are:

$$P(SR_{jt} = 1) = Logit(\alpha + \beta ISPEED_{jt} + \gamma FGLOB_{jt-1} + \delta GDPG_{jt-1})$$

SR are the indicators of systemic real risk: SR5 equal to 1 if real GDP growth is lower than the 5th percentile of the cross-country distribution of GDP growth, and 0 otherwise; SR0 equals to 1 if real GDP growth is negative, and 0 otherwise. *ISPEED* is the financial integration measure, and *FG* is the financial globalization measure *FGLOB*, given by the annual growth rate of financial openness, and *GDPG* is GDP growth. Estimates are obtained by Logit regressions with standard errors clustered by country. Robust p-values are reported in brackets; * denotes p <0.10, ** p <0.05, *** p<0.01. The range of annual data is 1992-2008.

A. Pooled

	(1)	(2)	(3)	(4)	(5)	(6)
	SR5	SR5	SR5	SR0	SR0	SR0
GDPG(t-1)	-0.239**	-0.256**	-0.261**	-0.251***	-0.269***	-0.270***
	[0.02]	[0.03]	[0.02]	[0.00]	[0.00]	[0.00]
ISPEED(t)	0.0003**	0.0003**	0.0003**	0.0003	0.0003*	0.0004*
	[0.02]	[0.02]	[0.03]	[0.11]	[0.09]	[0.08]
FGLOB(t-1)	-0.024	-0.021	-0.021	-0.045***	-0.046***	-0.052***
	[0.28]	[0.44]	[0.52]	[0.00]	[0.00]	[0.00]
COFV(t-1)		-0.012			-0.024*	
		[0.70]			[0.09]	
CIFV(t-1)			-0.028			-0.0352*
			[0.42]			[0.06]
Constant	-3.318***	-3.175***	-3.049***	-1.552***	-1.286***	-1.207***
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Pseudo R2	0.17	0.17	0.17	0.13	0.13	0.14
Observations/Countries	939/48	939/48	939/48	939/48	939/48	939/48

Table 6. Systemic Real Risk Regressions (cont.)

The estimated models are:

$$P(SR_{jt}=1) = Logit(\alpha + \beta ISPEED_{jt} + \gamma FGLOB_{jt-1} + \delta GDPG_{jt-1})$$

SR are the indicators of systemic real risk: SR5 equal to 1 if real GDP growth is lower than the 5th percentile of the cross-country distribution of GDP growth, and 0 otherwise; SR0 equals to 1 if real GDP growth is negative, and 0 otherwise. *ISPEED* is the financial integration measure, and *FG* is the financial globalization measure *FGLOB*, given by the annual growth rate of financial openness, and *GDPG* is GDP growth. Estimates are obtained by Logit pooled regressions with standard errors clustered by country. Robust p-values are reported in brackets; * denotes p <0.10, ** p <0.05, *** p<0.01. The range of annual data is 1992-2008.

B. Advanced

	(7)	(8)	(9)	(10)	(11)	(12)
	SR5	SR5	SR5	SR0	SR0	SR0
GDPG(t-1)	-0.541***	-0.577***	-0.526**	-0.361***	-0.361***	-0.360***
	[0.00]	[0.00]	[0.02]	[0.00]	[0.00]	[0.00]
ISPEED(t)	0.011	0.012	0.011	-0.008	-0.008	-0.008
	[0.30]	[0.23]	[0.31]	[0.25]	[0.26]	[0.25]
FGLOB(t-1)	-0.043	-0.072	-0.040	-0.045**	-0.046**	-0.044**
	[0.29]	[0.31]	[0.19]	[0.01]	[0.02]	[0.01]
COFV(t-1)		-0.144*			-0.0171	
		[0.09]			[0.49]	
CIFV(t-1)			0.022			0.004
			[0.76]			[0.89]
Constant	-3.780***	-2.810***	-4.006***	-1.121***	-0.995**	-1.152***
	[0.00]	[0.00]	[0.00]	[0.00]	[0.01]	[0.00]
Pseudo R2	0.20	0.24	0.20	0.11	0.12	0.11
Observations/Countries	544/24	544/24	544/24	544/24	544/24	544/24

C. Emerging

	(13)	(14)	(15)	(16)	(17)	(18)
	SR5	SR5	SR5	SR0	SR0	SR0
GDPG(t-1)	-0.167*	-0.179*	-0.204**	-0.202***	-0.229***	-0.247***
	[0.09]	[0.10]	[0.03]	[0.00]	[0.00]	[0.00]
ISPEED(t)	0.0002**	0.0002**	0.0003**	0.0003*	0.0003*	0.0004**
	[0.02]	[0.02]	[0.02]	[0.10]	[0.10]	[0.03]
FGLOB(t-1)	-0.0126	-0.010	0.001	-0.038***	-0.038***	-0.057***
	[0.59]	[0.76]	[0.98]	[0.00]	[0.00]	[0.00]
COFV(t-1)		-0.009			-0.024	
		[0.76]			[0.18]	
CIFV(t-1)			-0.0648			-0.0746***
			[0.24]			[0.00]
Constant	-3.041***	-2.895***	-2.469***	-1.674***	-1.310***	-0.916**
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Pseudo R2	0.19	0.19	0.21	0.17	0.18	0.20
Observations/Countries	395/24	395/24	395/24	395/24	395/24	395/24

Table 7. Financial Integration, Globalization, and the Quality of Institutions and Corporate Governance

The estimated model is: $Y_{jt} = \alpha + \alpha_{1t} + \beta X_{jt} + \eta_{jt} + \varepsilon_{jt}$,

Y_{jt} is the financial integration measure ISPEED *or* the financial globalization measure *FGLOB (*annual growth rate of financial openness). X_{jt} are indicators of quality of institutions and corporate governance. Estimates are obtained by random effect regressions with standard errors clustered by country. The *quantitative impact* is *the change in* Y_{jt} *implied by a standard deviation increase in* X_{jt} *as a fraction of the sample mean of* Y_{jt}. Robust p-values are reported in brackets; * denotes p <0.10, ** p <0.05, *** p<0.01.

	(1)	(2)	(3)	(4)
	ISPEED	Quantitative Impact	FGLOB	Quantitative Impact
Quality of Institutions				
Control of Corruption	-6.735**	-1.20	0.058***	0.27
	[0.04]		[0.00]	
Voice and Accountability	-6.507	-1.15	0.065***	0.30
	[0.15]		[0.00]	
Political Stability	-6.028	-1.24	0.059***	0.31
	[0.11]		[0.00]	
Government Effectiveness	-11.36**	-1.64	0.056***	0.22
	[0.04]		[0.00]	
Regulatory Quality	-6.682*	-1.00	0.072***	0.28
	[0.08]		[0.00]	
Rule of Law	-5.309**	-0.95	0.063***	0.29
	[0.04]		[0.00]	
Quality of Corporate Governance				
Accaunting Standards	-1612	-0.41	43.760***	0.30
	[0.41]		[0.00]	
Earnings Smoothing (Opacity)	-317.97	-0.54	7.482***	0.35
	[0.18]		[0.00]	

Table 8. Robustness

Regressions (1)-(2) are the dynamic panel regressions of Tables 4 and 5 for GDPG and GDPGV with ISPEED and the lags of FGLOB treated as *endogenous* variables in the GMM estimation procedure. Regressions (3)-(4) are the same regressions estimated in differences according to the procedure described in De Nicolò, Laeven and Ueda (2008) to account for omitted variables exhibiting an approximately constant growth rate. Regressions (5)-(6) are specified ias in Table 5, with ISPEED replaced with PISPEED, obtained as the (in-sample) predicted values of ISPEED regressed on theb institutional variables described in Table 7. Estimates of (1)-(4) are obtained by the GMM System estimator of Blundell and Bond (1998). M1 and M2 are the p-values of the Arellano-Bond statistics for first and second order correlation of residuals; Sargan is the p-value obtained by estimates of the two-step version of the models: a p-value of 1 implies that the null hypothesis that the overidentifying restrictions are valid cannot be rejected. Regressions (5)-(6) are Logit regressions with standard errors clustered by country. Robust p-values are reported in brackets; * denotes p <0.10, ** p <0.05, *** p<0.01. The range of annual data is 1992-2008.

Dyanamic Panel Regressions					**Logit Regressions**		
	(1)	(2)	(3)	(4)		(5)	(6)
	GDPG(t)	GDPGV(t)	DGDPG(t)	DGDPGV(t)		SR5	SR0
GDPG(t-1)	0.429***				GDPG(t-1)	-0.181***	-0.215***
	[0.00]					[0.00]	[0.00]
GDPGV(t-1)		0.235***			PISPEED(t)	0.00194***	0.000686***
		[0.00]				[0.00]	[0.00]
DGDPG(t-1)			-0.155***		FGLOB(t-1)	-0.0276*	-0.0339***
			[0.00]			[0.07]	[0.00]
DGDPGV(t-1)				-0.307***			
				[0.00]			
ISPEED(t)	-0.0004***	0.000223***					
	[0.00]	[0.00]					
FGLOB(t-1)	0.0435***	-0.0193**					
	[0.00]	[0.02]					
DISPEED(t)			-0.000454***	0.000267***			
			[0.00]	[0.00]			
DFGLOB(t-1)			0.0374***	-0.0142**			
			[0.00]	[0.04]			
Constant	2.606***	1.918***	1.191*	-0.626		-4.454***	-1.837***
	[0.00]	[0.00]	[0.08]	[0.43]		[0.00]	[0.00]
M1(p-value)	0.00	0.00	0.00	0.00			
M2(p-value)	0.61	0.19	0.09	0.01			
Sargan(p-value)	1.00	1.00	1.00	1.00	Pseudo R2	0.29	0.12
Observations/Countries	939/48	939/48	891/48	891/48		642/48	642/48

Appendix A. Data

Our sample includes 52 countries, divided in regions as follows: *Developed Europe* includes the following sixteen countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. *Emerging Europe* includes the following fourteen countries: Czech Republic, Hungary, Poland, Rumania, Russia, Turkey, Bulgaria, Croatia, Estonia, Latvia, Lithuania, Slovakia, Slovenia, and Ukraine. *Developed America* includes the United States and Canada. *Emerging America* (*Latin America)* includes the following six countries: Mexico, Argentina, Brazil, Chile, Colombia and Peru. *Emerging Asia* includes the following eight countries: China, India, Indonesia, Malaysia, Pakistan, Philippines, Taiwan Republic of China, and Thailand. *Developed Asia* includes Hong Kong, Korea, Singapore, Japan, Australia and New Zealand.

Table A1. Description of the variables

Variable	Description
Equity Premiums	We use (ex-post) equity excess returns as proxy measures of equity premiums. Equity market data at monthly frequency is taken from DataStream. The risk-free rate is the yield on government securities at maturities ranging from one month to three months, depending on data availability. Data is available from 1985 through 2009. Starting points vary by country. See Table A2 for details. Source: The primary source of the risk-free rate is DataStream but in the cases in which data is missing data is taken from the International Financial Statistics of the IMF (see table for details).
Price-to-Earnings Ratio	Data is available from Data is available from 1985 through 2009. Starting points vary by country. See Table A2 for details. Source: DataStream.
GDP growth	Growth of real gross domestic product from 1985 through 2008. Starting points vary by country. See Table A2 for details. Source: World Bank.
Financial Globalization	Our measure of globalization, called FGLOB, is the growth rate of financial openness, defined as the ratio of the sum of external assets and liabilities to GDP. Data is available for all countries except Slovakia from 1992 through 2008. Source: Lane and Milesi-Ferretti (2007).

Governance Indicators	We consider the governance indicators constructed by Kaufmann, Krey and Mastruzzi (2009) as measures of the quality of institutions. These include six survey-based measures of institutional quality: *Control of Corruption,* the extent to which public power is exercised for private gain; *Voice and Accountability*, citizens' ability to participate in selecting their government; *Political Stability*, the stability of elected government bodies, *Government Effectiveness*, the quality of public services and that of policy formulation and implementation; *Regulatory Quality*, the ability of the government to implement regulations that permit and promote private sector development; and *Rule of Law*, the quality of contract enforcement and protection of property rights. Data is available for all countries from 1996 through 2008. Source: World Bank
Corporate Governance	We use three indicators of the corporate governance quality index constructed by De Nicolò, Laeven and Ueda (2008), and updated to the year 2008. The first indicator, *Accounting Standards*, captures the degree of accounting disclosure of firms in a country. The second indicator, *Earning Smoothing*, is a measure of "earnings capacity" that tracks the extent to which managers may conceal the true performance of firms using accruals to smooth fluctuations of annual profits. Data is available from 1995 through 2008. Starting points vary by country. See Table A4 for details.

Table A2. Data availability (monthly)

	Interest rates		Equity Price Index	Price to Earnings Ratio
Countries	**Data available**	**Source**	**Data available**	**Data available**
Argentina	1989:12-2009:04	IFS	1991:08-2009:04	1991:07-2009:04
Australia	1985:01-2009:04	DS	1985:01-2009:04	1985:01-2009:04
Austria	1989:01-2009:04	DS	1985:01-2009:04	1985:01-2009:04
Belgium	1985:01-2009:04	IFS	1985:01-2009:04	1985:01-2009:04
Bulgaria	1997:05-2009:04	IFS	2000:10-2009:04	1996:02-2009:04
Brazil	1994:07-2009:04	DS	1994:07-2009:04	1999:06-2009:04
Canada	1985:01-2009:04	IFS	1985:01-2009:04	1986:02-2009:04
Chile	1985:01-2009:04	IFS	1985:01-2009:04	1989:07-2009:04
China	1993:05-2009:04	DS	1990:12-2009:04	1993:08-2009:04
Czech Republic	1992:04-2009:04	DS	1993:09-2009:04	1993:12-2009:04
Colombia	1986:01-2009:04	IFS	1985:01-2009:04	1993:03-2009:04
Croatia	1997:06-2006:03	DS	1997:01-2009:04	1998:05-2009:04
Denmark	1985:06-2009:04	DS	1985:01-2009:04	1985:01-2009:04
Estonia	1996:01-2009:05	IFS	1995:07-2009:04	1998:02-2009:04
Finland	1987:01-2009:04	DS	1985:01-2009:04	1988:04-2009:04
France	1985:01-2009:04	DS	1985:01-2009:04	1985:01-2009:04
Germany	1985:01-2009:04	DS	1985:01-2009:04	1985:01-2009:04
Greece	1999:01-2009:05	IFS	1985:01-2009:04	1990:01-2009:04
Hong Kong	1985:01-2009:04	DS	1985:01-2009:04	1985:01-2009:04
Hungary	1990:10-2009:04	DS	1991:06-2009:04	1991:07-2009:04
India	1991:01-2009:04	DS	1985:01-2009:04	1990:01-2009:04
Indonesia	1986:01-2009:04	DS	1985:01-2009:04	1991:02-2009:04
Ireland	1985:01-2009:04	DS	1985:01-2009:04	1985:01-2009:04
Italy	1985:01-2009:04	DS	1985:01-2009:04	1986:02-2009:04
Japan	1985:01-2009:04	IFS	1985:01-2009:04	1985:01-2009:04
Korea	1991:03-2009:04	IFS	1985:01-2009:04	1988:01-2009:04
Latvia	1994:05-2009:04	DS	1996:04-2009:04	1998:02-2009:04
Lithuania	1998:01-2008:12	IFS	1996:01-2009:04	1996:02-2009:04
Malaysia	1985:01-2009:04	DS	1985:01-2009:04	1986:02-2009:04
Mexico	1985:01-2009:04	IFS	1988:01-2009:04	1990:07-2009:04
Netherland	1985:01-2009:04	DS	1985:01-2009:04	1985:01-2009:04
New Zealand	1985:01-2009:04	DS	1985:01-2009:04	1988:02-2009:04
Norway	1985:01-2009:04	IFS	1985:01-2009:04	1985:01-2009:04
Pakistan	1992:02-2009:04	DS	1985:01-2009:04	1992:08-2009:04
Peru	1991:06-2009:04	DS	1994:01-2009:04	1994:01-2009:04
Philippines	1987:01-2009:04	DS	1985:01-2009:04	1987:10-2009:04
Poland	1993:06-2009:04	DS	1994:03-2009:04	1994:03-2009:04
Portugal	1992:11-2009:04	DS	1985:01-2009:04	1990:02-2009:04
Romania	1995:08-2009:04	DS	1996:12-2009:04	1998:02-2009:04
Russia Federation	1994:09-2009:04	DS	1993:09-2009:04	1995:04-2009:04
Singapore	1986:04-2009:04	DS	1985:01-2009:04	1985:01-2009:04
Slovakia	1994:06-2008:12	DS	1993:09-2009:04	1997:02-2009:04
Slovenia	2003:05-2009:04	DS	1993:01-2009-04	1996:02-2009:04
Spain	1988:09-2009:04	DS	1985:01-2009:04	1987:03-2009:04
Sweden	1983:01-2005:05	IFS	1985:01-2009:04	1985:01-2009:04
Switzerland	1985:01-2009:04	DS	1985:01-2009:04	1985:01-2009:04
Taiwan	1985:01-2009:04	IFS	1985:01-2009:04	1988:05-2009:04
Thailand	1991:01-2009:04	DS	1985:01-2009:04	1987:02-2009:04
Turkey	1990:01-2009:04	DS	1986:01-2009:04	1990:04-2009:04
UK	1985:01-2009:04	DS	1985:01-2009:04	1985:01-2009:04
Ukraine	1993:01-2008:12	DS	1998:01-2009:04	1998:02-2009:04
US	1985:01-2009:04	DS	1985:01-2009:04	1985:01-2009:04

Table A3. Data Availability (yearly)

	GDP Growth	Financial Development	Equity Market Liquidity
Countries	**Data available**	**Data available**	**Data available**
Argentina	1985-2008	1992-2008	1992-2008
Australia	1985-2008	1992-2008	1992-2008
Austria	1985-2008	1992-2008	1992-2008
Belgium	1985-2008	1992-2008	1992-2008
Bulgaria	1981-2008	1992-2008	1995-2008
Brazil	1985-2008	1992-2008	1992-2008
Canada	1985-2008	1992-2008	1992-2008
Chile	1985-2008	1992-2008	1992-2008
China	1985-2008	-	1991-2007
Czech Republic	1991-2008	-	1994-2008
Colombia	1985-2008	1992-2008	1992-2008
Croatia	1991-2008	1994-2008	1994-2008
Denmark	1985-2008	1992-2008	1992-2008
Estonia	1981-2008	1993-2008	1997-2007
Finland	1985-2008	1992-2008	1992-2008
France	1985-2008	1992-2008	1992-2008
Germany	1985-2008	1992-2008	1992-2008
Greece	1985-2008	1992-2008	-
Hong Kong	1985-2008	1992-2008	1992-2007
Hungary	1985-2008	1992-2008	1992-2008
India	1985-2008	1992-2008	1992-2008
Indonesia	1985-2008	1992-2008	1992-2008
Ireland	1985-2008	1992-2008	1995-2007
Italy	1985-2008	1992-2008	1992-2008
Japan	1985-2008	1992-2008	1992-2008
Korea	1985-2008	-	1992-2008
Latvia	1985-2008	1994-2008	1996-2008
Lithuania	1991-2008	1994-2008	1995-2007
Malaysia	1985-2008	1992-2008	1992-2008
Mexico	1985-2008	1992-2008	1992-2008
Netherland	1985-2008	1992-2008	1992-2008
New Zealand	1985-2008	1992-2008	1992-2008
Norway	1985-2008	1992-2008	1992-2008
Pakistan	1985-2008	1992-2008	1992-2008
Peru	1985-2008	1992-2008	1992-2008
Philippines	1985-2008	1992-2008	1992-2008
Poland	1991-2008	1992-2008	1991-2008
Portugal	1985-2008	1992-2008	1994-2008
Romania	1985-2008	1997-2008	1994-2008
Russia Federation	1990-2008	1994-2008	1992-2008
Singapore	1985-2008	1992-2008	1992-2008
Slovakia	1985-2008	1992-2008	1994-2007
Slovenia	1991-2008	1992-2008	1995-2008
Spain	1985-2008	1992-2008	1992-2008
Sweden	1985-2008	1992-2008	1992-2008
Switzerland	1985-2008	1992-2008	1991-2008
Taiwan	1985-2008	-	1992-2008
Thailand	1985-2008	1992-2008	1992-2008
Turkey	1985-2008	1992-2008	1992-2008
UK	1985-2008	1992-2008	1992-2007
Ukraine	1988-2008	-	1998-2008
US	1985-2008	1992-2008	1992-2008

Table A4. Data Availability (institutional variables)

	Accounting Standards	Earnings Smoothing	Stock Price Synchronicty
Countries	**Data available**	**Data available**	**Data available**
Argentina	1995-2008	1995-2008	1995-2008
Australia	1995-2008	1995-2008	1995-2008
Austria	1995-2008	1995-2008	1995-2008
Belgium	1995-2008	1995-2008	1995-2008
Bulgaria	-	-	-
Brazil	1995-2008	1995-2008	1995-2008
Canada	1995-2008	1995-2008	1995-2008
Chile	1995-2008	1995-2008	1995-2008
China	1995-2008	1995-2008	1996-2008
Czech Republic	1995-2008	1995-2008	1995-2008
Colombia	1996-2008	1996-2008	1995-2008
Croatia	1995-2008	-	-
Denmark	1995-2008	1995-2008	1995-2008
Estonia	-	-	-
Finland	1995-2008	1995-2008	1995-2008
France	1995-2008	1995-2008	1995-2008
Germany	1995-2008	1995-2008	1995-2008
Greece	1995-2008	1995-2008	1995-2008
Hong Kong	-	-	-
Hungary	1995-2008	1995-2008	1995-2008
India	-	-	-
Indonesia	1995-2008	1995-2008	1995-2008
Ireland	1995-2008	1995-2008	1995-2008
Italy	1995-2008	1995-2008	1995-2008
Japan	1995-2008	1995-2008	1995-2008
Korea	1995-2008	1995-2008	1995-2008
Latvia	1995-2008	-	-
Lithuania	-	-	-
Malaysia	1995-2008	1995-2008	1995-2008
Mexico	1995-2008	1995-2008	1995-2008
Netherland	1995-2008	1995-2008	1995-2008
New Zealand	1995-2008	1995-2008	1995-2008
Norway	1995-2008	1995-2008	1995-2008
Pakistan	1995-2008	1995-2008	1995-2008
Peru	1996-2008	1998-2008	1995-2008
Philippines	1995-2008	1995-2008	1995-2008
Poland	1995-2008	1995-2008	1995-2008
Portugal	1995-2008	1995-2008	1995-2008
Romania	-	-	-
Russia Federatio	1996-2008	2003-2008	1998-2008
Singapore	1995-2008	1995-2008	1995-2008
Slovakia	1999-2006	1996-2006	1998-2006
Slovenia	-	-	-
Spain	1995-2008	1995-2008	1995-2008
Sweden	1995-2008	1995-2008	1995-2008
Switzerland	1995-2008	1995-2008	1995-2008
Taiwan	-	-	-
Thailand	1995-2008	1995-2008	1995-2008
Turkey	1995-2008	1995-2008	1995-2008
UK	1995-2008	1995-2008	1995-2008
Ukraine	-	-	-
US	1995-2008	1995-2008	1995-2008