Globalization and Asset Returns*

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Abstract

We provide a comprehensive analysis of the impact of economic and financial globalization on asset return comovements over the past 35 years. Our globalization indicators draw a distinction between *de jure* openness that results from changes in the regulatory environment and *de facto* or realized openness, as well as between capital market restrictions across different asset classes. Although globalization has trended positively for most of our sample, the global financial crisis and its aftermath have provided new headwinds. Equity, bond, and foreign exchange returns often have different responses to globalization. We generally find weak evidence of comovement measures reacting to globalization and often find other economic factors to be equally or more important determinants.

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1 Introduction

Much ink has flowed in discussing effects of globalization on the terms of trade, asset returns, and the real economy. The literature is so voluminous that providing a comprehensive survey is nearly impossible. Fortunately, a number of summary articles already exist. Bekaert and Harvey (2003) survey both the real and the financial effects of financial openness, mostly focusing on equity markets. The evidence on the real side remains controversial. The survey articles by Eichengreen (2001) and Kose, Prasad, Rogoff, and Wei (2009) conclude that the empirical evidence on the costs and benefits of capital account liberalization remains mixed, whereas Henry's (2007) interpretation of the literature supports Bekaert and Harvey's ((2003)) view that capital account liberalization has promoted growth. Studies incorporating the dynamics of liberalization, such as those by Bekaert, Harvey, and Lundblad (2005), Quinn and Toyoda (2008), and Gupta and Yuan (2009), do find robust positive growth effects. Because the temporary effects of financial openness are likely small (see Gourinchas and Jeanne (2006)), recent work has focused on the effects of financial openness on factor productivity, mostly finding positive effects (Bonfiglioli (2008); Bekaert, Harvey, and Lundblad (2011)). The evidence linking financial openness to both real volatility and a country's vulnerability to crises remains mixed (see Bekaert, Harvey, and Lundblad (2006); Kose, Prasad, and Terrones (2006)). Nevertheless, there is a growing consensus that the relation between financial openness and economic growth and volatility is subject to threshold effects, with countries with better macroeconomic policies and institutions (including better-developed financial sectors) responding more positively to reforms (e.g., Kose, Prasad, and Taylor (2011)).

Although the bulk of cross-country studies find that trade openness and liberalization increase growth and factor productivity (see, e.g., Sachs and Warner (1995)), others criticize these findings (see, e.g., Harrison and Hanson (1999), Rodrıguez and Rodrik (2000)). However, recent research has confirmed the positive effects using microeconomic data and more convincing econometric identification (see, e.g., Amiti and Konings (2007), Topalova and Khandelwal (2011)). The effect of trade openness and growth volatility is the topic of a large literature, with many studies finding that trade openness increases output volatility (see, e.g., Rodrik (1998), Di Giovanni and Levchenko (2009)). Bekaert and Popov (2016) find that de facto trade openness increases aggregate consumption volatility but trade liberalization (policy reforms) reduces it.

One important channel through which financial globalization affects the real sector is its impact on asset prices. Stulz (1999) concludes that opening a country to portfolio flows decreases its cost of capital without adverse effects on its security markets; Karolyi and Stulz (2003) argue that despite globalization, standard international asset pricing theory fails to explain the portfolio holdings of investors, equity flows, and the time-varying properties of correlations across countries. Both of these survey articles, as well as the survey by Bekaert and Harvey (2003), primarily focus on equity markets, as does the bulk of the academic literature. Trade links have also been shown to affect equity market correlations and asset prices across countries (see, e.g., Bekaert and Harvey (1997)).

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In this article, we characterize the link between the globalization process and the comovement of asset returns. To do so, we start by providing a simple quantitative definition of globalization, distinguishing between economic and financial globalization and between *de jure* (regulatory) and de facto (realized) integration. For *de jure* financial openness, we measure the degree to which international capital flows and foreign holdings of domestic assets are unencumbered by regulations; for *de jure* trade openness, we measure the extent to which trade and service flows are free of regulatory restrictions. The de facto measures attempt to quantify the extent to which securities are actually held by foreign investors (as a result of international capital flows) or the magnitude of actual trade flows.

Conventional wisdom suggests that integration should lead to convergence of asset prices (projects of similar risk command the same price per unit of cash flow in integrated countries), as well as higher comovement of returns across countries. Using a large panel of data, we examine several measures of convergence and comovement and their link to quantitative measures of globalization. We cast a wider net than the existing literature by examining equity, bond, and foreign exchange returns. We also use several different measures of globalization, contrasting the effects of trade and financial openness as well as *de jure* and de facto integration measures, and we differentiate between openness measures applicable to equity, bond, and money markets. Our comprehensive examination may shed light on why many studies fail to document strong evidence of convergence using returns data (see the discussion by Pukthuanthong and Roll (2009)). The distinction between different asset classes is also important given recent findings that the real effects of liberalization may be positive for equity flows [foreign direct investment (FDI) and portfolio equity flows] but negative for bond and money market flows (Kose, Prasad, and Terrones (2009); Aizenman, Jinjarak, and Park (2013)).

The survey article by Stulz (1999) and much of the literature focus on expected returns. We do not address the important question of whether globalization has reduced the cost of capital, and we do not provide a comprehensive survey of this literature. For emerging markets, several studies (Bekaert and Harvey (2000), Henry (2000), Kim and Singal (2000)) find that stock market liberalization decreases the cost of capital, although the estimated magnitudes differ. Evidence from American Depositary Receipts announcements corroborates these findings (see, for example, Foerster and Karolyi (1999)). These studies avail themselves of several broad liberalization programs introduced in many emerging markets at a particular point in time. When globalization happens more gradually, documenting the cost of capital effects is considerably more difficult. Some limited evidence suggests that the cost of capital decreases when there is an increase in the degree of globalization (see, e.g., De Jong and de Roon (2005)), which is also the case in terms of efforts toward increased regional integration such as the European Union (see Bekaert, Harvey, Lundblad, and Siegel (2013)).

The global financial crisis of 2008–2009 has opened new research paths, given that globalization may have halted or even reversed course. In terms of trade, the World Trade Organization's

Doha Round of multilateral trade negotiations, launched in 2001, has come to a standstill, and the global financial crisis has led to many protectionist tendencies in national policies that are evident, for example, in the Buy America program in the United States and in the imposition of local content requirement measures in many countries. The global financial crisis has also spurred research on financial macromanagement and macroeconomic stability, leading various researchers and policymakers, most notably the International Monetary Fund (IMF), to defend capital controls (Jeanne, Subramanian, and Williamson (2012); Rey (2015)). Brazil implemented controls on inflows in the face of currency appreciation, and Iceland introduced controls on outflows in the wake of its banking crisis. The after effects of the global financial crisis are still being felt, with political sentiment against the perceived negative consequences of globalization being voiced in many developed countries.

The remainder of this article is organized as follows. Section 2 defines our globalization measures and examines whether the degree of globalization has changed over the past 30 years. We find that globalization has generally increased, with an important exception for debt markets in emerging countries. Although most measures trend upward, tests show little significance. Section 3 summarizes asset return data, reflects on where we should expect convergence and where not, and shows initial results on the convergence of asset returns. Importantly, we find that results differ across asset classes. For equities, we observe an increase in correlations and global betas and a decrease in idiosyncratic risk over the sample period. Similar conclusions hold for foreign exchange returns. Bond returns behave differently in developed markets, with correlations with the global bond market decreasing for a large number of countries, primarily driven by increases in country-specific risk. The various comovement measures do not show a consistent upward trend but reflect cyclical behavior. The dispersion of risk premiums seems to have consistently trended downwards. Section 4 links convergence measures to globalization and other factors, including political risk, business cycle variation, and crises. We generally find weak evidence of convergence linked to globalization, with the results often differing across empirical specifications, across asset classes, across country groups (developed versus emerging), and across convergence measures. Correlations are strongly impacted by movements in the variance of global asset returns, and for bond markets political stability is often an important determinant of return comovements. The dispersion of equity and bond risk premiums does seem to have fallen with increased financial openness. A number of robustness checks are presented in Section 5. The final section offers some concluding remarks.

2 Globalization

We are interested in two aspects of globalization: economic integration, brought about by trade links, and financial integration, brought about by free capital flows. Measuring integration is fraught with difficulty and is the topic of a large literature in itself. In particular, de jure openness may not mean that markets are fully integrated because other factors, such as political risk and poor liquidity, may cause segmentation (for related analyses, see Bekaert (1995), Bekaert, Harvey, Lundblad, and Siegel (2011)); conversely, investment barriers may not prevent actual capital flows. Aizenman and Noy (2009) also show that there are important links between trade openness and financial openness, arguing that capital controls in trade-open countries are likely ineffectual. Our primary interest is de jure measures of globalization. This focus is important because, ultimately, whether the trend toward globalization continues is mostly in the hands of policymakers. Also, Bekaert, Harvey, and Lumsdaine (2002) identify endogenous dates of market integration from economic and financial data, finding them to be mostly later than dates of market reforms, suggesting that de jure financial openness leads to de facto integration, albeit with a lag.

For trade openness, we create an annual current account openness measure following Quinn and Toyoda (2008). The measure, denoted by $\mathrm{TI}_{i,t}^{\mathrm{QT}}$ (trade integration, Quinn–Toyoda), varies from 0 to 8, with 8 indicating a country's full compliance with the IMF's Article VIII obligations regarding the absence of restrictions on the international trade of goods and services. We rescale the measure to be between 0 and 1 and update the data from 2011 to 2014 using a regression approach described in Appendix 1. An alternative measure is the trade liberalization indicator of Wacziarg and Welch (2008), which builds on the classification by Sachs and Warner (1995) of countries as either open or closed on the basis of five criteria, such as the magnitude of tariffs and nontariff barriers. Being a 0/1 indicator variable, the Wacziarg–Welch measure displays very little cross-sectional variation toward the end of the sample, and actually may not fully reflect the ongoing trend toward more openness. To help capture the reversal in trade openness observed since the start of the 2008–2009 global financial crisis, we also employ a de facto measure: exports plus imports divided by GDP of the current calendar year, denoted by $\mathrm{TI}_{i,t}^{\mathrm{df}}$.

There are substantially more data available on de jure financial globalization. We first consider the measure of capital account openness compiled by Quinn and Toyoda (2008), which is based on IMF data. They assess the degree of capital account openness on the basis of, inter alia, the presence of taxes on foreign investment, leading to an index between 0 and 4.[1] This capital account openness measure does not differentiate between restrictions particularly relevant for equity, bond, or foreign exchange markets. However, it is conceivable that capital market restrictions differ across these various markets. Fernández, Klein, Rebucci, Schindler, and Uribe (2015) use IMF data to create various subindices of de jure restrictions on a $[0, 1]$ scale for individual asset categories, such as bond securities, money market instruments, etc. It covers 91 countries from 1995 to 2013. We employ several subindices, namely mm (average money market restrictions; most relevant for the foreign exchange market), bo (average bond restrictions), and eq (average equity restrictions). Appendix 1 describes the resulting measures, $\mathrm{FI}_{i,t}^{\mathrm{Smm}}$, $\mathrm{FI}_{i,t}^{\mathrm{Sbo}}$, and $\mathrm{FI}_{i,t}^{\mathrm{Seq}}$ (financial integration), in more detail. We refer to these measures as the Schindler measures, as Schindler (2009) was the first to compile them from information in the IMF's Annual Report on Exchange Arrangements

[1] We thank Dennis Quinn for sending updated data through 2011; we rescale the measure between 0 and 1 and extend it through 2014 using a quantitative procedure described in Appendix 1.

and Exchange Restrictions (AREAER). The literature has employed alternative measures, such as that of Chinn and Ito (2008), which essentially represents the first principal component of four dummy variables on the restrictions on external accounts drawn from the IMF's AREAER. It is therefore highly correlated with the Quinn–Toyoda openness measures. Various measures exist that focus on equity market openness (see Bekaert (1995), Edison and Warnock (2003)), but they are mostly not up to date. We extend the Schindler indicators to 1980 using a regression procedure and information from the measures of Quinn and Toyoda (2008) and Chinn and Ito (2008).[2]

As a measure of de facto financial openness, we use the measure proposed by Lane and Milesi-Ferretti (2007): the ratio of foreign assets and foreign liabilities to GDP. Their gross measure adds up the stocks of direct investment, portfolio equity, debt assets (liabilities), and foreign exchange reserves, thereby covering all securities in the IMF's International Investment Position, and divides the aggregate numbers by annual GDP.[3] Because of our focus on various asset classes, we split the measure into a measure focusing on equity, $\mathrm{FI}_{i,t}^{\mathrm{df,eq}}$, and a measure focusing on debt, $\mathrm{FI}_{i,t}^{\mathrm{df,debt}}$, which we use for both bond and foreign exchange markets.

Our sample consists of 58 countries, with varying histories and different coverage across asset classes. Appendix 2 provides the start dates for the various countries and asset classes. The sample ends in December 2014. All data sources and variable definitions are provided in Appendix 1.

Figure 1 shows the openness measures averaged over developed and developing countries separately over time. The openness level is generally substantially higher in developed than in emerging markets. The QT capital market openness measures trend upward. For developed countries, financial openness is at about 0.8 by the beginning of our sample, but still continues to increase during the 1985–1990 period, when countries such as New Zealand, Japan, France, Italy, and Belgium further liberalized their capital markets. For emerging markets, a wave of liberalizations occurred in the late 1980s and early 1990s, and our sample does miss some of these changes. The Schindler measures for emerging markets show no trend for the money market openness measure, a negative trend for the bond measure, and an upward trend for equity market integration until the onset of the global financial crisis. For developed markets, the same patterns are visible for both bond and equity measures, but for money markets, the integration measure decreases in the late 1990s before increasing after the global financial crisis. The decrease in the late 1990s occurs mostly because first the Czech Republic and then Korea enter the sample with very low openness values. Hence, this stems from the unbalanced nature of the sample. This is one reason why most of our empirical analysis uses country-fixed effects, which mitigate this problem.

For the de facto measures, there is a steep upward trend for both bond and equity assets and liabilities for developed but not for emerging markets, where the bond asset and liability measure actually decreases over time. IMF reports suggest that there has been a slowdown of capital inflows into emerging markets since 2010, ascribing the slowdown primarily to reduced growth

[2] Karolyi (2015) analyzes nine different de jure measures including four tax measures from Deloitte.

[3] Also see Karolyi (2015, ch. 6) for a list of de facto measures.

prospects in many emerging markets. The renewed capital controls, which were especially binding for fixed-income investments (see above), may have played a role as well. At the same time, a number of emerging economies have built up substantial foreign reserves, which should increase gross international asset positions.

The QT trade openness measure generally trends up sharply at the beginning of the sample for both developed and emerging countries, with the trend weakening and being halted or even reversed (for emerging markets) toward the end of the sample. There is some volatile behavior early on, for example, a sharp increase and decrease of trade openness in the early 1990s for emerging markets, which was partially influenced by the entry of countries in early 1990 and late 1992 especially. The same pattern is evident for the de facto measure for emerging markets, which starts trending up after 1995, as does the measure for developed markets. Both measures show a steep fall during the global financial crisis as international trade collapsed.

Table 1 reports summary statistics for the openness measures for developed and emerging markets. Focusing first on the de jure [0, 1] measures, for developed markets, the measures fluctuate between 0.5 and 1, with the medians all at 1. For emerging markets, in contrast, there is much more cross-country variation, with the 90% range between 0 and 1 for the Schindler measures and between 0.25 and 1 for the QT measures. The medians are much lower for emerging than for developed markets. The de facto measures of trade (exports plus imports) and of financial openness (equity and debt) show a similar pattern.

Table 1 also reports averages for the first part versus the second part of the sample and tests whether the difference is significantly different from zero. The midpoint of the sample is country-specific. For developed markets, we observe in general an increase in integration, both in financial and trade terms and for both the de jure and de facto measures. For emerging markets, equity market integration (both de facto and de jure) and trade integration increase. However, for emerging markets, we observe a decrease in integration for both the de jure and de facto measures for debt markets. Several emerging markets reintroduced capital controls following the global financial crisis. We observe decreases in bond market openness for more than 15 countries, including Brazil, Indonesia, Russia, and Turkey. Despite this dissimilar variation, the openness measures are highly positively correlated, with correlations exceeding 0.5 and as high as 0.85 among the de facto and de jure measures (see Appendix 3). [4] The de facto and de jure measures are less correlated, with correlations mostly in the 0.3–0.4 range.

In addition to the informal visual inspection of graphs, we formally test whether there is a significant trend in globalization over the past 35 years. The benchmark model for the trend test is

$$y_t = \beta_1 + \beta_2 t + u_t, \tag{1}$$

where y_t represents the average globalization measures, and t is a linear time trend. We use the

[4] Correlations across openness variables are calculated over the whole panel.

test developed by Bunzel and Vogelsang (2005), which is robust to I(0) and I(1) error terms and uses a Daniell kernel to nonparametrically estimate the error variance needed in the test. Our relatively small sample necessitates the use of a powerful test, and the Bunzel–Vogelsang test has optimal power properties. Perhaps not surprisingly, given our discussion of the Figures above, the trend tests only detect one statistically significant upward trend, namely for de facto equity integration, but (somewhat surprisingly) for emerging, not developed, markets. However, the trend coefficients are almost always positive, with the only exceptions occurring for bond and money market openness.

3 Asset Return Comovements

In this section, we consider what should be expected regarding the relation between asset return comovements and globalization, and we review the extant literature. We then discuss the convergence measures we employ and finally report how asset return comovements have varied over time.

3.1 Theory

Generally, we are interested in measuring the effects of globalization on returns on three asset classes: equities, bonds, and foreign exchange. How should globalization impact the comovement of these asset returns across countries? We study excess log returns, measured in dollars, so the perspective is that of a US investor. A first important point is that there is a strong link between bond and equity returns on the one hand and foreign exchange returns on the other. That is,

$$r^{j}_{i,t+1} = rr^{j,\mathrm{LC}}_{i,t+1} + s_{i,t+1} - i_{\mathrm{US},t} = r^{j,\mathrm{LC}}_{i,t+1} + r^{\mathrm{fx}}_{i,t+1}, \tag{2}$$

with $j = e$ (equities), b (bonds), and where s_{t+1} is the change in the dollar per unit of foreign currency in country i, fx is foreign exchange, r is excess returns, rr is the actual (not excess) return, $i_{\mathrm{US},t}$ is the US short rate, and LC is local currency return. Note that the foreign exchange return is the change in the currency plus the interest rate differential and is proportional to the return on going long a forward contract in the foreign currency. Therefore, changes in the comovements of foreign exchange returns can surely lead to more or less comovement in dollar-based bond and stock excess returns. For this reason, we also investigate local returns in Section 5.

The main theoretical restriction of market integration on international pricing is that the pricing kernel is identical for each country's returns, whereas the cash flows are country-specific, but may be affected by trade integration through, for example, business cycle effects. Asset returns reflect valuation changes, driven by changes in interest rates, in risk premiums, and in (expected) cash flows. Fundamental factors driving bond prices and exchange rates such as inflation thus also play a role. Examining convergence of these components lies beyond the scope of this article, but is the subject of a voluminous and varied literature. Importantly, such convergence may have only an indirect effect on many of the comovement measures that we examine, as these involve second moments, not first moments.[5]

In reflecting on the fundamentals behind the pricing of asset returns, a first framework to consider is that of interest rate parity. Let us start with real interest rate parity, which implies that real interest rates are equalized across countries. However, real interest rate parity requires strong and somewhat unpalatable assumptions to hold: uncovered interest rate parity, purchasing power parity, and the Fisher hypothesis in both countries. That is, full money market integration does not suffice, as it does not preclude the existence of currency and country risk premiums. Nevertheless, one would expect globalization to contribute to real rate convergence across the world, as open financial markets help equalize real returns to capital invested. Although financial market integration should be the major force affecting interest rates, under imperfect integration, trade openness may have important effects. Imagine a closed-economy world, in which real rates reflect expected real growth rates and local precautionary savings motives. Theoretically, the effect of trade openness is not clear. Trade integration might lead to specialization, which should lower output correlations across countries and thus would likely imply real rate divergence, but it might also lead to synchronization of business cycles through demand spillover effects. The evidence on real interest rate convergence is mixed but mostly focused on developed markets (see Gagnon and Unferth (1995); Jorion (1996); Phylaktis (1997); Breedon, Henry, and Williams (1999); Goldberg, Lothian, and Okunev (2003)).

For nominal interest rates, the uncovered interest rate parity condition holds: The nominal interest rate in one country equals the interest rate in another country plus expected exchange rate depreciation. These exchange rate expectations may then be linked to inflation expectations through purchasing power parity. The relationship may be weak because of the presence of currency risk and country risk premiums. Importantly, open financial markets and free trade need not lead to equalization of interest rates (see also Frankel (1989)), but they should lead to the disappearance of country premiums, induced by capital controls. The creation of a monetary union, as happened in the context of the European Union in 1999, is expected to lead to a convergence of nominal interest rates, and it mostly did so within Europe (see Baele, Ferrando, Hördahl, Krylova, and Monnet (2004), Jappelli and Pagano (2008)). One may still observe some divergence for long-term bond yields, which is driven by variation in default risks or illiquidity across countries. Comparing short- versus long-term real interest rates, country-specific monetary policy should exert more of an influence on short-term interest rates, making convergence more likely to be observed for longer-term interest rates. However, if capital flows are unrestricted and the exchange rate is fixed, the trilemma hypothesis would suggest that independent monetary policy is impossible.

An alternative perspective on the convergence of nominal interest rates is a Fisherian world,

[5]See Baele, Bekaert, and Inghelbrecht (2010) for an application of a factor model to bond and stock returns correlations depending on the second moments of the factors; and Dumas, Harvey, and Ruiz (2003) for examining international stock return correlations as a function of output correlations within an equilibrium pricing model.

where nominal interest rates equal real interest rates plus inflation expectations (and perhaps inflation risk premiums). Inflation is, of course, also an important state variable driving bond returns (and, to a lesser extent, equity returns). Globalization may impact the inflation process through a variety of channels. Trade openness generally increases the level of competition in both product and labor markets. Openness means increased tradability and substitutability of products and services across countries; increased contestability of both output and input markets; and increased availability of low-cost production in previous command economies, such as China. Rogoff (2003) and Lane (1997) argue that globalization decreases the central bank's incentive to inflate. Chen, Imbs, and Scott (2009) and Cox (2007) ague that globalization raises productivity growth, which is followed by inflation. On balance, these effects may contribute to inflation convergence across countries (see Chen, Imbs, and Scott (2009)). For example, one interesting recent hypothesis is that international trade has made it possible for many countries to import low inflation from China, withstanding the strong inflationary forces coming from commodity price shocks. Globalization should make country-specific inflation more sensitive to global excess demand conditions, although this, of course, also depends on exchange rate movements. Borio and Filardo (2007) show that, especially since the early 1990s, the role of global economic slack in explaining domestic inflation has substantially increased.

Globalization, together with improved central bank coordination, may also have played an important role in the shift toward lower inflation (see Rogoff (2003)). Inflation volatility (as well as output volatility) has decreased since the mid-to-late 1980s in a phenomenon known as the Great Moderation (see McConnell and Perez-Quiros (2000)). Indeed, there is a debate in macroeconomics about the causes of the break in volatility, which has not been settled even now that it is becoming clear that this Great Moderation has come to an end (see, e.g., Baele, Bekaert, Cho, Inghelbrecht, and Moreno (2015)). The lower level and variability of inflation are important for us because they may affect comovement measures. At first glance, a substantially lower level of inflation may lead to convergence; decreased variability at the world level, however, may lead to decreased comovement if it is caused by the lower variability of global inflation shocks.

An important part of the variation in bond returns and, even more so, of equity returns comes from variation in risk premiums. Here, we expect financial market integration to be the main driver behind the convergence of term and equity premiums across countries. In integrated economies, securities of similar risk should command the same risk premium and we should likely observe risk premiums converge.

Finally, how should globalization affect the correlation of cash flows across countries? Here the debate on the effects of openness on business cycle convergence is relevant again. Assume that cash flows are positively correlated with output. The effect of openness on business cycle convergence has been studied extensively in the literature, but mostly with a focus on financial openness. Indeed, most theoretical models predict that financial market integration leads to business cycle divergence, through either specialization toward higher return projects Obstfeld (1994) or the attraction of capital to positive productivity shocks Baxter and Crucini (1995). The empirical evidence is mixed (compare the work of Kalemli-Ozcan, Papaioannou, and Peydró (2013), who find divergence, with that of Imbs (2004), who finds convergence). Thus, the theoretical literature would suggest that financial market integration may lead to business cycle divergence and hence to lower cash flow correlations. Recall that trade openness has ambiguous effects on output growth correlations. Of course, how output translates into cash flows is an entirely different matter, which may depend on the competitive structure in particular countries. Ammer and Mei (1996), for example, find that cash flow growth rates are more highly correlated across countries than are output growth rates.

3.2 Measurement

To investigate whether we observe a pattern of cross-country convergence/comovement in returns, we require a measure of convergence. The most obvious convergence statistic is the correlation. There is a long tradition in finance of examining the links between globalization and return correlations. (An alternative statistic to examine the correlation for a group of countries would be the variance ratio proposed by Ferreira and Gama (2005).) Bekaert and Harvey (2000), Kim and Singal (2000), and Bekaert, Harvey, and Lumsdaine (2002) use the stock market openings of emerging markets at the end of the 1980s and the beginning of the 1990s to trace the effects of (a shock to) integration on asset prices, typically using event study–type methodologies. They find that liberalizations increase the correlation with world market returns. Longin and Solnik (1995) detect an upward trend in correlations across the G7 countries using a multivariate GARCH model, but Bekaert, Hodrick, and Zhang (2009) only find a significant trend within Europe. Of course, correlations have well-known limitations, especially when one is looking for low-frequency changes in comovement. The reason is that correlations vary considerably over time, particularly in response to movements in the volatilities of underlying factors. Consider a simple one-factor model for a variable $r_{i,t}$ for country i:

$$r_{i,t} = \beta_i f_t + \varepsilon_{i,t}. \tag{3}$$

Imagine that f_t is the world factor. An example of such a model would be the world capital asset pricing model (CAPM), where $r_{i,t}$ would be the country's equity (excess) market return and f_t the world (excess) market return. It is easy to show that, in such a model, the correlation between $r_{i,t}$ and f_t equals

$$\rho_{i,f} = \beta_i \frac{\sigma_f}{\sigma_i}, \tag{4}$$

where σ_i is the volatility of the variable $r_{i,t}$ and σ_f the volatility of the factor. Consequently, all else being equal, if the volatility of the factor increases, it increases the correlation between $r_{i,t}$ and the global factor, and, given that the $\varepsilon_{i,t}$ are idiosyncratic, increases the correlations among all country variables correlated with f, provided they have positive betas. (For related discussions, see Boyer, Gibson, and Loretan (1999); Forbes and Rigobon (2002); Bekaert, Harvey, and Ng (2005);

Bekaert, Hodrick, and Zhang (2009).) It is well known that the volatility of well-diversified equity portfolios varies substantially over time without showing significant permanent changes. Macro variables show distinct cyclical variation in volatility, being higher in recessions (for consumption growth, see, e.g., Bekaert and Liu (2004)). Consequently, there is much scope for correlations to show substantial temporary movements that make it difficult to detect the possible underlying trends caused by the globalization process. In particular, they may temporarily increase when factor volatilities are temporarily high, a phenomenon we call the volatility bias.

The volatility bias for equity markets is worse in bear markets. Erb, Harvey, and Viskanta (1994), Longin and Solnik (1995), and Ang and Bekaert (2002) show that stock markets are unusually highly correlated in bear markets, even beyond what can be attributed to the higher variance of market factors in such market conditions. Consequently, the incidence of bear markets may play a role in measuring changes in correlations. In our empirical work, we control for global recessions and crises to mitigate the volatility bias, but this may not suffice; we therefore also control for it directly using a volatility measure.

Considering Equation 3, one sees that financial market and trade integration is most likely to manifest itself in the betas. As markets integrate, the dependence on world factors presumably increases. The literature here is large. Articles that have parameterized betas as a function of integration indicators (most frequently, measures of trade integration) include Harvey (1995), Bekaert and Harvey (1997), Chen and Zhang (1997), Ng (2000), Fratzscher (2002), Bekaert, Harvey, and Ng (2005), and Baele and Inghelbrecht (2009).

Some caution needs to be exercised; if the global factor simply aggregates the country-specific variables (which would be the case in a strict application of the world CAPM), then the betas must add up to 1 and, hence, cannot increase for all countries. However, the bulk of the articles we mention apply variants of Equation 3 in such a way that these constraints do not apply, for example, by using the United States as the global benchmark. Likewise, we use GDP-weighted returns for the G7 countries as the benchmark. The model can be represented as

$$r_{i,t} = \alpha_i + \beta_i r_{w,t} + \varepsilon_{i,t}, \tag{5}$$

where $r_{i,t}$ denotes returns in country i at time t and $r_{w,t}$ denotes the global benchmark. Given that the United States has a dominant weight in the G7 benchmark, we exclude it from the set of countries in our panel sample, as comovements would be severely upward biased for the United States. The benchmarks are asset class–specific and are further described in Appendix 1. The regressions are estimated country by country using Ordinary Least Squares (OLS).

In the context of this one-factor model, the correlation has three main determinants (for more discussion, see Baele, Bekaert, and Schäfer (2015)): a volatility bias (the ratio of global to local volatility), the beta, and the idiosyncratic (country-specific) volatility. We also examine the time variation in country-specific volatilities.

Our framework does have a shortcoming, as it restricts attention to one factor. Pukthuanthong and Roll (2009) propose using the R^2 of a multifactor model to measure market integration. Using a principal-components approach with 10 factors to compute time-varying R^2s, they uncover a marked increase in measured integration for most countries, which is not revealed by simple correlations among country indices.

The last convergence measure we examine is cross-sectional dispersion:

$$\text{CS}_t^2 = \frac{1}{N}\sum_{i=1}^{N}\left(x_{i,t} - \frac{1}{N}\sum_{i=1}^{N}x_{i,t}\right)^2. \tag{6}$$

This statistic measures how dispersed a variable (in this case, $x_{i,t}$) is around its cross-sectional mean at each point in time. The measure has obvious appeal, as we would expect that full market integration might induce low cross-sectional return dispersion, and the statistic can be computed at each point in time without any historical time series. One concern about the cross-sectional dispersion measure is that it may be mechanically increasing in overall volatility even if that volatility is global in nature. To get more insight into this issue, we decompose the expected value of the cross-sectional dispersion as follows:

$$E[\text{CS}_t^2] = E\left[\frac{1}{N}\sum_{i=1}^{N}(x_{i,t} - \bar{x}_t)^2\right] = \frac{1}{N}\sum_{i=1}^{N}\text{var}(x_{i,t}) + \overline{\text{CS}}^2 - \text{var}(\bar{x}_t), \tag{7}$$

where $\overline{\text{CS}}^2 = (1/N)\sum_{i=1}^{N}(\bar{x}_i - \bar{\bar{x}})^2$ is the cross-sectional variance applied to country means, $\bar{x}_t$ is the cross-sectional mean at time t, and $\text{var}(\bar{x}_t)$ denotes a time-series variance. Hence, the cross-sectional dispersion comprises the cross-sectional dispersion of country means and also pure volatility terms: the difference between average total volatility and the volatility of the cross-sectional mean at time t, where the latter can be viewed as the global factor. Consequently, volatility only increases dispersion to the extent that it does not reflect volatility of the global factor, that is, to the extent that it is idiosyncratic. Although this appears intuitive, there is some evidence that overall volatility and global systematic volatility may be (highly) correlated (see Bekaert, Hodrick, and Zhang (2012)). Therefore, we also correct for volatility bias in regressions that involve cross-sectional dispersion. For our regression analysis, we transform the dispersion measure into an annualized volatility measure, which facilitates its economic interpretation.

3.3 Empirical Results on the Time Variation in Comovements

Unless we make strong parametric assumptions, our comovement measures, with the exception of cross-sectional dispersion, require windows of time-series observations to be quantified. Using short windows likely increases noise, but using long windows prevents a full characterization of their time variation. We therefore follow a two-pronged approach. In Figure 2 and Table 2, we investigate the values of the various statistics (correlation, beta, and idiosyncratic risk) in the first versus the second half of the sample. Again, note that the sample halves are country-specific. Such an approach is perhaps coarse, but it provides a robust nonparametric view on whether the past 15 years have witnessed increases in asset return comovements. In Figure 3, we investigate the time variation in the various statistics. To do so, we must create time-varying measures of the various statistics. Our approach is to start from a particular data point, say time t_0, split the sample into five-year subsamples, and use 30 data points before and after this data point. Within subsamples, we use a normal kernel to downweight observations further away from time t_0.[6] In particular, we compute the time-varying correlations, betas, and idiosyncratic risk as follows:

$$\text{corr}_{i,t} = \frac{\sum_{j=-30}^{j=30} K_h(j)(r_{i,t+j} - \bar{r}_{i,t})(r_{w,t+j} - \bar{r}_{w,t})}{\sqrt{\sum_{j=-30}^{j=30} K_h(j)(r_{i,t+j} - \bar{r}_{i,t})^2}\sqrt{\sum_{j=-30}^{j=30} K_h(j)(r_{w,t+j} - \bar{r}_{w,t})^2}}, \tag{8}$$

$$\beta_{i,t} = \frac{\sum_{j=-30}^{j=30} K_h(j)(r_{i,t+j} - \bar{r}_{i,t})(r_{w,t+j} - \bar{r}_{w,t})}{\sum_{j=-30}^{j=30} K_h(j)(r_{w,t+j} - \bar{r}_{w,t})^2}, \tag{9}$$

$$\text{var}^{\varepsilon}_{i,t} = \sum_{j=-30}^{j=30} K_h(j)(\varepsilon_{i,t+j} - \bar{\varepsilon}_{i,t})^2, \tag{10}$$

where $\bar{r}_{i,t} = \sum_{j=-30}^{j=30} K_h(j) r_{i,t+j}$, $\varepsilon_{i,t} = r_{i,t} - \beta_{i,t} r_{w,t}$, $\bar{\varepsilon}_{i,t} = \sum_{j=-30}^{j=30} K_h(j)\varepsilon_{i,t+j}$, and $K_h(j) \equiv K(j/h)/(hT)$ is a kernel with bandwidth $h > 0$. We use a two-sided Gaussian kernel with an 18-month bandwidth, $K(z) = (1/\sqrt{2\pi})\exp(-z^2/2)$, where $z = (t/T - \tau)/h, \tau = t_0/T$, and h is expressed as a fraction of the sample size T. We divide by the sum to ensure the weights add to 1 in a finite sample. Note that 76% of the observations are within 18 months of the base observations.

3.3.1 First versus Second Sample Half Results

Figure 2 shows the average (correlation, beta, and idiosyncratic risk) in the first and second halves of the sample period. The sample midpoint averages differ for developed and for emerging countries and across asset classes and are reported in Table 2*a*. We depict the average statistic for the first half of the sample on the x-axis and for the second half of the sample on the y-axis. If the country dots are mostly above the 45° line, the statistic increases in the second half of the sample relative to the first half. In Table 2, we report averages across the developed and emerging markets for the two sample halves and a test of the significance of their difference. We first discuss the correlation statistics, followed by the beta statistics, the idiosyncratic risk statistics, and finally the dispersion statistics.

In terms of correlations, the equity return results show that return correlations invariably

[6] Note that with this method, we lose the first and last 30 observations of each country's sample. In order to recover the first 30 observations, we start with an asymmetric kernel that uses 30 forward-looking observations for the first data point. As we move forward in the sample, we incorporate all the possible backward-looking observations. We apply the same methodology, in the opposite direction, to the last 30 observations.

increase from the first part to the second part of the sample, with the correlation increases often being very substantial. On average, the correlation increases from 0.56 to 0.79 for developed and from 0.31 to 0.62 for emerging markets, with both changes highly statistically significant. Bond returns offer a more mixed picture. For emerging markets, the correlations still generally increase, with Hungary and Lebanon being the only exceptions. On average, the correlation increases from 0.13 to 0.45, which is economically and statistically significant. However, for developed markets, correlations decrease for several countries, and the average increase is economically trivial (from 0.70 to 0.71) and statistically insignificant. One potential partial reason for this phenomenon is the European sovereign debt crisis post-2010, which may explain the presence of Greece, Ireland, and Portugal among the countries whose correlations decreased. We more formally examine the link between correlation and crises in Section 4. For foreign exchange returns, we observe a more general increase, with the only currencies that correlate less with the world foreign exchange return more recently being the yen and the Argentinean peso. Unusual country-specific policies in these countries are likely to blame. In Japan, substantial monetary easing associated with Abenomics, introduced in 2012, caused a dramatic weakening of the yen. In Argentina, Cristina Kirchner introduced currency controls in 2011, after which the peso depreciated steadily; by the end of 2015, the gap between the overvalued official and the parallel rate was reported to be nearly 70%. For developed markets, correlations increase from 0.48 to 0.68, with the change significant at the 10% level, whereas for emerging markets, correlations increase from 0.22 to 0.50, with the change significant at the 1% level.

It is possible that the increase in correlation we observe stems simply from the volatility bias, induced by the recent global financial crisis, which we discussed above. Investigating betas and idiosyncratic risk can shed some initial light on this. An increase in betas is more likely to be permanent, as it cannot stem from volatility bias. It is plausible that country-specific risk permanently decreases with globalization. What happens in a global crisis is unclear. It is possible that idiosyncratic risk temporarily increases in crisis times together with systematic volatility, counteracting the volatility bias. It is also possible that a global crisis causes investors to focus on global macro factors rather than on the pricing of country-specific factors.

For equity returns, only a small minority of the countries (5 out of 25 developed countries and 4 out of 22 emerging countries) experience a decrease in beta relative to the global benchmark. On average, betas increase from 0.97 to 1.18 for developed and from 0.90 to 1.19 for emerging markets. Both changes are statistically significant. In addition, idiosyncratic risk also decreases for virtually all countries, with the average changes being 6% (in annualized volatility terms) for developed markets and a very substantial 16% for emerging markets, both of which are highly statistically significantly different from 0.

For emerging bond returns, betas invariably increase, consistent with the general observed increase in correlations. The increase is economically large, from 0.09 to 0.94, and generally statistically significant. For developed markets, betas only decrease for three countries (Norway, the

United Kingdom, and Japan), and betas increase on average from 1.27 to 1.50, the change being significant at the 5% level. Average idiosyncratic risk increases insignificantly for developed markets, but decreases by 6% for emerging markets, the change being significant at the 10% level. Therefore, the decrease in bond return correlations observed for many developed countries can likely be attributed to an increase in country-specific risk, which may even counteract increases in global betas.

For foreign exchange returns, Figure 2 shows that betas mostly increase and thus can be a reason for observing increased correlations, but the idiosyncratic risk changes show no pattern. Table 2 reveals that the increase in betas exceeds 0.45 for both emerging and developed countries. For idiosyncratic risk, we indeed do not observe any significant changes. Hence, the observed increases in correlations are because of increased global betas.

Table 2*e* shows results regarding cross-sectional dispersion, which significantly and substantially decreases for equity returns in both developed and emerging markets. For bonds, it increases slightly but significantly for developed markets, but decreases significantly by 5% for emerging markets. For foreign exchange returns, dispersion decreases significantly for emerging markets by about 4%, whereas for developed markets there is a small increase that is significant at the 5% level. Eun and Lee (2010) investigate distance measures in returns and volatility of equity returns and also document strong convergence.

3.3.2 The Time Variation in Convergence Statistics

We start with a graphical view of the evolution of the convergence statistics over time. Figure 3 depicts the correlations, betas, and idiosyncratic volatilities for equity returns, bond returns, and foreign exchange returns. To produce the exhibits, we average the kernel-weighted statistics over respectively, emerging and developed markets.

In Figure 3*a*, with some exceptions, return correlations follow a similar pattern across country categories and across asset classes: flat or decreasing in the beginning of the sample, showing a sharp upward trend from about the end of the 1990s through the global financial crisis before decreasing again. These results are somewhat in contrast with those of Eiling and Gerard (2015), who find that emerging market correlations increase (both within regional groups and with developed markets) for most of their sample, and those of Christoffersen, Errunza, Jacobs, and Langlois (2012), who find that correlations increase for both developed and emerging markets. Both papers use different methodologies but rely on certain parametric restrictions to derive their results. Importantly, their sample ends in 2009, missing the downturn in correlations that we observe.

Figure 3 examines the time variation in the global betas. Many studies, mostly focusing on equity markets, have observed that betas with respect to global factors increased over time. Baele (2005) and Baele, Ferrando, Hördahl, Krylova, and Monnet (2004) have documented increases in shock spillovers with respect to the global market, and Bekaert and Harvey (2000) show that stock market liberalizations increase betas. The graphs suggest a somewhat more mixed pattern, similar to that observed for correlations, at least for bond and foreign exchange returns. For equities, we see little trend for developed markets, with slow increases only happening toward the end of the 1990s. For emerging markets, the increase is sharp until about 2000, but then shows more cyclical movements varying between 1.0 and 1.5. For idiosyncratic volatility in emerging markets, we observe a sharp downward trend, interspersed with some cyclical movements for all asset returns. The same pattern, but much weaker, is visible for equity returns in developed markets, whereas for bonds and exchange rates, cyclical movements dominate, with the recent global and European sovereign crises causing a spike in volatility.

To detect quasi-permanent movements in convergence/divergence measures, we use trend tests. This may appear strange at first, as it is quite possible that some measures may move to a point where they can no longer converge further. Also, if *de jure* liberalizations drive changes in the measures, a break analysis around the liberalization dates would appear superior. However, recall that we are interested in the convergence of returns across countries. Consequently, the convergence measures are affected by liberalizations in all the countries in the sample. Given sufficient cross-sectional and temporal variation in the liberalizations over time, the pattern could look like a slow trend over time, which might coincide with the trends in the globalization process itself, even though these are somewhat weak (see Figure 1 and Table 1). Therefore, the test must have the power to detect a slow trend, even if the break in one country is sudden and abrupt. Nevertheless, in many countries or regional groups (such as the European Union), integration itself has been gradual. For instance, Korea relaxed foreign ownership restrictions starting in 1991, in slow increments, to finally become totally open in 2002. The use of trend analysis is also widespread in the literature (see, e.g., Bekaert, Hodrick, and Zhang (2009); Eiling and Gerard (2015)).

The results are reported in Table 2. For correlations, we find positive trend coefficients for all asset classes and country groups, except for bonds in developed markets, where the trend coefficient is essentially 0. None of the coefficients is significantly different from 0. A similar picture emerges for betas, where the coefficient is always positive but, again, no coefficient is significant. For idiosyncratic risk, the coefficient is negative except for bond and foreign exchange returns in developed markets. Again, statistical significance is elusive. This may be because of a lack of power of the tests or may simply reflect that many of the comovement measures show too much cyclical behavior for an underlying trend to shine through. In Section 4, we attempt to control for some of the potential determinants of these cyclical movements. Table 2*e* shows the tests for cross-sectional dispersion, and these tests prove more powerful. We find negative trend coefficients in all cases (except for bonds in developed markets), which are all statistically significant for emerging markets.

4 Asset Return Convergence, Globalization and Other Factors

We now directly investigate the link between our return convergence measures and our openness variables. We use two approaches. Our first approach is informal, linking the convergence measure examined in the previous section to globalization measures and other control variables using a simple panel model. Our second approach estimates a parametric factor model that allows for the conditional mean and the beta exposure to the global factor to vary through time with various determinants. It therefore focuses on the global factor exposure as a convergence measure but also allows us to extract time-varying risk premiums.

4.1 Convergence Measures and their Determinants

We now explore the link between our convergence measures and both trade and financial openness.

4.1.1 Empirical Framework

To explore the link between globalization and the convergence of asset returns, we specify multivariate regressions of the form

$$\text{Conv}_{i,t} = \alpha_i + \beta_1 \text{TI}_{i,t} + \beta_2 \text{FI}_{i,t} + \gamma' Z_{i,t} + \varepsilon_{i,t}, \tag{11}$$

where $\text{Conv}_{i,t}$ is the convergence measure (correlation, beta, or idiosyncratic risk), $\text{TI}_{i,t}$ is the trade openness measure, $\text{FI}_{i,t}$ is the financial openness measure, and $Z_{i,t}$ are control variables that we discuss below. We use only one globalization measure in each regression, as they are highly correlated. To accommodate the serial correlation in the error terms, we use country-clustered standard errors in our main specifications. We also check whether a trend variable survives in such a specification. Finally, note that the regressions feature country-fixed effects, so that they are truly picking up (common) time variation in our sample.

We use four control variables that may *ex ante* have a significant effect on convergence but that may not be directly related to openness. The first is a country-specific business cycle variable, denoted by $\text{Cycle}_{i,t}$. To measure the stage of the business cycle, we subtract a moving average of past GDP growth (over the last five years) from current GDP growth. However, we only have quarterly or end-of-year annual GDP growth. To turn this into a monthly variable, $\text{Cycle}_{i,t}$ is constructed using the weighted average of the quarterly or annual business cycle variable $\text{Cycle}_{i,s,a}$ in the current quarter or year and last quarter or year. For example, assuming we only have annual GDP growth, in t, the m-th month of year s,

$$\text{Cycle}_{i,t} = \frac{12-m}{12}\text{Cycle}_{i,s-1,a} + \frac{m}{12}\text{Cycle}_{i,s,a}. \tag{12}$$

It is well known that, in recessions, all asset returns are more variable, which may lead to higher asset return comovements to the extent that the variability increase is systematic rather than country-specific. In a robustness check, we replace the country-specific cycle variable with its global counterpart (a weighted average of the G7 countries' growth rates). The country-specific business cycle variable is mildly negatively correlated with the openness variables.

The second variable is a crisis measure, denoted by $\text{Crisis}_{i,t}$. When crises are isolated to a few countries or one region, they may actually decrease the comovement with global returns. However, if the crises are global in nature, comovements may increase. We use the crisis variable of Reinhart and Rogoff (2009), who investigate seven varieties of crisis, including banking and currency crises, for a large panel of countries. We map their $[0, 7]$ score onto the $[0, 1]$ interval. Overall, the crisis variable is negatively correlated with the openness measures. It is conceivable that governments face pressure in times of crisis to impose capital controls. Bekaert, Harvey, Lundblad, and Siegel (2011) suggest that in times of crisis, markets become more effectively segmented. We further comment on the different nature of the crisis variable for developed versus developing countries when discussing the results.

The work of Bekaert, Harvey, Lundblad, and Siegel (2011) is part of a large literature that stresses the difference between *de jure* and *de facto* integration as reflected in asset prices. For instance, Bekaert (1995) argues that indirect barriers to investment (such as poor liquidity, poor corporate governance, political and substantial macroeconomic risks, etc.) may keep institutional investors out of certain emerging markets and prevent *de facto* integration, even though these markets are legally open. Nishiotis (2004) shows how these indirect barriers are more important than direct barriers using a sample of closed-end funds. Bekaert, Harvey, Lundblad, and Siegel (2011) develop a measure of de facto equity market segmentation and find that, apart from equity market openness, a measure of the quality of institutions, stock market development and certain global risk variables (proxied for by US credit spreads and the US equity market volatility measure, VIX) also greatly matter in explaining the temporal and cross-sectional variation in *de facto* segmentation.

As a third explanatory variable, we use a variable that consistently shows up as a strong determinant of effective segmentation, namely political risk. We use data on the political risk ratings of the International Country Risk Guide (ICRG; for more information, see Appendix 1), which are available for a large panel of countries. Political risk measures the attitude of a government toward FDI, and Bekaert, Harvey, Lundblad, and Siegel (2014) show that high political risk repels FDI. Because several components of the ICRG political risk measure attempt to reflect the quality of a government's institutions and its attitude to businesses more generally, it may be correlated with measures of corporate governance.

The use of international data in the corporate finance literature has expanded, yet few try to control for the degree of openness. There is an implicit assumption that cross-country differences in corporate governance are of first-order importance. This implicit argument was recently made eloquently explicit by Stulz (2005). He argues that a twin agency problem of rulers of sovereign states and corporate insiders, pursuing their own interests at the expense of outside investors, limits the beneficial effects of financial globalization. In other words, corporate governance at the firm and country level, not financial openness, is the main factor driving cross-country differences in returns. Unfortunately, panel data on corporate governance for a large set of countries are not available, but our political risk measure may allow an informal test of Stulz's theory. Although we believe this measure is likely correlated with the quality of corporate governance, we may obtain a better proxy by focusing on subindices of the overall rating. For a robustness check, we create an index of the quality of institutions from three of the overall rating's components, Corruption, Law and Order, and Bureaucracy Quality, following Bekaert, Harvey, and Lundblad (2005). Note that the political risk rating varies between 0 and 100, where 100 represents perfect political stability. We transform the measure to a [0,1] scale but keep the political stability scaling. The correlation between political stability and our openness measures is far from perfect, hovering around 0.50.

Finally, we also control for the volatility bias we discussed before by adding a monthly measure of the realized global equity variance (for details of the computation, see Appendix 1).

Our empirical results are organized in Tables 3, 4, and 5 for equities, bonds, and foreign exchange returns, respectively. We consider two alternative specifications for our independent variables. The approach discussed here applies the same kernel to our control variables as we use for the dependent variables. Alternatively, we can simply use the control variable observation at time t. Each table has three panels, with regression results for correlations, betas, and idiosyncratic volatility, respectively. The first four columns in each table report results for developed and for emerging markets, first for a de jure and then for a *de facto* openness measure. The last four columns repeat these results, adding a trend term to the specification. The last two lines of each table produce the coefficients on the trade openness measures in regressions where the financial openness measures are replaced with trade openness. Because of the relatively high correlations between these two measures, the other coefficients do not change much and are therefore not reported.

Note that we run a large number of different specifications and therefore should expect some coefficients to be significant just by chance (for a discussion of the effect of data mining on statistical inference, see Harvey, Liu, and Zhu (2016)). To mitigate this problem, we focus our discussion on results that are statistically significant and robust across two different specifications. That is, the asterisks in Tables 3–5 refer to 1%, 5% and 10% significance using the kernel-weighted specification of the control variables. However, we only view a coefficient as robust if it has the same sign and is at least significant at the 10% level in the alternative specification using the independent variables simply at time t. Such coefficients are bolded.

4.1.2 Equity Returns

We start our discussion with the equity return correlations. For developed markets, equity return correlations are not significantly affected by *de jure* financial globalization, but they do increase significantly with *de jure* trade integration. The coefficient of 0.65 indicates an economically very significant increase of correlation; when trade integration increases from its 5% to 95% value (a move of 0.47), correlations would be expected to increase by $0.47 \times 0.65 = 0.31$. The coefficient is much reduced in value and loses statistical significance when a time trend is introduced. For de facto integration, the financial and trade openness measures are both positive but marginally statistically significant (at the 5% and 10% levels, respectively), but all lose statistical significance when a trend is introduced. For emerging markets, we find positive coefficients for almost all openness measures, which are significant in about half of the specifications. The effect is economically and statistically strongest for *de facto* equity market integration. When a trend is introduced, the effects lose significance for the *de facto* measures.

In all specifications, the trend coefficient is highly significant, that is, correlations have trended upward, even when we control for variables potentially accounting for their time variation. Note that the significance of the trend coefficient may not mean that openness does not matter. As Table 1 indicates, most openness measures show positive trend behavior, which is, however, only statistically significant for the *de facto* financial measure for emerging markets.

As to the other variables, their signs are robust across the different specifications, but only a minority of the coefficients are statistically significantly different from 0. Political stability is associated with higher global correlations, but the coefficient is only significant in one specification, namely for developed markets and *de jure* financial openness. Its economic effect implies an increase in the correlation of $0.24 \times 0.74 = 0.18$ when political stability goes from the 5% to the 95% level in the sample (a change of 0.24 in the measure). The cycle variable does not have a significant effect on equity return correlations. The crisis variable is only significant for emerging markets and has a negative coefficient. The negative sign may be surprising if the crisis variable predominately measures global crises, during which we would expect correlations to increase. However, although the crisis variable, on average, peaks in the global financial crisis, its average value is higher for emerging markets in the early and late 1990s, whereas for developed markets there are a number of occasional peaks (with the variable indeed being highest during the global financial crisis). Finally, the global variance coefficient is positive and very significant in all specifications, suggesting that the volatility bias is a key driver of correlations.

In Table 3*b*, we show the same specifications for the time-varying global betas. For developed markets, the coefficients on openness are mostly small and insignificant, with the exception of the coefficient on de jure trade openness. Some coefficients even become negative when a trend is introduced, but the *de jure* trade measure retains its statistical (at the 10% level) and economic significance. A 90% range increase in the trade openness variable would generate a $0.51 \times 0.83 =$

0.42 increase in beta. For emerging markets, we find a statistically significant effect only for *de facto* financial and trade openness. The political stability variable again obtains a positive coefficient, significant in half of the specifications that we show. The cycle variable again is never significant. Interestingly, the crisis variable coefficient is now positive and, for the developed market specifications, significant. This is likely induced by the recent global recession, when betas of developed equity markets relative to the global market may have increased. Bekaert, Ehrmann, Fratzscher, and Mehl (2014) suggest that the global financial crisis changed betas in a country-specific way, with the US-originated crisis hitting countries with bad fundamentals the most. Consistent with the intuition that the realized variance captures a volatility bias present in correlations, it does not affect betas for developed markets, with coefficients that are mostly not significant. For emerging markets, it does appear that in times of high global volatility, betas increase, but the effect is only statistically significant when no trend is included. The trend coefficient remains positive and significant in all specifications.

For the idiosyncratic volatility regressions in Table 3*c*, we find no significant effect of *de jure* financial openness. However, *de facto* financial globalization leads to lower idiosyncratic risk in both developed and emerging markets, with the significance disappearing when a trend is introduced. The effects are stronger for trade openness, especially for developed markets. The coefficients are always negative, with the exception of the last specification (emerging markets, *de facto* integration, with trend). High GDP growth decreases idiosyncratic risk for emerging markets, which is only significant when a trend is included in the regression. Crises invariably increase idiosyncratic risk, with the effect being mostly significant. The effect of the variance variable on idiosyncratic risk mimics its effect on betas but with the opposite sign.

4.1.3 Bond Returns

Given that we do not have daily data on bond and foreign exchange returns, we use the equity return realized variance in both the bond and foreign exchange return regressions. Although there is likely positive correlation between realized variances across all three asset classes, it is also possible that in certain market scenarios (e.g., flights to safety), the correlation is relatively low. Therefore, this variable can serve as only an imperfect volatility bias control and may, in part, simply reflect priced global equity volatility risk.

We now move to Table 4, which focuses on bond return regressions. The bond financial openness variables do not have a significant impact on bond return correlations. The lack of significance is also observed for trade openness but, in this case, the effect turns significantly negative when a trend is included for developed markets for the *de jure* measure. The political risk variable now has a more robust and significant effect on correlations across countries. Its coefficient is mostly positive and statistically significant for developed markets, whereas it is only significant for emerging markets when a trend is allowed for. The effect is economically large (a coefficient of 2.0 means a $0.48 = 2.0 \times 0.24$ increase in correlation for a 90% range improvement in political stability). This is not surprising from the perspective of the literature on sovereign bond pricing, where political risk is a key determinant of sovereign spreads (for empirical results and a survey of the literature, see Bekaert, Harvey, Lundblad, and Siegel (2016)). To the extent that political risk is idiosyncratic, its presence would induce more country-specific pricing of sovereign bonds. The cycle variable again is never statistically significant. The crisis variable has a negative effect, which is significant for emerging markets, again indicating that, for these countries, crises are dominated by country-specific events. The realized equity variance has no significant effect on global bond return correlations.

The effect of financial and trade openness on local bond return betas mimics their effect on correlations, with one single positive significant coefficient (*de facto* debt openness) and even a few significantly negative ones. Political stability increases betas for developed markets but reduces betas for emerging markets. The latter effect is surprising but does not survive when a trend is allowed for, even though political stability does not show much trending behavior for emerging markets. The results for the cycle variable are very similar to those for the political risk variable, but with the coefficient signs reversed. That is, for developed (emerging) markets, betas increase (decrease) in recessionary times. This may partly pick up the upward trend in betas in the second half of the sample when the global crisis hits, an event which may dominate the developed market business cycle, whereas emerging market business cycles are more country-specific.[7] The crisis variable mostly follows the coefficient pattern of the political stability variable and is significant for emerging markets for all specifications. In developed markets, perhaps the higher crisis incidence during the global financial crisis caused bond betas to increase, whereas for emerging markets the crises are mostly country-specific, making them decouple from global bond markets in times of crisis. The equity variance variable is positive and significant at the 5% level when no trend is included for emerging markets.

For idiosyncratic risk, there are no significant effects due to globalization. Here again, political stability generates stronger effects, mostly decreasing idiosyncratic risk, with the effects being similar in magnitude and statistically significant for developed markets and for emerging markets when a trend is allowed for. Although the cycle variable does not have a significant effect on idiosyncratic risk, it is not surprising that crises invariably increase it significantly for both emerging and developed markets. Global equity variance risk is also associated with higher idiosyncratic bond risk, but only for emerging markets.

4.1.4 Foreign Exchange Returns

In Table 5, we investigate the convergence statistics for exchange rate returns. For financial and trade openness, only 3 coefficients (out of 16) are statistically significant at the 5% or 10% level. *de jure* financial integration for developed markets and *de jure* trade integration for emerging

[7] Levy Yeyati and Williams (2012) show that emerging economies decoupled from the business cycle of developed countries during the 2000s.

markets are associated with higher foreign exchange correlations. Political stability increases correlations, but only for developed markets, with the effect weakening when a trend is included; for emerging markets, in contrast, this effect surfaces only when a trend is included. The cycle variable is not significant, and the crisis variable significantly decreases correlations only for emerging markets when no trend is included. The realized variance variable has a positive coefficient only for emerging markets, an effect which is always statistically significant. There does appear to be a positive trend in foreign exchange correlations, but it is significant only for emerging markets.

Regarding betas, *de jure* financial openness significantly increases betas for developed markets, and *de jure* trade openness does so for emerging markets; there are no other significant effects. Thus, the link between globalization and higher return correlations is at least partially driven by higher global betas. There are very few significant coefficients for the political risk, cycle, crisis, and realized variance variables. The trend term is here more pronounced and significant than for correlations.

Openness is mostly associated with increases in idiosyncratic risk. The effects are significant for *de jure* financial openness and for *de jure* trade openness, but only for developed markets. Political stability and cycles have no effect on idiosyncratic foreign exchange risk. Because crises in emerging markets are mostly idiosyncratic and often currency-related, it is not surprising that we find significantly positive coefficients for the crisis variable. Global equity variance risk always has a positive and statistically significant positive coefficient, but only for developed markets.

The foreign exchange results show that currency movements are not likely driving the major results we observe for bond equity returns; we verify this more formally in Section 5. Regarding equities, we do not confirm Stulz's hypothesis, as the globalization variables seem to have a more important effect on our convergence measures than do political risk measures, although the globalization effects are far from strong in statistical terms. These results are reminiscent of the results of Bekaert, Harvey, Lundblad, and Siegel (2007), who argue that the literature on the channels of growth ignores openness in favor of financial development and institutional factors, but that financial openness plays a much more important role than these other factors in aligning growth opportunities with actual growth. Here we show, as do Bekaert, Harvey, Lundblad, and Siegel (2011) with an entirely different approach, that financial openness is more important than corporate governance and (the lack of) political risk in integrating financial markets. However, these results do not extend to bond markets. For bond markets, political stability is a much more important determinant of correlations and idiosyncratic risk than is globalization. Political stability is also a very significant determinant of global bond betas, but increases global betas for developed markets while decreasing them for emerging markets, a result that deserves further scrutiny.

4.1.5 Return Dispersion

In Section 3, we found strong evidence of negative trends in cross-sectional dispersion. We now examine whether the cross-sectional dispersion movements over time are related to the dispersion and levels of our fundamental variables, including globalization, political risk, business cycle variation, and crises. To conserve space, we provide a detailed discussion and detailed results in the Supplemental Appendix. Here, we simply summarize the salient and robust results. We start with equity return dispersion. First, *de jure* financial and trade openness significantly reduce dispersion for both developed and emerging markets. Second, the dispersion of the political stability measure is positively associated with return dispersion, as is the dispersion of the crisis variables. The latter variable thus explains peaks in return dispersion due to country-specific crises. Third, dispersion is positively linked to realized equity variances, so there is a positive volatility bias, despite the decomposition in Equation 8. Finally, the trend survives in most but not all regressions.

This equity volatility effect is also present for bond returns, but there are fewer robust and significant effects than for equities. Financial globalization, both *de jure* and *de facto*, increases dispersion, which is perhaps surprising, but may be related to the openness reversal for bond markets we witnessed at the end of the sample. There are two more significant effects, but they apply only to developed markets. First, there is more return dispersion in good economic times (measured by the cycle variable); returns in good times are more likely to be country-specific than are returns during bad times. Second, the cross-sectional dispersion of crises is also positively linked with the dispersion of the crisis variable.

For foreign exchange returns, the cross-sectional dispersion of *de jure* financial globalization is positively correlated with return dispersion for emerging markets, whereas for *de facto* financial globalization, this effect is significant only for developed markets. For emerging markets, the level effect for *de jure* financial globalization is also positive (but recall that money market openness goes down slightly over the sample). For trade openness, there are robust effects only across specifications for developed markets and *de facto* trade openness. Again, there are positive dispersion and level effects. Other robust significant effects include the positive effect of the realized variance variable and the negative trend for emerging markets.

4.2 A Parametric Model and Time-varying Betas

We now explore a model whereby the sensitivity of the asset return to the world factor is a time-varying function of openness, the business cycle, political risk as well as crises.

4.2.1 The Model and Empirical Results

Our second model attempts to more directly deal with the volatility bias critique and focuses on how openness affects the beta with respect to the global factor. We estimate the following panel factor model:

$$
\begin{aligned}
r^j_{i,t+1} &= \alpha_{i,t} + \delta'_{i,t} Z_{i,t} + \beta_{i,t} r^j_{w,t+1} + \varepsilon_{i,t+1}, \\
\alpha_{i,t} &= \alpha_i + \alpha_{\text{open}} \text{Open}_{i,t} + \alpha_{\text{pr}} \text{PR}_{i,t} + \alpha_{\text{cycle}} \text{Cycle}_{i,t} + \alpha_{\text{crisis}} \text{Crisis}_{i,t}, \\
\delta_{i,t} &= \delta_0 + \delta_{\text{open}} \text{Open}_{i,t} + \delta_{\text{pr}} \text{PR}_{i,t} + \delta_{\text{cycle}} \text{Cycle}_{i,t} + \delta_{\text{crisis}} \text{Crisis}_{i,t}, \\
\beta_{i,t} &= \beta_0 + \beta_{\text{open}} \text{Open}_{i,t} + \beta_{\text{pr}} \text{PR}_{i,t} + \beta_{\text{cycle}} \text{Cycle}_{i,t} + \beta_{\text{crisis}} \text{Crisis}_{i,t},
\end{aligned}
\tag{13}
$$

where r^j denotes excess returns for $j = e, b, fx$; $Z_{i,t}$ is a vector of instruments that help determine the expected return for market i (specifically, dividend yields $\text{DY}_{i,t}$ and short-term interest rates $i_{i,t}$); and $\text{Open}_{i,t}$ is either financial openness (FI) or trade openness (TI). All the coefficients vary over time with the independent variables we introduced before (that is, a country-specific openness measure, $\text{Open}_{i,t}$; a political risk indicator, $\text{PR}_{i,t}$; a business cycle variable, $\text{Cycle}_{i,t}$; and a crisis indicator, $\text{Crisis}_{i,t}$). The constant term (α_i) depends on a country-specific fixed effect, and the remaining coefficients are constrained to be the same across countries for identification. The coefficient in which we are most interested is β_{open}. Standard errors are clustered at the country level.

Although conditional mean effects are not the main focus in this article, we investigate the behavior of risk premiums in Section 4.3. Therefore, we use a set of predictive instruments to capture time variation in the conditional mean. As before, we include only one openness variable in each regression we run. Also, although the country-specific betas showed some cross-country variation, they did not add much to the fit of the model, so we focus on a model without country-specific betas. All variation in betas must therefore be generated by the exposures to the four control variables.

Tables 6, 7, and 8 report the results for equity, bond, and foreign exchange returns, respectively. Each table has eight columns, looking at two financial openness measures (*de jure* and *de facto*) and two trade openness measures (*de jure* and de facto) and splitting the sample over developed and emerging markets. The first set of rows include the conditional mean parameters, which we discuss in Section 4.3. We first focus on the beta exposures, and provide a discussion across asset classes.

Given the multiple interaction effects, the constant beta is hard to interpret, but we report it for completeness. The first result is that financial and trade openness have no significant positive effects on the conditional beta for any asset class. It is true that we have estimated some alternative specifications where some of the positive coefficients turned out stronger and significant. For example, for foreign exchange, joint samples across developed and emerging markets provide more powerful results. Political stability shows somewhat stronger results in that for equity returns, political stability in emerging markets increases betas significantly, whereas for foreign exchange returns, it does so only for developed markets. The cycle variable is never significant. The crisis variable, in contrast, is positive and significant for both equity and bond returns, but only in developed markets for foreign exchange returns.

To get a sense of the economic importance of the effects we estimate here, Tables 9–11 show the change in beta when moving from the 5th to the 95th percentile of the variable in question, leaving the other variables at their overall means. Although many of the coefficients are insignificant, it is interesting to obtain an economic picture of the effects implied by the regressions. Given relatively large standard errors, we define a beta difference of 0.20 as economically significant. Assuming a global equity premium of 6%, such a change in beta is associated with an increment in the country risk premium of 1.2% attributable to global risk. For bond and foreign exchange returns, the risk premium changes would, of course, be smaller.

First, if we consider global betas as capturing potentially permanent effects of globalization, the results differ across types of openness and across asset classes. For equity returns, there is only one economically significant result: Financial globalization in emerging markets would increase betas from 1.05 to 1.33 when moving from low to high openness. For bond returns, among financial globalization measures, only *de facto* financial globalization increases global betas substantially, and this only for developed markets. However, trade openness is generally associated with substantially higher bond betas. There is an almost significant decline in bond betas with higher financial openness for emerging markets. For foreign exchange returns, globalization is mostly associated with relatively large decreases (increases) in world betas for developed (emerging) markets.

Second, the effect of political risk is a bit more robust across asset classes and openness measures. When it is associated with a major change in beta, it is almost always an increase in beta, and the increase in beta is often very large. For equities, global betas in emerging markets increase by 0.5–0.6 moving from the 5th percentile to the 95th percentile of the political stability variable; for bond returns, the effect is about 0.20, but only for developed (not emerging) markets, whereas for foreign exchange, the effect is generally very large but largest for developed markets. This is also the case for the crisis variable, which increases betas substantially for all asset classes and country groups, with the exception of bond returns in emerging markets. The cycle variable does not generate meaningful economic results.

4.2.2 Interpreting the Results

There are a number of possible interpretations for the weak links we find between globalization and global betas. First, regional integration may be stronger than global market integration; that is, we may observe strong within-region convergence, but weaker integration across regions.[8] The past 35 years have witnessed several strong regional economic and financial integration initiatives, including free trade arrangements in North America (NAFTA) and Asia (ASEAN), with the most momentous change taking place within the European Union, which established an economic and

[8] Kose, Otrok, and Prasad (2008) find convergence of business cycle fluctuations among developed countries and among emerging economies, but nevertheless find the relative importance of the global factor to have declined over the previous 20 years, suggesting decoupling between developed and emerging economies.

monetary union with one currency in 1999. There is a substantial literature on European integration (for recent surveys, see Baele, Ferrando, Hördahl, Krylova, and Monnet (2004), Jappelli and Pagano (2008)), but most of the formal academic literature has focused on equity returns. Baele, Ferrando, Hördahl, Krylova, and Monnet (2004) document a clear increase in regional and global betas, with the regional increase stronger than the global one. Baele (2005) also finds a larger increase in regional than in global effects (betas and variance ratios), with spillover intensities (betas) increasing most strongly in the second half of the 1980s and the first half of the 1990s. He links these changes to many structural determinants, such as trade integration, equity market development, and inflation. Hardouvelis, Malliaropoulos, and Priestley (2004) document strong convergence in the cost of equity across different countries in the same sector, but much less convergence across different sectors. They list the launch of the single currency as a major factor. Bekaert, Harvey, Lundblad, and Siegel (2013), focusing on valuation differentials, find that the European Union (but not the Euro) strongly contributed to European equity market integration. For Asia, Ng (2000) uses a conditional GARCH model to investigate spillovers from Japan and the United States to Pacific Basin markets. She finds evidence of both regional and global spillover effects, but the effects of measures of trade and financial integration are not always significant or of the correct sign. These results are consistent with ours. She also finds that the proportions of the Pacific Basin market volatility captured by regional and world factors are small. Eiling and Gerard (2015) document strong within-region increases in correlations, which are partially due to financial and trade openness. Although our model could be easily adapted to account for regional integration, we defer this to further research. In a precursor to this article, Bekaert and Wang (2009) found regional betas to be larger than global betas in Europe but not in Asia.

Second, our beta model may suffer from an omitted variable problem. There are many factors affecting comovements, and without properly controlling for them, we may fail to pick up the effects of globalization. One variable for which we fail to control is industry structure. Whereas the early literature (see Heston and Rouwenhorst (1994)) suggested that country factors dominated the variation of firm returns relative to industry factors, more recent work (see, e.g., Cavaglia, Brightman, and Aked (2000) argues that industry factors have become at least as important as country factors, likely because of financial integration, and can no longer be ignored. Campa and Fernandes (2006) directly link the relative importance of industry and country factors to measures of economic and financial international integration and development. Their results suggest that industrial structure may matter too and that countries with a more specialized production structure will have more country-specific risk. Nevertheless, several results in the literature suggest that our failure to create industry factors is not critical. First, several studies show that country factors are still more important than industry factors (see Bekaert, Hodrick, and Zhang (2009); Eiling, Gerard, Hillion, and de Roon (2012)). One reason that several studies overestimate the importance of industry factors is simply sample selection; their sample periods end around the year 2000, a time of huge technology-sector volatility. Brooks and Del Negro (2004) ascribe the relative change of importance of industry versus country factors to the 1998–1999 stock market bubble. Further, Baele and Inghelbrecht (2009) correct directly for industry misalignment in a study of stock return comovements without finding much of an effect. Finally, Bekaert, Hodrick, and Zhang (2009) show that parsimonious risk-based models are better at capturing comovements than are models with multiple country and industry factors for developed countries, whereas Phylaktis and Xia (2006) show that country factors remain dominant in emerging markets.

Third, a potential sampling problem is that the end of our sample period is dominated by the global financial crisis, in which globalization was halted or even reversed. We have argued before that crises may lead to temporary higher comovements that have nothing to do with liberalizations. However, in much of our analysis, we control for global recessions (typically associated with higher volatility of asset prices) and for crises. Our focus on betas in the parametric model bypasses the volatility bias critique. Yet, we find that the crisis variable is associated with large increases in global betas, especially for developed markets. This implicitly suggests that the time-varying beta model does not fit crisis returns well. Bekaert, Ehrmann, Fratzscher, and Mehl (2014) measure such changes in betas for the global financial crisis and other crises and, building on an intuition first laid out by Bekaert, Harvey, and Ng (2005), suggest they constitute crisis contagion, representing unexpected comovements from the perspective of the asset pricing model. Such contagion also happened, to a lesser extent, during the LTCM/Russia crisis in 1998, but did not happen at all during the technology-sector bust at the end of the 1990s. They analyze the sources of the beta changes, finding a strong role for country-specific policy factors over and above measures of integration or even international banking links. The crisis may therefore represent a nonlinear shift in exposures not well captured by our linear parametric model.

Finally, several articles have attempted to estimate more dynamic models, specifying an asset pricing model, linking the second moments to the first moments, and then examining the degree of integration over time (see Bekaert and Harvey (1995); Carrieri, Errunza, and Hogan (2007); Carrieri, Chaieb, and Errunza (2013)). This research finds that the evolution toward more integrated markets is not always a smooth process for each country, and our linear model may not capture these dynamics very well.

We conclude that parametric models of global betas do not uncover strong links with globalization measures and that other factors (such as political stability and crises) often matter more. This contrasts somewhat with the results for the nonparametric kernel-weighted regressions. There we did find that equity rerun correlations increased with openness measures and this increase was attributable to increases in beta (and partly also to lower country-specific risk). Interestingly, we find the results typically to be stronger for trade, rather than for financial globalization, and typically also stronger for *de facto* rather than *de jure* openness. Somewhat weaker but similar results apply to foreign exchange returns. However, for bond returns, the globalization measures are not as important as the other variables, especially political risk, even in the kernel-weighted regressions. It is conceivable that the recent period dominated by a severe sovereign bond crisis in Europe may be partially to blame.

4.3 Risk Premium Results

We now explore both the relation between our openness measures and risk premiums as well as the dispersion in risk premiums.

4.3.1 Risk Premiums in a Parametric Model

We now investigate briefly the conditional mean results. We already pointed out that it is not obvious that financial openness (and even less so trade openness) will lead to stronger comovements of asset returns. However, under most dynamic pricing models, risk premiums should become more highly correlated when markets integrate. It is notoriously difficult to estimate risk premiums from asset return data. The regression model we formulated above implies proxies for risk premiums through its conditional mean function. Bekaert (1995) and Campbell and Hamao (1992) use similar methods to extract expected equity returns and argue that in a one-factor model, these expected returns should be perfectly correlated under perfect market integration. Note that the conditional mean function that we estimate is quite complex, as it involves each variable we use to model the time variation in betas and the interaction of each of those variables with instruments. The instruments we use are the local dividend yield and the short-term interest rate, as in Ang and Bekaert (2007). Appendix 1 describes the data sources for these variables. The slope coefficients are reported in Tables 6, 7, and 8, for equity, bond, and foreign exchange returns, respectively.

For equity returns, the crisis variable, not surprisingly, has an overall negative and significant coefficient, but for the other variables, significance is not consistent across specifications. The direct effect of trade integration is negative and significant, but trade integration also increases the dependence on the short-term interest rate. For developed markets, de jure financial globalization surprisingly has a positive direct effect, but also decreases the dependence of the equity premium on the local dividend yield. For *de facto* equity integration, the effect is reversed, with the direct effect being negative, but the interaction effect being positive for the short rate for developed markets and for the dividend yield for emerging markets. Political stability has a negative direct effect on expected returns in emerging markets, and there are no significant interaction terms.

For bond returns, we do not observe significant coefficients for the financial globalization variables or their interactions with the instruments. We do find a significant negative direct effect of *de jure* trade integration for developed markets. There are no significant direct effects for the other three variables, but a few significant interaction effects. For example, the cycle variable has a positive interaction effect with the short rate for developed markets. That is, the dependence of the risk premium on the short rate increases in good times. It has a negative interaction with the local dividend yield for emerging markets, however. For developed markets, the crisis variable now has a negative significant interaction effect with the local dividend yield. Such an effect can implicitly ensure that during a global crisis, the bond premium becomes more global. These effects are robust across the various specifications.

For foreign exchange returns, globalization measures do not feature significant coefficients for developed markets. In emerging markets, *de jure* financial globalization increases the expected exchange rate return directly, but the interaction effect with both the local dividend yield and the interest rate is negative. The interest rate itself has mostly a significant negative coefficient for emerging markets; that is, high short-term interest rates reduce the expected return on foreign exchange, which would appear to be inconsistent with standard unbiasedness hypothesis regressions. However, Bansal and Dahlquist (2000) show that the deviations from unbiasedness, which typically suggest that expected returns increase in the interest differential with the dollar, are confined to (a subset of) developed countries, whereas foreign exchange risk premiums in emerging markets depend on various local factors, as we document here as well. The negative interaction effect with the short rate is also present for *de jure* trade integration. Political stability in emerging markets increases the dependence of the expected foreign exchange return on the short rate. The cycle and crisis variables do not have significant direct effects on expected foreign exchange returns, but have significant negative interaction effects with the local interest rate for emerging markets (cycle variable) and developed markets (crisis variable).

Examining the regression coefficients does not suffice to appreciate the full effect of globalization on expected returns. The market integration process is likely to change many relationships in the economy and may serve as a structural break for the return generating process.[9] We partially accommodate this by allowing for interaction effects between the predictive instruments and the globalization variables, but our instruments (dividend yields and interest rates) are themselves affected by the globalization process. We therefore conduct further analysis, extracting the risk premiums from the predictive regression framework and examining whether these premiums have undergone comovement changes correlated with globalization and our other variables. Of course, we make the strong implicit assumption that time-invariant parameters on our factors such as globalization and political stability capture all the changes in the predictive relationship between the instruments and returns. Moreover, we have not included global instruments in the relationship (for early work on foreign and domestic instruments predicting equity and foreign exchange returns, see Bekaert and Hodrick (1992)), which would have greatly complicated the already heavily parameterized model.

4.3.2 Risk Premium Dispersion

To examine convergence of risk premiums, we simply compute the cross-sectional dispersion of our premium estimates at each point in time. Recall that we have eight different specifications for each asset class, and thus eight alternative estimates of risk premiums at each point in time. We simply compute the convergence measures for all specifications. In Table 12, we report Bunzel–Vogelsang trend tests on these dispersion statistics. With few exceptions, we find strong negative trends for all specifications and all three asset classes. Positive trends are only observed for bond

[9] Bekaert, Harvey, and Lumsdaine (2002) exploit these structural breaks to date the time of integration.

return premiums for developed markets. For both bond and equity premiums, we find only one trend coefficient to be statistically significant, but for foreign exchange risk premiums, the trend coefficients are significant for five out of eight specifications.

It is interesting that we find the strongest evidence of convergence in an asset class that has received considerably less attention in the market integration literature, which has mostly focused on equities. Of course, these findings may simply reflect the limited power of trend tests and the fact that foreign exchange returns are less noisy than equity returns.

The downward trend in the dispersion of risk premiums across countries raises the question whether this convergence is linked to any of our fundamental variables, including globalization, political risk, business cycle variation, or crises. It is not necessarily only the level of these variables that ought to matter, but also their cross-sectional dispersion. For example, we indicated before that business cycle convergence may impact the return convergence, whereas global recessions may also impact risk premiums worldwide. We therefore use both the (average) levels and cross-sectional dispersion of our four variables as independent variables. For the cycle and crisis variables, we do use global versions of the level variables, as the incidence of global recessions or crises may affect return comovements. Unfortunately, we cannot include the cross-sectional dispersion and levels of the globalization measures in one regression, as in many instances they are too negatively correlated. That is, as the degree of globalization increases, the dispersion of openness measures unsurprisingly decreases (e.g., for equity *de jure* openness, the correlation is -0.93).

We begin with equity risk premiums (see Table 13). The table reports the specification with a trend term. Bolded coefficients indicate that the coefficient is significant at the 10% level or lower and has the same sign in a regression without the trend term. We focus on robust findings. For *de jure* financial globalization, we find its cross-sectional dispersion to positively affect the dispersion of equity risk premiums and its level to decrease dispersion, but this is only robustly true for developed markets. Surprisingly, for *de facto* openness, we find a negative effect of its dispersion on return dispersion. However, the dispersion of de facto openness shows a strong upward trend over time, which may explain this result. For trade openness, we only find significant robust results for *de jure* trade openness in emerging markets. Here the signs are again unexpected, with the dispersion having a negative effect (this may be explained by the volatile period in the early 1990s) and the level a positive effect. In terms of the other variables, we find a positive effect of both the dispersion and level of political stability, with the latter perhaps being surprising. This effect is only present for emerging markets. Dispersion in the cycle variable is overwhelmingly negatively related to risk premium dispersion in emerging markets. Perhaps high cycle dispersion is observed in normal times when country-specific shocks (as opposed to global recession shocks) drive the economy. In such periods, risk premiums may be relatively normal and not very dispersed. The cycle level is negatively related to equity premium dispersion, but only in developed markets. In global recessionary periods, risk premiums likely rise substantially, which may be accompanied by more dispersion across different countries. The realized variance variable is positively related to premium dispersion for developed markets.

For bond return risk premiums, there are very few globalization effects that are significant and robust across specifications in Table 14. Both the level and dispersion of *de jure* financial openness lower bond premium dispersion. The cross-sectional dispersion of de facto trade openness increases the dispersion of bond premiums for developed markets, whereas its level increases premium dispersion in both developed and emerging markets. In terms of other effects, the level of the cycle variable affects dispersion negatively in both emerging and developed markets; that is, bad times are associated with mostly higher and thus more dispersed risk premiums. This may be exacerbated by the fact that in bad times, flights to safety may make benchmark bonds (such as US and German bonds) have very low or negative risk premiums. The global crisis variable decreases dispersion of bond risk premiums in emerging markets, and the realized variance variable increases dispersion in both developed and emerging markets.

For foreign exchange return risk premium dispersion in Table 15, we find that both level and dispersion of all financial globalization measures increase their dispersion in emerging markets. For developed markets, only the dispersion of de facto openness increases premium dispersion robustly and significantly. For trade openness, we find more significant results for developed markets. The cross-sectional dispersion of both *de jure* and de facto trade openness increases the dispersion of foreign exchange risk premiums in developed markets, but in terms of level, *de jure* openness decreases and *de facto* trade openness increases dispersion. For emerging markets, only the *de jure* openness measures are significant with the expected positive (negative) sign for dispersion (level). We also find that political stability in developed markets contributes to lower dispersion of foreign exchange risk premiums, and bad times (negative cycle variables) increase dispersion in emerging markets. The cross-sectional dispersion of GDP growth decreases the dispersion of exchange rate premiums in developed markets.

5 Additional Analysis and Robustness Checks

Here we report on some additional analyzes we conducted.

5.1 Local Currency Returns

One potential problem with our analysis for equity and bond returns is that we expressed all returns in dollars, and they thus feature a common currency component across countries. Because foreign exchange return correlations increased over time, they may be partially responsible for higher global correlations for bond and equity returns. To verify this, we computed local currency bond and equity returns (for details, see Appendix 1). The panel correlation between dollar and local currency equity returns is 0.85, but it is only 0.35 for the corresponding bond returns. This is obviously because of the variability of equity markets dominating that of currency changes, whereas the latter dominates the variability of fixed-income instruments.

Note that we consider the correlation, betas, and idiosyncratic volatility relative to the global dollar-denominated benchmark as before. Although the implicit regressions use two different currencies, the idea here is to decompose the previous findings in components due to local currency returns and due to the joint dollar component. While removing the common currency component must reduce the beta and correlation statistics, we focus on how the changes in these statistics are related to globalization measures and other determinants.

Here we survey which results are different from the dollar-denominated results, and detailed results are relegated to the Supplemental Appendix. First, we investigate results from the first half versus the second half of the sample. Significant increases for return correlations are still observed for both equity and (only for emerging markets) bond returns from the first to the second half of the sample, but the result does weaken for bonds. For betas, the beta increases for equities weaken considerably, and in fact are no longer significant for emerging markets. For bond returns, the beta increases are smaller but remain significant. The idiosyncratic volatility results (decreases for equities and for bonds, but only for emerging markets in the latter case) are entirely robust.

Second, we redo the panel regressions on the kernel-weighted comovement statistics. For equities, the significant correlation increases under *de facto* openness remain robust, whereas the trade openness results weaken somewhat, especially when a trend coefficient is included in the regression. Interestingly, the positive effect of political stability on correlations is more uniformly significant; this is also true of its effect on betas. For financial openness, we do not observe any significant effects on betas, but *de jure* trade openness continues to positively affect betas for developed markets. The idiosyncratic volatility results are entirely robust. For bonds, we see in fact somewhat stronger, more significant, and more positive results for the effect of *de facto* financial integration, and of both *de facto* and *de jure* trade integration, on correlations. These results extend to betas. Globalization did not have much effect on idiosyncratic bond volatility, and that remains true for local bond returns. In terms of the other coefficients, the main change is that for emerging markets, the cycle variable now has a strong significant and positive effect on correlations and betas, which was much weaker when convoluted with currency changes. Similarly, it now has a robust negative effect on the idiosyncratic bond return variability. The results for the parametric model largely mimic the beta results from the panel regressions, with, for example, trade openness now having a positive and significant effect on bond betas.

In sum, while there are some small changes, the dollar denomination did not spuriously induce an effect of globalization on convergence. For example, the results for idiosyncratic volatility are completely robust.

5.2 Global Cycles

In the main regression, we used a country-specific business cycle variable. However, it is conceivable that the global business cycle is more important in driving cross-country correlations. As we argued before, the sign of the effect is *ex ante* unclear. More generally, in bad times, higher global volatility increases the volatility bias, but our regressions control for this. Nonetheless, much research suggests that there may be more home bias in bad times (Ang and Bekaert (2002); Bekaert, Harvey, Lundblad, and Siegel (2011)), so that *de facto* integration may reverse.

When we rerun the kernel-weighted regression, replacing the country-specific with the global business cycle variable, the variable mostly has a strongly positive and significant effect on equity return correlations, which only disappears for developed markets when a trend is accounted for. This is also true for equity betas, suggesting again that bad times are associated with more segmentation, once one controls for volatility biases. The results on idiosyncratic volatility are very sensitive to whether one controls for a trend, suggesting that the negative trend in idiosyncratic volatility may be linked to the increased prevalence of global recessions over time. The parametric model largely confirms this result, but the interaction between the global cycle variable and the global beta is only statistically significant for developed markets.

For bond returns, the cycle variable generates robustly significant effects only in developed markets, with global recessions increasing bond return correlations, a result that was not significant before. It is also not entirely driven by the exchange rate component in bond returns. One possible explanation is that global bond markets jointly reacted to the global recession and the ensuing unusual monetary policies that were exported from the United States to other countries (see Rey (2015)). However, the effect does not survive for betas (except when one controls for a trend), which suggests that it may also be because we imperfectly control for volatility bias in these regressions, having no available measure of global bond return volatility. This lack of robustness is further confirmed by the parametric regression, where the interaction effects with the cycle variable are negative for emerging markets but positive for developed markets.

For currency returns, the global cycle variable has a robust significantly positive effect on correlations for emerging markets, which is also present for global foreign exchange betas. Thus, as for equities, there is more comovement in good times. This is confirmed in the parametric model results, but the interaction coefficient is only significant in one specification.

5.3 Corporate Governance

Here we investigate the effect of replacing the general political risk index by a quality of institutions variable, combining corruption, law and order, and quality of bureaucracy subindices. This measure may prove a better indication of the corporate governance framework in a country, but it is far from a perfect measure. The panel correlation with the political risk index is only

0.62 for developed markets, but it is 0.70 for emerging markets. However, there are many countries for which both indices show very low correlation across time (e.g., Brazil, India, Poland, Russia, and Thailand among emerging markets and Canada, Denmark, New Zealand, and Sweden among developed markets). Thus, it is conceivable that this variable generates different results from our main results.

In the previous panel regressions, political stability mostly increased global equity correlations and betas without significantly affecting idiosyncratic volatility. Although the other coefficients mostly remain robust, the coefficient on the corporate governance variable is negative for developed markets in the correlation regressions and mostly loses significance in the beta regressions. In the idiosyncratic volatility regressions, the coefficients for developed markets (when no trend is included) turn positive. For bond return correlations, the signs on the corporate governance variable are also mostly negative, but this time are only significant for emerging markets when no trend is allowed. The pattern is even stronger for betas, where it holds for both bonds and equities, but only when no trend is included in the regression. For idiosyncratic volatility, the corporate governance variable does not have much of an effect. For exchange rates, the signs are still predominantly negative on the corporate governance variable for both correlations and betas, but only one coefficient is statistically significant in 16 different specifications. In the parametric regressions, the corporate governance variable never enters significantly.

These results are somewhat surprising. If corporate governance is an effective segmenting factor, one would not expect improvements in corporate governance to lower comovements with the global market. The results also appear inconsistent with the Stulz hypothesis, which suggests that corporate governance is a main driver of international asset returns. It is therefore likely that the positive association we found before between the more general index of political stability and correlations/betas does not reflect a corporate governance effect, but may be an indirect openness effect because political stability, in general, is highly correlated with FDI.

5.4 Effect of Unbalanced Samples

All of our results make use of an unbalanced sample, with countries added on as data become available. We selected the starting point of the sample requiring a minimum number of countries to minimize the problem as much as possible. There may be a negative correlation between incomplete data and globalization, so that the unbalanced sample may actually bias the results against finding increased comovement over time as a result of globalization, as less integrated countries enter the sample. To verify this, we rerun our kernel-weighted regressions, adding an independent variable measuring the change in the number of countries. Hence, if the addition of countries affects our results, this variable may capture the bias, and the other coefficients may change as well. In the Supplemental Appendix, we show that changes in the number of countries often have a significant effect on comovements, but not always in the expected direction. For example, for equities, an increase in the number of countries decreases correlations in all specifications; decreases betas in emerging markets but has a non-robust effect on betas in developed markets; and has little effect on idiosyncratic variability. Importantly, whatever the bias, the addition of the variable does not change the other coefficients in any meaningful way, with all significant coefficients remaining significant and the magnitudes barely altered.

6 Conclusions

In this article, we examine whether globalization has been associated with increased comovement of asset returns across the world, focusing on equity, bond, and foreign exchange returns. We start the analysis by measuring the globalization process in developed and emerging markets over the past 35 years. We investigate measures of *de jure* and *de facto* financial and trade openness. Perhaps surprisingly, for our sample period, globalization does not invariably trend upward. Two factors may play a role here. First, the recent global financial crisis halted the globalization process in some countries and even reversed it for some. This is particularly evident from regulatory actions applied to bond and money markets, as well as from actual trade flows that collapsed during the crisis. Second, our sample may have missed the biggest globalization wave by starting too late. For developed countries, it is conceivable that trade openness generated most globalization effects before 1980. It is hard to imagine financial openness generating large effects then, as it only began in earnest in the 1980s for most countries. For emerging markets, capital market liberalizations were mainly concentrated in the late 1980s and early 1990s. Our average starting date for emerging markets is September 1991 for equities and even later for the other asset classes, so it is possible that we have missed some liberalization effects.

Our analysis focuses on comovements relative to a global benchmark return for each asset class (representing G7 countries). The evidence shows that global comovements have increased substantially over our sample period. Correlations between country returns and a global benchmark return are higher in the second half versus the first half of our sample. Time-varying correlations show both trending behavior and cyclical movements. Exceptions are developed market bonds, where global correlations often decreased.

Correlations can increase because global betas increase, because the variability of global factors increases, or because country-specific variances decrease. The volatility bias is particularly important for our analysis, as our sample period witnessed several economic crises. Controlling for such a bias, we still find that betas increased and idiosyncratic volatilities decreased, with some notable exceptions. In particular, country-specific volatilities increased substantially in developed bond markets, and bond return correlations therefore do not display an upward trend. However, financial and trade globalization seem to only weakly correlate with these movements. We use a regression model linking rolling correlations, betas, and country-specific volatilities to our globalization measures and other determinants of comovements as well as a parametric time-varying global beta model. Although the latter model yields few significant and robust results, there are some important associations between globalization measures and convergence measures in the regression framework, especially for equity returns and for the de facto openness measures.

Much of the existing evidence focuses only on equity returns and has used correlations as a measure of comovement, with some research foreshadowing our results. Karolyi (2003) calls the evidence on trends in correlations linked to stronger real and financial linkages remarkably weak. Bekaert, Hodrick, and Zhang (2009) examine return correlations between developed countries and find a significant trend only among the European countries, and no trend at all in the Far East. The literature on international factor models applied to individual stocks has also yielded results consistent with our findings. The extant literature (see, e.g., Griffin (2002); Hou, Karolyi, and Kho (2011); Fama and French (2012)) typically finds that local models outperform global ones. Petzev, Schrimpf, and Wagner (2016) attempt to characterize the time variation in fit of local versus global models. They confirm our finding that the R^2 of global factor models has increased and has reduced the gap with the explanatory power of local models (even when controlling for the volatility bias). However, the pricing errors of global models are still much larger than those for local models and have failed to converge. Petzev, Schrimpf, and Wagner (2016) speculate that the increased comovement must therefore stem from real rather than financial integration, in contrast to, e.g., Baele and Soriano (2010). Our direct tests reveal a much more nuanced picture, in which, for example, increased return correlations in developed markets are positively associated with trade integration, but in emerging markets also depend significantly on financial globalization.

There are several possible explanations for the weak links between globalization and the comovement of asset returns. First, regional integration could dominate world integration. Our framework can be easily generalized to accommodate regional betas. We expect that such an exercise would generate a strong comovement increase within certain regions (see also Eiling and Gerard (2015)), but that the recent worldwide and European crises may weaken the link between regional globalization measures and return comovements.

Second, because of the increased incidence of crises, we may find stronger results focusing on tails in asset return distributions, rather than on the linear measures we have employed here (for efforts in this line, see Bae, Karolyi, and Stulz (2003); Beine, Cosma, and Vermeulen (2010); Christoffersen, Errunza, Jacobs, and Langlois (2012)).

Third, given that we included a number of alternative comovement determinants in our analysis, it does not appear that our results are driven by the omission of relevant factors in our regressions. This is reminiscent of the results of King, Sentana, and Wadhwani (1994), who put forward a long list of observable economic factors to explain covariances among stock market returns, but find that these factors explain very little. This state of affairs may also help explain the strong results of Pukthuanthong and Roll (2009), who document a marked increase in the degree of integration in equity markets over time. They explain global equity returns using a 10-factor principal component analysis. Because they extract factors from the return data, their integration measure is not affected by the poor explanatory power of observable factors. Their method also nicely circumvents the problem that integration may well decrease comovements under certain types of events; e.g., competitive pressure or supply shocks (e.g., commodity price shocks) may benefit certain countries but hurt others more swiftly in an integrated market.

Fourth, the challenge of documenting strong effects of globalization on the convergence of asset returns was already apparent in some early studies of the dynamics of market integration. Bekaert and Harvey (1995), for example, argue that integration is a nonsmooth process that may actually reverse, and is only weakly linked to *de jure* openness.

We do believe it is possible to devise more powerful tests. Pukthuanthong and Roll (2009) are not the only researchers who find strong convergence in measures of *de facto* financial integration. Bekaert, Harvey, Lundblad, and Siegel (2007) characterize each country by a vector of industry weights (measured using stock market capitalization weights) and then compute the (logarithmic) difference between a country's price to earnings (PE) ratio and the PE ratio for the country's basket of industries at world multiples. Bekaert, Harvey, Lundblad, and Siegel (2007, 2011) show that under some strong assumptions of real and financial integration, this measure should be close to zero. Although their measure confounds economic and financial integration, they show that *de jure* globalization, especially financial globalization, has a strong negative effect on these valuation differentials, which tend to decrease over time. also show that they diverge again in crises, a result that also holds true within the European Union (see Bekaert, Harvey, Lundblad, and Siegel (2013)).

This article and earlier work by Bekaert and Harvey (2000) has suggested that the focus on returns may prevent powerful econometric tests of the effects of globalization. A focus on prices instead of returns may be necessary to detect more powerful links. In addition, it would be fascinating to decompose returns and prices in their various economic components. Equity returns have a valuation and cash flow component. Bond returns reflect interest rate changes which, in turn, reflect real and inflation components. Foreign exchange returns reflect the pure currency and a carry component. Finer decompositions of returns may yield valuable insights.

Our analysis can be expanded in other directions. First, we have focused on three major asset classes, but omitted others such as real estate. Second, the growth of the Chinese stock market and its dramatic gyrations in 2015 suggest that in the future, we may have to include some of the larger emerging markets in our factor models. Third, we have focused on comovements within an asset class, and not across asset classes. Recent work on the demand for global safe assets (Bruno and Shin (2015)) suggests that this may create spillover effects between Federal Reserve policies (and thus US bond returns), the dollar, and asset returns across the world.

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Table 1: Openness Summary Statistics

This table reports summary statistics for the openness measures for developed (Panel A) and emerging markets (Panel B). Columns two to seven report summary statistics for the whole sample, while columns eight and nine divide the sample in half and report averages for the first part versus the second part of the sample. Given the unbalanced nature of the panel, the midpoint of the sample is country-specific. Start dates for each country can be found in Appendix B. The penultimate column (difference) shows a difference in means test to find out if the first half of the sample is significantly different from the second half. Whereas the summary statistics are calculated over the pooled sample, here we calculate the country means and then run a cross-sectional test to compare the first and second halves. Asterisks ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively. The last column shows the results of the Bunzel and Vogelsang (2005) trend tests conducted on regional measures, which are constructed as equally-weighted averages across countries. This trend test is based on the series model $y_t = \beta_1 + \beta_2 t + u_t$, where y_t is the variable of interest and t for the linear time trend, and uses a Daniell kernel to nonparametrically estimate the error terms. We test for the null hypothesis that $\beta_2 = 0$. A number in bond font indicates that the trend beta is significantly different from zero at the 5% significance level. See Appendix A for details on variable definitions and sources.

Variable	N	Mean	Median	sd	p5	p95	Mean Half 1	Mean Half 2	Diff	Trend
Panel A: Developed Markets										
FI_i^{Seq}	9562	0.90	1.00	0.18	0.50	1.00	0.87	0.93	0.06	0.10
FI_i^{Sbo}	6127	0.93	1.00	0.16	0.71	1.00	0.92	0.93	0.00	0.09
FI_i^{Smm}	3725	0.93	1.00	0.15	0.50	1.00	0.92	0.94	0.04	-0.02
FI_i^{QT}	9562	0.90	1.00	0.14	0.62	1.00	0.84	0.96	0.13***	0.24
$FI_i^{df,eq}$	9562	0.56	0.27	1.09	0.01	2.02	0.17	0.95	0.11***	1.44
$FI_i^{df,debt}$	6127	2.47	1.69	2.62	0.58	6.07	1.59	3.34	0.14	3.39
TI_i^{QT}	9562	0.93	1.00	0.12	0.62	1.00	0.88	0.99	0.78**	0.21
TI_i^{df}	9380	0.74	0.51	0.69	0.26	2.61	0.66	0.82	1.72**	0.31
Panel B: Emerging Markets										
FI_i^{Seq}	6142	0.37	0.25	0.33	-0.00	1.00	0.35	0.39	0.06	0.13
FI_i^{Sbo}	5561	0.51	0.50	0.37	0.00	1.00	0.53	0.48	0.00	-0.15
FI_i^{Smm}	3514	0.38	0.25	0.34	0.00	1.00	0.39	0.37	0.04	0.01
FI_i^{QT}	6142	0.61	0.62	0.23	0.25	1.00	0.58	0.64	0.13***	0.16
$FI_i^{df,eq}$	6142	0.10	0.06	0.12	0.01	0.36	0.06	0.14	0.11***	**0.16**
$FI_i^{df,debt}$	5561	0.75	0.58	0.63	0.24	2.25	0.82	0.67	0.14	-0.30
TI_i^{QT}	6142	0.71	0.77	0.24	0.25	1.00	0.68	0.74	0.78**	0.13
TI_i^{df}	6142	0.53	0.45	0.35	0.17	1.37	0.47	0.59	1.72**	0.22

Table 2: Asset Prices - Difference in Means Tests

This table reports the difference in means tests for the correlation between country returns and world returns, the beta with world returns, idiosyncratic risk, and cross-sectional dispersion in the first half of the sample versus the second half. The sample midpoint and start dates differ across countries, given the unbalanced nature of the panel, and are presented in panel *a*. Panel *b* reports correlations, and panels *c* and *d* report betas and annualized idiosyncratic risk, respectively, calculated from the following country-specific regressions for each half: $r_{i,t} = \alpha_i + \beta_i r_{w,t} + \varepsilon_{i,t}$. Panel *e* presents the difference in means test for cross-sectional dispersion. This is calculated using a balanced sample and is defined as

$$CS_t = \sqrt{\frac{1}{N}\sum_{i=1}^{N}\left(r_{i,t} - \frac{1}{N}\sum_{i=1}^{N} r_{i,t}\right)^2}.$$

Note that we report the cross-sectional dispersion in annualized volatility units. For the difference in means tests, asterisks (***, **, and *) represent statistical significance at the 1%, 5%, and 10% levels, respectively. This table also reports the results of the trend tests of Bunzel and Vogelsang (2005) conducted on time-varying correlations, betas, and idiosyncratic risk for equity, bond, and exchange rate returns using a kernel method and on the cross-sectional standard dispersions. This trend test is based on the series model $y_t = \beta_1 + \beta_2 t + u_t$, where y_t is the variable of interest and t is a linear time trend, and uses a Daniell kernel to nonparametrically estimate the error terms. We test for the null hypothesis that $\beta_2 = 0$. A bold number means that the trend beta is significantly different from 0 at the 5% significance level. All results are presented for developed and emerging markets, which are grouped according to International Monetary Fund classifications (for details, see Appendix 2).

		Developed	Emerging
Panel A: Country-Specific Midpoints and Start Dates			
Equities	Average Middle Date	1998m12	2003m3
	Average Start Date	1983m2	1991m9
Bonds	Average Middle Date	2002m9	2005m8
	Average Start Date	1990m8	1996m9
Exchange Rates	Average Middle Date	2002m12	2006m11
	Average Start Date	1991m2	1998m11
Panel B: Correlations			
Equities	First Half	0.56	0.31
	Second Half	0.79	0.62
	Difference	0.23***	0.30***
	Trend Test	0.34	0.56
Bonds	First Half	0.70	0.13
	Second Half	0.71	0.45
	Difference	0.01	0.32***
	Trend Test	0.02	0.72
Exchange Rates	First Half	0.48	0.22
	Second Half	0.68	0.50
	Difference	0.20*	0.28***
	Trend Test	0.27	0.52
Panel C: Betas			
Equities	First Half	0.97	0.90
	Second Half	1.18	1.19
	Difference	0.21***	0.30**
	Trend Test	0.36	0.79

continued

Table 2 – *Continued*

		Developed	Emerging
Bonds	First Half	1.27	0.09
	Second Half	1.50	0.94
	Difference	0.23**	0.85***
	Trend Test	0.48	1.90
Exchange Rates	First Half	0.55	0.38
	Second Half	0.98	0.87
	Difference	0.43**	0.49***
	Trend Test	0.69	0.77
Panel D: Idiosyncratic Risk			
Equities	First Half	0.21	0.40
	Second Half	0.15	0.24
	Difference	-0.06***	-0.16***
	Trend Test	-0.10	-0.31
Bonds	First Half	0.08	0.18
	Second Half	0.09	0.12
	Difference	0.02	-0.06**
	Trend Test	0.00	-0.15
Exchange Rates	First Half	0.07	0.13
	Second Half	0.07	0.11
	Difference	0.00	-0.02
	Trend Test	0.02	-0.10
Panel E: Cross-Sectional Dispersion			
Equities	First Half	0.17	0.29
	Second Half	0.13	0.19
	Difference	-0.047***	-0.102***
	Trend Test	-0.07	**-0.18**
Bonds	First Half	0.05	0.12
	Second Half	0.06	0.07
	Difference	0.015***	-0.050***
	Trend Test	0.02	**-0.12**
Exchange Rates	First Half	0.06	0.12
	Second Half	0.07	0.08
	Difference	0.010**	-0.038***
	Trend Test	0.00	**-0.08**

Table 3: Equity Kernel Weighted Regressions

This table reports the results of time-varying correlation, beta, and idiosyncratic risk regressions for equities. We create time-varying measures using a kernel method. For each country, given any date t_0, we split the sample into five-year subsamples and use the 30 data points before and after that point. Within these subsamples, we use a normal kernel to assign weights to the individual observations according to how close they are to t_0. We then compute kernel-weighted correlations, betas, and idiosyncratic risk as follows:

$$corr_{i,t} = \frac{\sum_{j=-30}^{j=30} K_h(j)\left(r_{i,t+j} - \bar{r}_{i,t}\right)\left(r_{w,t+j} - \bar{r}_{w,t}\right)}{\sqrt{\sum_{j=-30}^{j=30} K_h(j)\left(r_{i,t+j} - \bar{r}_{i,t}\right)^2}\sqrt{\sum_{j=-30}^{j=30} K_h(j)\left(r_{w,t+j} - \bar{r}_{w,t}\right)^2}},$$

$$\beta_{i,t} = \frac{\sum_{j=-30}^{j=30} K_h(j)\left(r_{i,t+j} - \bar{r}_{i,t}\right)\left(r_{iw,t+j} - \bar{r}_{w,t}\right)}{\sum_{j=-30}^{j=30} K_h(j)\left(r_{2,t+j} - \bar{r}_{w,t}\right)^2},$$

$$var_{i,t}^{\varepsilon} = \sum_{j=-30}^{j=30} K_h(j)\left(\varepsilon_{i,t+j} - \bar{\varepsilon}_{i,t}\right)^2.$$

where $\bar{r}_{i,t} = \sum_{j=-30}^{j=30} K_h(j) r_{i,t+j}$, $\varepsilon_{i,t} = r_{i,t} - \beta_{i,t} r_{w,t}$, and $\bar{\varepsilon}_{i,t} = \sum_{j=-30}^{j=30} K_h(j)\varepsilon_{i,t+j}$, and $K_h(j) \equiv K(j/h)/h$ is a kernel with bandwidth $h > 0$. We use a two-sided Gaussian kernel, $K(z) = \frac{1}{\sqrt{2\pi}} exp\left(-\frac{z^2}{2}\right)$, and divide by the sum to ensure the weights add to one in a finite sample. We link these measures to openness and other control variables using variations of the following panel regression:

$$x_{i,t+1} = \alpha_i + \beta_1 \overline{Open}_{i,t} + \beta_2 \overline{PR}_{i,t} + \beta_3 \overline{Cycle}_{i,t} + \beta_4 \overline{Crisis}_{i,t} + \beta_5 \overline{RV}_{w,t+1} + \beta_6 trend + \varepsilon_{i,t+1}$$

where $x_{i,t+1}$ reflects correlation, beta, or idiosyncratic risk and $\overline{\text{Open}}_{i,t}$ represents either financial integration (FI) or trade integration (TI). Note that the same kernel approach is applied to the independent variables (i.e., we use the time-varying means of these variables, which are calculated as $\bar{z}_{i,t} = \sum_{j=-30}^{j=30} K_h(j) z_{i,t+j}$). All regressions have country level fixed effects and clustered standard errors. Panel *a* presents the results for correlations, panel *b* for betas, and panel *c* for idiosyncratic risk. In each panel, there are two rows labeled $\text{TI}_{i,t}^{\text{QT}}$ and $\text{TI}_{i,t}^{\text{df}}$. These are the coefficients on the trade openness measures in regressions where financial openness is replaced with trade openness. The remaining coefficients in these regressions are robust and therefore are not reported. Coefficients in bold represent variables that are also significant and have the same signs in regressions where the independent variables are taken at one point in time. Asterisks (***, **, and *) represent statistical significance at the 1%, 5%, and 10% levels, respectively. All variables are described in Appendix 1.

Panel A: Correlations

VARIABLES	(1) $corr_{it+1}$	(2) $corr_{it+1}$	(3) $corr_{it+1}$	(4) $corr_{it+1}$	(5) $corr_{it+1}$	(6) $corr_{it+1}$	(7) $corr_{it+1}$	(8) $corr_{it+1}$
$FI_{i,t}^{Seq}$	0.035	0.15			-0.032	**0.18****		
	[0.17]	[1.11]			[-0.20]	[2.64]		
$FI_{i,t}^{df,eq}$			**0.085****	**0.79*****			-0.031	0.073
			[2.74]	[4.05]			[-1.36]	[0.41]
$PR_{i,t}$	**0.74*****	0.36	0.40	0.35	0.26	0.40	0.34	0.53
	[2.97]	[1.02]	[1.45]	[1.13]	[1.07]	[1.02]	[1.45]	[1.37]
$Cycle_{i,t}$	0.22	0.37	-0.14	0.59	-0.66	0.67	-0.64	0.70
	[0.26]	[0.72]	[-0.15]	[1.20]	[-0.84]	[1.55]	[-0.79]	[1.54]
$Crisis_{i,t}$	0.27	**-0.69*****	0.18	**-0.57*****	-0.088	-0.25*	-0.085	-0.28*
	[1.05]	[-5.40]	[0.71]	[-4.18]	[-0.47]	[-1.83]	[-0.45]	[-1.97]
$RV_{w,t+1}$	**42.3*****	**62.7*****	**37.0*****	**56.1*****	**25.0*****	**44.8*****	**25.1*****	**46.1*****
	[7.51]	[10.1]	[5.75]	[8.55]	[5.22]	[8.59]	[4.92]	[8.28]
Time Trend					**0.088*****	**0.12*****	**0.096*****	**0.12*****
					[7.11]	[6.64]	[5.84]	[4.66]
$TI_{i,t}^{QT}$	**0.65*****	**0.28****			0.16	**0.23****		
	[3.61]	[2.31]			[0.74]	[2.16]		
$TI_{i,t}^{df}$			**0.30***	**0.33***			0.095	-0.059
			[1.93]	[1.90]			[0.96]	[-0.52]
Observations	7,047	5,676	7,047	5,676	7,047	5,676	7,047	5,676
Adjusted R-squared	0.535	0.623	0.571	0.660	0.698	0.732	0.701	0.721
Region	DM	EM	DM	EM	DM	EM	DM	EM

Panel B: Betas

VARIABLES	(1) $beta_{it+1}$	(2) $beta_{it+1}$	(3) $beta_{it+1}$	(4) $beta_{it+1}$	(5) $beta_{it+1}$	(6) $beta_{it+1}$	(7) $beta_{it+1}$	(8) $beta_{it+1}$
$FI_{i,t}^{Seq}$	0.15	0.42			0.055	0.47		
	[0.36]	[1.01]			[0.14]	[1.38]		
$FI_{i,t}^{df,eq}$			0.064	**1.01****			**-0.14****	-0.57
			[0.68]	[2.30]			[-2.34]	[-0.93]
$PR_{i,t}$	1.29**	**2.13****	1.05	**2.30****	0.58	**2.21****	0.95	**2.71****
	[2.13]	[2.12]	[1.46]	[2.21]	[0.80]	[2.17]	[1.27]	[2.39]
$Cycle_{i,t}$	-0.46	0.16	-0.57	0.48	-1.76	0.73	-1.46	0.72
	[-0.19]	[0.059]	[-0.23]	[0.17]	[-0.76]	[0.28]	[-0.64]	[0.27]
$Crisis_{i,t}$	**2.43*****	-0.062	**2.35*****	0.061	**1.91*****	0.75	**1.89*****	0.71
	[3.98]	[-0.11]	[3.77]	[0.10]	[2.89]	[1.22]	[2.97]	[1.15]
$RV_{w,t+1}$	5.62	**47.9****	2.69	**40.7****	-19.7	14.5	-18.2	18.6
	[0.37]	[2.83]	[0.19]	[2.38]	[-1.59]	[1.12]	[-1.50]	[1.27]
Time Trend					**0.13*****	**0.23*****	**0.17*****	**0.26****
					[3.24]	[3.22]	[3.75]	[2.83]
$TI_{i,t}^{QT}$	**1.42*****	0.10			**0.83***	-0.0011		
	[3.68]	[0.38]			[1.88]	[-0.0047]		
$TI_{i,t}^{df}$			0.25	**0.66***			-0.080	-0.038
			[0.76]	[1.95]			[-0.31]	[-0.13]
Observations	7,047	5,676	7,047	5,676	7,047	5,676	7,047	5,676
Adjusted R-squared	0.346	0.360	0.349	0.363	0.438	0.420	0.455	0.411
Region	DM	EM	DM	EM	DM	EM	DM	EM

Panel C: Idiosyncratic Volatility

VARIABLES	(1) $ivol_{it+1}$	(2) $ivol_{it+1}$	(3) $ivol_{it+1}$	(4) $ivol_{it+1}$	(5) $ivol_{it+1}$	(6) $ivol_{it+1}$	(7) $ivol_{it+1}$	(8) $ivol_{it+1}$
$FI_{i,t}^{Seq}$	-0.0057	0.039			0.021	0.027		
	[-0.13]	[0.60]			[0.98]	[0.76]		
$FI_{i,t}^{df,eq}$			**-0.042*****	**-0.23*****			0.0010	0.12
			[-5.42]	[-3.16]			[0.065]	[1.03]
$PR_{i,t}$	-0.14	0.052	0.029	0.12	0.052	0.034	0.051	0.032
	[-0.77]	[0.28]	[0.14]	[0.84]	[0.29]	[0.18]	[0.28]	[0.18]
$Cycle_{i,t}$	-0.19	-0.86**	0.0059	-0.91**	0.17	**-0.98****	0.19	**-0.96****
	[-0.71]	[-2.54]	[0.025]	[-2.65]	[0.76]	[-2.78]	[0.89]	[-2.76]
$Crisis_{i,t}$	0.20	**0.76*****	0.25	**0.71*****	**0.34****	**0.58*****	**0.34****	**0.57*****
	[1.27]	[11.2]	[1.60]	[11.0]	[2.47]	[7.99]	[2.40]	[7.69]
$RV_{w,t+1}$	-2.70	**-7.90*****	-0.023	**-5.40****	4.22*	-0.60	4.33*	-0.48
	[-0.95]	[-3.25]	[-0.0084]	[-2.47]	[1.80]	[-0.35]	[1.84]	[-0.29]
Time Trend					**-0.035*****	**-0.050*****	**-0.035*****	**-0.058*****
					[-7.93]	[-5.71]	[-5.52]	[-4.50]
$TI_{i,t}^{QT}$	**-0.31*****	-0.093			-0.13	-0.070*		
	[-4.26]	[-1.38]			[-1.66]	[-1.79]		
$TI_{i,t}^{df}$			**-0.14*****	**-0.13****			**-0.060****	0.038
			[-3.41]	[-2.44]			[-2.56]	[0.70]
Observations	7,047	5,676	7,047	5,676	7,047	5,676	7,047	5,676
Adjusted R-squared	0.540	0.763	0.591	0.774	0.695	0.819	0.694	0.820
Region	DM	EM	DM	EM	DM	EM	DM	EM

Table 4: Bond Kernel Weighted Regressions

This table reports the results of time-varying correlation, beta, and idiosyncratic risk regressions for bonds. We create time-varying measures using a kernel method. For each country, given any date t_0, we split the sample into five-year subsamples and use the 30 data points before and after that point. Within these subsamples, we use a normal kernel to assign weights to the individual observations according to how close they are to t_0. We then compute kernel-weighted correlations, betas, and idiosyncratic risk as follows:

$$corr_{i,t} = \frac{\sum_{j=-30}^{j=30} K_h(j)\left(r_{i,t+j} - \bar{r}_{i,t}\right)\left(r_{w,t+j} - \bar{r}_{w,t}\right)}{\sqrt{\sum_{j=-30}^{j=30} K_h(j)\left(r_{i,t+j} - \bar{r}_{i,t}\right)^2}\sqrt{\sum_{j=-30}^{j=30} K_h(j)\left(r_{w,t+j} - \bar{r}_{w,t}\right)^2}},$$

$$\beta_{i,t} = \frac{\sum_{j=-30}^{j=30} K_h(j)\left(r_{i,t+j} - \bar{r}_{i,t}\right)\left(r_{iw,t+j} - \bar{r}_{w,t}\right)}{\sum_{j=-30}^{j=30} K_h(j)\left(r_{2,t+j} - \bar{r}_{w,t}\right)^2},$$

$$var_{i,t}^{\varepsilon} = \sum_{j=-30}^{j=30} K_h(j)\left(\varepsilon_{i,t+j} - \bar{\varepsilon}_{i,t}\right)^2.$$

where $\bar{r}_{i,t} = \sum_{j=-30}^{j=30} K_h(j) r_{i,t+j}$, $\varepsilon_{i,t} = r_{i,t} - \beta_{i,t} r_{w,t}$, and $\bar{\varepsilon}_{i,t} = \sum_{j=-30}^{j=30} K_h(j)\varepsilon_{i,t+j}$, and $K_h(j) \equiv K(j/h)/h$ is a kernel with bandwidth $h > 0$. We use a two-sided Gaussian kernel, $K(z) = \frac{1}{\sqrt{2\pi}} exp\left(-\frac{z^2}{2}\right)$, and divide by the sum to ensure the weights add to one in a finite sample. We link these measures to openness and other control variables using variations of the following panel regression:

$$x_{i,t+1} = \alpha_i + \beta_1 \overline{Open}_{i,t} + \beta_2 \overline{PR}_{i,t} + \beta_3 \overline{Cycle}_{i,t} + \beta_4 \overline{Crisis}_{i,t} + \beta_5 \overline{RV}_{w,t+1} + \beta_6 trend + \varepsilon_{i,t+1}$$

where $x_{i,t+1}$ reflects correlation, beta, or idiosyncratic risk and $\overline{\text{Open}}_{i,t}$ represents either financial integration (FI) or trade integration (TI). Note that the same kernel approach is applied to the independent variables (i.e., we use the time-varying means of these variables, which are calculated as $\bar{z}_{i,t} = \sum_{j=-30}^{j=30} K_h(j) z_{i,t+j}$). All regressions have country level fixed effects and clustered standard errors. Panel *a* presents the results for correlations, panel *b* for betas, and panel *c* for idiosyncratic risk. In each panel, there are two rows labeled $\text{TI}_{i,t}^{\text{QT}}$ and $\text{TI}_{i,t}^{\text{df}}$. These are the coefficients on the trade openness measures in regressions where financial openness is replaced with trade openness. The remaining coefficients in these regressions are robust and therefore are not reported. Coefficients in bold represent variables that are also significant and have the same signs in regressions where the independent variables are taken at one point in time. Asterisks (***, **, and *) represent statistical significance at the 1%, 5%, and 10% levels, respectively. All variables are described in Appendix 1.

Panel A: Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	$corr_{it+1}$	$corr_{it+1}$	$corr_{it+1}$	$corr_{it+1}$	$corr_{it+1}$	$corr_{it+1}$	$corr_{it+1}$	$corr_{it+1}$
$FI_{i,t}^{Sbo}$	0.068	-0.16			0.049	-0.087		
	[0.50]	[-1.16]			[0.37]	[-0.80]		
$FI_{i,t}^{df,debt}$			0.016*	-0.089			-0.0062	0.00049
			[1.96]	[-0.69]			[-0.22]	[0.0043]
$PR_{i,t}$	**2.37*** **	-0.51	**2.41*** **	-0.67	**2.35*** **	**0.97***	**2.40*** **	**0.94***
	[4.34]	[-0.80]	[4.34]	[-0.91]	[4.20]	[1.94]	[4.28]	[1.95]
$Cycle_{i,t}$	-1.58	1.23	-1.68	1.44	-1.89	1.24*	-1.82	1.30*
	[-1.46]	[1.50]	[-1.35]	[1.56]	[-1.49]	[1.82]	[-1.38]	[1.76]
$Crisis_{i,t}$	-0.22	**-1.37*** **	-0.32	**-1.34*** **	-0.34	**-0.61*** **	-0.31	**-0.62*** **
	[-1.00]	[-5.76]	[-1.28]	[-5.17]	[-1.16]	[-4.25]	[-1.14]	[-4.01]
$RV_{w,t+1}$	2.89	10.9	0.73	11.9	-1.23	-6.42	-1.09	-5.86
	[0.43]	[1.58]	[0.11]	[1.64]	[-0.18]	[-1.17]	[-0.16]	[-1.08]
Time Trend					0.024	**0.26*** **	0.029	**0.26*** **
					[1.12]	[8.70]	[0.72]	[9.12]
$TI_{i,t}^{QT}$	-0.43	0.29			**-0.78** **	0.18		
	[-1.26]	[0.95]			[-2.19]	[1.15]		
$TI_{i,t}^{df}$			-0.034	0.36			-0.29*	-0.050
			[-0.39]	[1.39]			[-1.84]	[-0.33]
Observations	5,414	4,310	5,414	4,310	5,414	4,310	5,414	4,310
Adjusted R-squared	0.634	0.584	0.637	0.579	0.643	0.791	0.642	0.789
Region	DM	EM	DM	EM	DM	EM	DM	EM

Panel B: Betas

VARIABLES	(1) $beta_{it+1}$	(2) $beta_{it+1}$	(3) $beta_{it+1}$	(4) $beta_{it+1}$	(5) $beta_{it+1}$	(6) $beta_{it+1}$	(7) $beta_{it+1}$	(8) $beta_{it+1}$
$FI_{i,t}^{Sbo}$	0.066	-0.55			-0.068	**-0.37****		
	[0.24]	[-1.09]			[-0.28]	[-2.36]		
$FI_{i,t}^{df,debt}$			**0.064***	-0.45			-0.14*	-0.23
			[1.89]	[-1.06]			[-1.88]	[-1.32]
$PR_{i,t}$	**2.69*****	**-3.43****	**2.65****	**-4.08****	**2.54****	0.23	**2.53****	-0.12
	[2.89]	[-2.45]	[2.84]	[-2.41]	[2.17]	[0.31]	[2.16]	[-0.13]
$Cycle_{i,t}$	**-5.40*****	3.09	**-6.06*****	3.98*	**-7.47*****	3.13	**-7.33*****	3.65*
	[-3.95]	[1.61]	[-4.38]	[1.79]	[-4.05]	[1.65]	[-4.56]	[1.91]
$Crisis_{i,t}$	**1.58****	**-2.81*****	1.13	**-2.66*****	0.76	**-0.95****	1.23	**-0.88****
	[2.40]	[-6.14]	[1.56]	[-5.18]	[0.72]	[-2.55]	[1.37]	[-2.27]
$RV_{w,t+1}$	10.3	**54.6****	1.32	**57.7****	-17.4	12.0	-15.0	14.1
	[0.48]	[2.53]	[0.061]	[2.17]	[-0.76]	[0.53]	[-0.63]	[0.58]
Time Trend					**0.16****	**0.64*****	**0.26****	**0.64*****
					[2.46]	[9.37]	[2.33]	[9.66]
$TI_{i,t}^{QT}$	0.41	0.36			**-1.35***	0.079		
	[1.26]	[0.45]			[-1.93]	[0.19]		
$TI_{i,t}^{df}$			0.42	0.98			-0.90*	-0.028
			[1.30]	[1.49]			[-1.82]	[-0.086]
Observations	5,414	4,310	5,414	4,310	5,414	4,310	5,414	4,310
Adjusted R-squared	0.450	0.482	0.463	0.474	0.537	0.751	0.563	0.746
Region	DM	EM	DM	EM	DM	EM	DM	EM

Panel C: Idiosyncratic Risk

VARIABLES	(1) $ivol_{it+1}$	(2) $ivol_{it+1}$	(3) $ivol_{it+1}$	(4) $ivol_{it+1}$	(5) $ivol_{it+1}$	(6) $ivol_{it+1}$	(7) $ivol_{it+1}$	(8) $ivol_{it+1}$
$FI_{i,t}^{Sbo}$	-0.068	0.017			-0.067	0.0070		
	[-1.06]	[0.63]			[-1.03]	[0.18]		
$FI_{i,t}^{df,debt}$			-0.0048	0.064*			-0.0086**	0.052
			[-1.26]	[1.72]			[-2.60]	[1.55]
$PR_{i,t}$	**-0.37*****	-0.14	**-0.43*****	-0.077	**-0.37*****	**-0.35****	**-0.43*****	**-0.29***
	[-3.43]	[-1.28]	[-2.92]	[-0.68]	[-3.34]	[-2.50]	[-2.93]	[-2.04]
$Cycle_{i,t}$	-0.72	-0.075	-0.75	-0.16	-0.71	-0.077	-0.78	-0.14
	[-1.33]	[-0.27]	[-1.16]	[-0.53]	[-1.22]	[-0.29]	[-1.18]	[-0.51]
$Crisis_{i,t}$	0.15	**0.32*****	**0.17*****	**0.29*****	**0.15***	**0.22*****	**0.17*****	**0.20*****
	[1.68]	[6.91]	[2.93]	[5.34]	[2.09]	[4.46]	[3.07]	[3.42]
$RV_{w,t+1}$	1.02	10.2**	1.55	**10.2*****	1.12	**12.6*****	1.24	**12.6*****
	[0.44]	[2.78]	[0.56]	[2.90]	[0.40]	[3.54]	[0.44]	[3.55]
Time Trend					-0.00058	**-0.036*****	0.0050	**-0.035*****
					[-0.14]	[-3.79]	[1.40]	[-4.28]
$TI_{i,t}^{QT}$	-0.0014	-0.059			0.012	-0.044		
	[-0.019]	[-1.07]			[0.17]	[-1.00]		
$TI_{i,t}^{df}$			-0.0063	-0.045			0.0029	0.012
			[-0.16]	[-0.82]			[0.078]	[0.28]
Observations	5,414	4,310	5,414	4,310	5,414	4,310	5,414	4,310
Adjusted R-squared	0.512	0.719	0.505	0.727	0.512	0.759	0.507	0.764
Region	DM	EM	DM	EM	DM	EM	DM	EM

Table 5: Exchange Rate Kernel Weighted Regressions

This table reports the results of time-varying correlation, beta, and idiosyncratic risk regressions for exchange rates. We create time-varying measures using a kernel method. For each country, given any date t_0, we split the sample into five-year subsamples and use the 30 data points before and after that point. Within these subsamples, we use a normal kernel to assign weights to the individual observations according to how close they are to t_0. We then compute kernel-weighted correlations, betas, and idiosyncratic risk as follows:

$$corr_{i,t} = \frac{\sum_{j=-30}^{j=30} K_h(j)\left(r_{i,t+j} - \bar{r}_{i,t}\right)\left(r_{w,t+j} - \bar{r}_{w,t}\right)}{\sqrt{\sum_{j=-30}^{j=30} K_h(j)\left(r_{i,t+j} - \bar{r}_{i,t}\right)^2}\sqrt{\sum_{j=-30}^{j=30} K_h(j)\left(r_{w,t+j} - \bar{r}_{w,t}\right)^2}},$$

$$\beta_{i,t} = \frac{\sum_{j=-30}^{j=30} K_h(j)\left(r_{i,t+j} - \bar{r}_{i,t}\right)\left(r_{iw,t+j} - \bar{r}_{w,t}\right)}{\sum_{j=-30}^{j=30} K_h(j)\left(r_{2,t+j} - \bar{r}_{w,t}\right)^2},$$

$$var_{i,t}^{\varepsilon} = \sum_{j=-30}^{j=30} K_h(j)\left(\varepsilon_{i,t+j} - \bar{\varepsilon}_{i,t}\right)^2.$$

where $\bar{r}_{i,t} = \sum_{j=-30}^{j=30} K_h(j) r_{i,t+j}$, $\varepsilon_{i,t} = r_{i,t} - \beta_{i,t} r_{w,t}$, and $\bar{\varepsilon}_{i,t} = \sum_{j=-30}^{j=30} K_h(j)\varepsilon_{i,t+j}$, and $K_h(j) \equiv K(j/h)/h$ is a kernel with bandwidth $h > 0$. We use a two-sided Gaussian kernel, $K(z) = \frac{1}{\sqrt{2\pi}} exp\left(-\frac{z^2}{2}\right)$, and divide by the sum to ensure the weights add to one in a finite sample. We link these measures to openness and other control variables using variations of the following panel regression:

$$x_{i,t+1} = \alpha_i + \beta_1 \overline{Open}_{i,t} + \beta_2 \overline{PR}_{i,t} + \beta_3 \overline{Cycle}_{i,t} + \beta_4 \overline{Crisis}_{i,t} + \beta_5 \overline{RV}_{w,t+1} + \beta_6 trend + \varepsilon_{i,t+1}$$

where $x_{i,t+1}$ reflects correlation, beta, or idiosyncratic risk and $\overline{\text{Open}}_{i,t}$ represents either financial integration (FI) or trade integration (TI). Note that the same kernel approach is applied to the independent variables (i.e., we use the time-varying means of these variables, which are calculated as $\bar{z}_{i,t} = \sum_{j=-30}^{j=30} K_h(j) z_{i,t+j}$). All regressions have country level fixed effects and clustered standard errors. Panel *a* presents the results for correlations, panel *b* for betas, and panel *c* for idiosyncratic risk. In each panel, there are two rows labeled $\text{TI}_{i,t}^{\text{QT}}$ and $\text{TI}_{i,t}^{\text{df}}$. These are the coefficients on the trade openness measures in regressions where financial openness is replaced with trade openness. The remaining coefficients in these regressions are robust and therefore are not reported. Coefficients in bold represent variables that are also significant and have the same signs in regressions where the independent variables are taken at one point in time. Asterisks (***, **, and *) represent statistical significance at the 1%, 5%, and 10% levels, respectively. All variables are described in Appendix 1.

Panel A: Correlations

VARIABLES	(1) $corr_{it+1}$	(2) $corr_{it+1}$	(3) $corr_{it+1}$	(4) $corr_{it+1}$	(5) $corr_{it+1}$	(6) $corr_{it+1}$	(7) $corr_{it+1}$	(8) $corr_{it+1}$
$FI_{i,t}^{Smm}$	**0.44*** **	0.043			**0.34*** **	-0.0048		
	[3.34]	[0.29]			[3.73]	[-0.042]		
$FI_{i,t}^{df,debt}$			-0.0021	-0.11			-0.024	0.055
			[-0.35]	[-0.49]			[-1.69]	[0.33]
$PR_{i,t}$	**2.30** **	-0.62	**2.13* **	-0.56	1.72	**1.33* **	1.31	**1.34** **
	[2.28]	[-0.72]	[2.20]	[-0.71]	[1.60]	[1.99]	[1.15]	[2.17]
$Cycle_{i,t}$	-0.47	0.17	-0.81	0.40	-1.81	0.13	-2.55	0.011
	[-0.27]	[0.12]	[-0.42]	[0.32]	[-0.85]	[0.17]	[-1.09]	[0.013]
$Crisis_{i,t}$	0.65	**-0.80*** **	0.39	**-0.72*** **	0.78	-0.20	0.61	-0.23
	[0.90]	[-3.30]	[0.48]	[-3.16]	[1.06]	[-1.06]	[0.79]	[-1.07]
$RV_{w,t+1}$	2.40	**35.4*** **	5.35	**35.0*** **	-15.3	**27.1*** **	-14.6	**27.2*** **
	[0.12]	[3.56]	[0.26]	[3.53]	[-0.94]	[3.39]	[-0.86]	[3.37]
Time Trend					0.078	**0.27*** **	0.11*	**0.28*** **
					[1.77]	[6.33]	[1.93]	[6.85]
$TI_{i,t}^{QT}$	-0.46	**0.75** **			-1.56	0.28		
	[-0.31]	[2.38]			[-0.98]	[1.38]		
$TI_{i,t}^{df}$			0.038	0.48			-0.039	-0.22
			[0.28]	[1.08]			[-0.24]	[-1.54]
Observations	3,265	3,453	3,265	3,453	3,265	3,453	3,265	3,453
Adjusted R-squared	0.592	0.568	0.572	0.570	0.631	0.791	0.632	0.792
Region	DM	EM	DM	EM	DM	EM	DM	EM

Panel B: Betas

VARIABLES	(1) $beta_{it+1}$	(2) $beta_{it+1}$	(3) $beta_{it+1}$	(4) $beta_{it+1}$	(5) $beta_{it+1}$	(6) $beta_{it+1}$	(7) $beta_{it+1}$	(8) $beta_{it+1}$
$FI_{i,t}^{Smm}$	**1.05****	0.42			**0.75****	0.33		
	[2.59]	[1.43]			[2.42]	[1.12]		
$FI_{i,t}^{df,debt}$			0.028	-0.034			-0.024	0.28
			[1.54]	[-0.070]			[-0.81]	[0.67]
$PR_{i,t}$	2.82	-2.03	2.53	-1.51	1.16	1.63	0.54	2.14
	[1.38]	[-1.00]	[1.46]	[-0.82]	[0.53]	[0.83]	[0.24]	[1.23]
$Cycle_{i,t}$	-1.47	-1.47	-2.20	-1.51	-5.25*	-1.53	-6.44**	-2.26
	[-0.68]	[-0.58]	[-0.91]	[-0.69]	[-1.98]	[-0.80]	[-2.28]	[-1.08]
$Crisis_{i,t}$	0.87	0.031	0.33	0.21	1.23	**1.16****	0.84	1.15
	[0.60]	[0.058]	[0.21]	[0.30]	[0.79]	[2.17]	[0.53]	[1.35]
$RV_{w,t+1}$	32.9	28.3*	32.1	27.5	-17.1	12.6	-16.1	12.4
	[0.95]	[1.78]	[0.85]	[1.66]	[-0.60]	[0.92]	[-0.54]	[0.91]
Time Trend					**0.22****	**0.51*****	**0.26****	**0.53*****
					[3.05]	[4.32]	[2.89]	[4.57]
$TI_{i,t}^{QT}$	1.00	**2.34*****			-1.70	**1.55*****		
	[0.45]	[3.85]			[-0.65]	[3.44]		
$TI_{i,t}^{df}$			-0.15	1.18			-0.37	-0.095
			[-0.70]	[1.41]			[-1.56]	[-0.30]
Observations	3,265	3,453	3,265	3,453	3,265	3,453	3,265	3,453
Adjusted R-squared	0.562	0.551	0.534	0.535	0.661	0.753	0.647	0.747
Region	DM	EM	DM	EM	DM	EM	DM	EM

Panel C: Idiosyncratic Risk

VARIABLES	(1) $ivol_{it+1}$	(2) $ivol_{it+1}$	(3) $ivol_{it+1}$	(4) $ivol_{it+1}$	(5) $ivol_{it+1}$	(6) $ivol_{it+1}$	(7) $ivol_{it+1}$	(8) $ivol_{it+1}$
$FI_{i,t}^{Smm}$	**0.044*****	0.049			**0.042*****	0.054		
	[3.61]	[0.83]			[3.57]	[1.08]		
$FI_{i,t}^{df,debt}$			-0.00073	-0.026			-0.0015	-0.044
			[-0.87]	[-0.28]			[-1.40]	[-0.51]
$PR_{i,t}$	-0.015	-0.075	-0.034	-0.012	-0.026	-0.28	-0.063	-0.22
	[-0.27]	[-0.27]	[-0.55]	[-0.056]	[-0.51]	[-0.74]	[-1.01]	[-0.64]
$Cycle_{i,t}$	0.0091	-0.31	-0.025	-0.27	-0.017	-0.31	-0.087	-0.23
	[0.075]	[-0.84]	[-0.23]	[-0.55]	[-0.13]	[-0.92]	[-0.81]	[-0.53]
$Crisis_{i,t}$	0.035	**0.43****	0.0086	**0.47****	0.038	**0.37*****	0.016	**0.41****
	[0.68]	[2.73]	[0.19]	[2.18]	[0.74]	[3.20]	[0.37]	[2.47]
$RV_{w,t+1}$	**5.81*****	1.11	**6.23*****	0.95	**5.47*****	2.00	**5.52*****	1.79
	[4.13]	[0.32]	[4.02]	[0.26]	[3.68]	[0.63]	[3.61]	[0.55]
Time Trend					0.0015	-0.029	0.0038	-0.030
					[0.56]	[-1.40]	[1.65]	[-1.34]
$TI_{i,t}^{QT}$	**0.19*****	0.012			**0.19****	0.071		
	[3.59]	[0.11]			[3.08]	[0.69]		
$TI_{i,t}^{df}$			-0.012	-0.11			**-0.015***	-0.046
			[-1.56]	[-1.40]			[-1.88]	[-0.80]
Observations	3,265	3,453	3,265	3,453	3,265	3,453	3,265	3,453
Adjusted R-squared	0.798	0.565	0.781	0.557	0.800	0.594	0.788	0.586
Region	DM	EM	DM	EM	DM	EM	DM	EM

Table 6: Equity Returns, Globalization, Political Risk, Cycles and Crises

We estimate a panel factor model with betas that vary over time with openness, political risk, cycles and crises. Specifically, we estimate

$$r^e_{i,t+1} = \alpha_i + \alpha_{open} Open_{i,t} + \alpha_{pr} PR_{i,t} + \alpha_{cycle} Cycle_{i,t} + \alpha_{crisis} Crisis_{i,t} + \delta_0' Z_{i,t} + \delta_{open}' Open_{i,t} Z_{i,t} + \delta_{pr}' PR_{i,t} Z_{i,t} + \delta_{cycle}' Cycle_{i,t} Z_{i,t}$$
$$+ \delta_{crisis}' Crisis_{i,t} Z_{i,t} + \beta_0 r^e_{w,t+1} + \beta_{open} Open_{i,t} r^e_{w,t+1} + \beta_{pr} PR_{i,t} r^e_{w,t+1} + \beta_{cycle} Cycle_{i,t} r^e_{w,t+1} + \beta_{crisis} Crisis_{i,t} r^e_{w,t+1} + \varepsilon_{i,t+1},$$

where r^e denotes equity excess returns, $Z_{i,t}$ is a vector of instruments which help estimate the expected return of market i (specifically, dividend yields $DY_{i,t}$ and short-term interest rates$i_{i,t}$), $Open_{i,t}$ is either financial openness (FI) or trade openness (TI), $PR_{i,t}$ is a political risk indicator, $Cycle_{i,t}$ is a business cycle variable and $Crisis_{i,t}$ is a crisis indicator. Note that α_i denotes a country-specific fixed effect, while the remaining coefficients are constrained to be the same across countries. All regressions include fixed effects and standard errors clustered at the country-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

VARIABLES	(1) r^e_{it+1}	(2) r^e_{it+1}	(3) r^e_{it+1}	(4) r^e_{it+1}	(5) r^e_{it+1}	(6) r^e_{it+1}	(7) r^e_{it+1}	(8) r^e_{it+1}
$FI^{Seq}_{i,t}$	0.032*	0.010						
	[1.74]	[0.52]						
$FI^{df}_{i,t}$			-0.0075*	-0.11**				
			[-1.87]	[-2.57]				
$TI^{QT}_{i,t}$					-0.063*	-0.069**		
					[-1.94]	[-2.26]		
$TI^{df}_{i,t}$							-0.0037	-0.010
							[-0.54]	[-0.73]
$PR_{i,t}$	-0.017	-0.13**	-0.0033	-0.099**	-0.013	-0.097**	-0.013	-0.11**
	[-0.46]	[-2.90]	[-0.088]	[-2.17]	[-0.37]	[-2.21]	[-0.33]	[-2.23]
$Cycle_{i,t}$	0.031	0.092	0.019	0.11	-0.0035	0.073	0.027	0.098
	[0.46]	[1.07]	[0.31]	[1.42]	[-0.045]	[0.97]	[0.44]	[1.23]
$Crisis_{i,t}$	-0.069**	-0.061	-0.071**	-0.091*	-0.078**	-0.081**	-0.074**	-0.072*
	[-2.43]	[-1.66]	[-2.29]	[-2.01]	[-2.48]	[-2.52]	[-2.35]	[-1.91]
$DY_{i,t}$	-0.31	0.70	-0.45	0.62	-0.72	0.22	-0.83	0.52
	[-0.29]	[0.73]	[-0.45]	[0.63]	[-0.71]	[0.28]	[-0.94]	[0.54]
$FI^{Seq}_{i,t} DY_{i,t}$	-0.96*	-0.21						
	[-1.88]	[-0.51]						
$FI^{df}_{i,t} DY_{i,t}$			0.24	2.35**				
			[1.30]	[2.23]				
$TI^{QT}_{i,t} DY_{i,t}$					-0.13	0.26		
					[-0.24]	[0.35]		
$TI^{df}_{i,t} DY_{i,t}$							0.16	0.33
							[0.97]	[1.44]
$PR_{i,t} DY_{i,t}$	1.38	-0.37	0.37	-0.73	0.95	0.014	0.75	-0.52
	[1.18]	[-0.24]	[0.29]	[-0.55]	[0.83]	[0.0098]	[0.68]	[-0.38]
$Cycle_{i,t} DY_{i,t}$	-1.57	-0.038	-1.21	-0.56	-1.08	-0.60	-1.28	-0.27
	[-0.59]	[-0.012]	[-0.51]	[-0.20]	[-0.41]	[-0.20]	[-0.58]	[-0.093]
$Crisis_{i,t} DY_{i,t}$	1.14	-0.18	1.10	0.30	1.28	-0.36	1.22	-0.072
	[1.21]	[-0.18]	[1.14]	[0.24]	[1.35]	[-0.37]	[1.27]	[-0.072]
$i^S_{i,t}$	0.51***	-0.062	0.46**	-0.042	0.039	-0.15	0.45***	-0.023
	[3.01]	[-1.05]	[2.74]	[-0.72]	[0.12]	[-1.03]	[2.93]	[-0.24]
$FI^{Seq}_{i,t} i^S_{i,t}$	0.14	0.064						
	[1.69]	[0.98]						
$FI^{df}_{i,t} i^S_{i,t}$			0.095**	0.59				
			[2.19]	[1.13]				
$TI^{QT}_{i,t} i^S_{i,t}$					0.48*	0.19		
					[1.78]	[1.31]		
$TI^{df}_{i,t} i^S_{i,t}$							-0.046	0.0067
							[-1.36]	[0.068]
$PR_{i,t} i^S_{i,t}$	-0.74***	0.11	-0.57***	0.031	-0.63***	-0.018	-0.53***	0.061
	[-3.21]	[0.95]	[-3.02]	[0.27]	[-3.85]	[-0.16]	[-3.08]	[0.46]
$Cycle_{i,t} i^S_{i,t}$	-0.24	-0.26	-0.076	-0.17	0.15	-0.18	-0.24	-0.26
	[-0.49]	[-1.24]	[-0.22]	[-1.15]	[0.37]	[-0.88]	[-0.61]	[-1.63]
$Crisis_{i,t} i^S_{i,t}$	-0.50**	-0.036	-0.38*	0.067	-0.35*	0.071	-0.39*	0.0050
	[-2.17]	[-0.41]	[-1.85]	[0.86]	[-1.91]	[0.99]	[-1.94]	[0.089]
$r_{w,t+1}$	1.00**	-0.20	0.96**	-0.21	0.82*	-0.13	0.91**	-0.20
	[2.46]	[-0.62]	[2.57]	[-0.74]	[2.00]	[-0.33]	[2.25]	[-0.63]
$FI^{Seq}_{i,t} r_{w,t+1}$	-0.075	0.28						
	[-0.33]	[1.28]						
$FI^{df}_{i,t} r_{w,t+1}$			0.024	-0.30				
			[0.43]	[-0.78]				
$TI^{QT}_{i,t} r_{w,t+1}$					0.24	-0.10		
					[0.79]	[-0.37]		
$TI^{df}_{i,t} r_{w,t+1}$							0.029	-0.068
							[1.23]	[-0.30]
$PR_{i,t} r_{w,t+1}$	0.090	1.72***	0.030	1.95***	-0.048	1.87***	0.082	1.93***
	[0.18]	[3.21]	[0.067]	[4.24]	[-0.092]	[3.79]	[0.16]	[3.52]
$Cycle_{i,t} r_{w,t+1}$	0.60	-1.31	0.59	-1.30	0.66	-1.33	0.62	-1.34
	[0.83]	[-1.20]	[0.76]	[-1.23]	[0.92]	[-1.26]	[0.79]	[-1.25]
$Crisis_{i,t} r_{w,t+1}$	1.31***	1.17***	1.31***	1.15***	1.30***	1.17***	1.33***	1.18***
	[3.94]	[3.93]	[3.89]	[3.41]	[3.81]	[3.36]	[3.91]	[3.59]
Observations	7,520	4,593	7,520	4,593	7,520	4,593	7,388	4,593
Adjusted R-squared	0.484	0.291	0.483	0.290	0.483	0.290	0.483	0.289
Region	DM	EM	DM	EM	DM	EM	DM	EM

Table 7: Bond Returns, Globalization, Political Risk, Cycles and Crises

We estimate a panel factor model with betas that vary over time with openness, political risk, cycles and crises. Specifically, we estimate

$$r^b_{i,t+1} = \alpha_i + \alpha_{open} Open_{i,t} + \alpha_{pr} PR_{i,t} + \alpha_{cycle} Cycle_{i,t} + \alpha_{crisis} Crisis_{i,t} + \delta_0' Z_{i,t} + \delta_{open}' Open_{i,t} Z_{i,t} + \delta_{pr}' PR_{i,t} Z_{i,t} + \delta_{cycle}' Cycle_{i,t} Z_{i,t}$$
$$+ \delta_{crisis}' Crisis_{i,t} Z_{i,t} + \beta_0 r^b_{w,t+1} + \beta_{open} Open_{i,t} r^b_{w,t+1} + \beta_{pr} PR_{i,t} r^b_{w,t+1} + \beta_{cycle} Cycle_{i,t} r^b_{w,t+1} + \beta_{crisis} Crisis_{i,t} r^b_{w,t+1} + \varepsilon_{i,t+1},$$

where r^b denotes bond excess returns, $Z_{i,t}$ is a vector of instruments which help estimate the expected return of market i (specifically, dividend yields $DY_{i,t}$ and short-term interest rates$i_{i,t}$), $Open_{i,t}$ is either financial openness (FI) or trade openness (TI), $PR_{i,t}$ is a political risk indicator, $Cycle_{i,t}$ is a business cycle variable and $Crisis_{i,t}$ is a crisis indicator. Note that α_i denotes a country-specific fixed effect, while the remaining coefficients are constrained to be the same across countries. All regressions include fixed effects and standard errors clustered at the country-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

VARIABLES	(1) r^b_{it+1}	(2) r^b_{it+1}	(3) r^b_{it+1}	(4) r^b_{it+1}	(5) r^b_{it+1}	(6) r^b_{it+1}	(7) r^b_{it+1}	(8) r^b_{it+1}
$FI^{Sbo}_{i,t}$	0.0088	0.015						
	[0.77]	[0.92]						
$FI^{dj}_{i,t}$			0.00043	0.016**				
			[0.72]	[2.34]				
$TI^{QT}_{i,t}$					-0.049*	-0.014		
					[-1.75]	[-1.14]		
$TI^{dj}_{i,t}$							0.0053	0.0033
							[1.16]	[0.32]
$PR_{i,t}$	-0.040	0.0011	-0.035	0.0045	-0.039	-0.011	-0.038	-0.0047
	[-1.06]	[0.021]	[-1.09]	[0.077]	[-1.03]	[-0.23]	[-1.13]	[-0.084]
$Cycle_{i,t}$	-0.011	0.022	-0.019	-0.014	-0.012	0.017	-0.023	0.015
	[-0.26]	[0.80]	[-0.47]	[-0.29]	[-0.28]	[0.51]	[-0.59]	[0.45]
$Crisis_{i,t}$	-0.0011	0.0060	0.00050	-0.0077	-0.0061	0.0050	-0.0028	0.0058
	[-0.079]	[0.19]	[0.033]	[-0.30]	[-0.37]	[0.17]	[-0.17]	[0.23]
$DY_{i,t}$	0.13	1.53	0.091	1.69	-1.24	1.17	0.13	1.47
	[0.34]	[1.34]	[0.28]	[1.59]	[-1.48]	[1.07]	[0.44]	[1.24]
$FI^{Sbo}_{i,t} DY_{i,t}$	-0.15	-0.46						
	[-0.78]	[-0.71]						
$FI^{df}_{i,t} DY_{i,t}$			0.020	-0.062				
			[0.81]	[-0.17]				
$TI^{QT}_{i,t} DY_{i,t}$					1.35	-0.15		
					[1.69]	[-0.33]		
$TI^{df}_{i,t} DY_{i,t}$							0.093	0.092
							[1.44]	[0.31]
$PR_{i,t} DY_{i,t}$	0.14	-1.70	-0.031	-2.21	0.023	-1.21	-0.088	-1.97
	[0.43]	[-1.06]	[-0.092]	[-1.28]	[0.059]	[-0.79]	[-0.27]	[-1.04]
$Cycle_{i,t} DY_{i,t}$	-1.43	-3.75**	-1.36	-2.89**	-1.37	-3.85**	-1.30	-3.55**
	[-0.93]	[-2.80]	[-0.88]	[-2.51]	[-0.86]	[-2.88]	[-0.83]	[-2.90]
$Crisis_{i,t} DY_{i,t}$	-0.93*	-1.32	-1.03**	-0.85	-0.94**	-1.29	-1.05**	-1.11
	[-2.01]	[-1.01]	[-2.34]	[-1.06]	[-2.16]	[-1.05]	[-2.59]	[-1.25]
$i^S_{i,t}$	-0.40	0.0071	-0.47	-0.080	-0.47	-0.012	-0.49	-0.060
	[-0.61]	[0.062]	[-0.66]	[-1.17]	[-0.59]	[-0.11]	[-0.68]	[-0.86]
$FI^{Sbo}_{i,t} i^S_{i,t}$	-0.067	-0.048						
	[-0.39]	[-1.49]						
$FI^{df}_{i,t} i^S_{i,t}$			0.0033	-0.022				
			[0.30]	[-0.83]				
$TI^{QT}_{i,t} i^S_{i,t}$					-0.054	-0.012		
					[-0.47]	[-0.25]		
$TI^{df}_{i,t} i^S_{i,t}$							-0.13	-0.015
							[-1.29]	[-0.27]
$PR_{i,t} i^S_{i,t}$	0.54	0.024	0.57	0.13	0.60	0.013	0.65	0.095
	[0.59]	[0.16]	[0.68]	[1.03]	[0.67]	[0.085]	[0.72]	[0.74]
$Cycle_{i,t} i^S_{i,t}$	0.78*	0.27	0.96**	0.30	0.75*	0.30	0.85**	0.29
	[1.74]	[1.50]	[2.44]	[1.09]	[1.95]	[1.32]	[2.15]	[1.22]
$Crisis_{i,t} i^S_{i,t}$	0.24	0.073	0.24	0.086**	0.35	0.068	0.29	0.060
	[0.50]	[1.26]	[0.48]	[2.54]	[0.65]	[1.53]	[0.58]	[1.50]
$r_{w,t+1}$	0.15	0.89**	0.40	0.88**	-0.27	0.55	0.33	0.91***
	[0.17]	[2.88]	[0.58]	[2.91]	[-0.22]	[1.57]	[0.45]	[3.88]
$FI^{Sbo}_{i,t} r_{w,t+1}$	0.098	-0.16						
	[0.21]	[-0.63]						
$FI^{dj}_{i,t} r_{w,t+1}$			0.076	-0.21				
			[1.55]	[-0.67]				
$TI^{QT}_{i,t} r_{w,t+1}$					0.70	0.48		
					[0.66]	[1.09]		
$TI^{dj}_{i,t} r_{w,t+1}$							0.25	0.15
							[1.68]	[0.82]
$PR_{i,t} r_{w,t+1}$	1.21	-0.32	0.87	-0.24	1.02	-0.45	0.95	-0.56
	[1.60]	[-0.78]	[1.14]	[-0.64]	[1.41]	[-1.25]	[1.21]	[-1.35]
$Cycle_{i,t} r_{w,t+1}$	-0.61	0.32	-0.59	0.38	-0.52	0.78	-0.70	0.45
	[-0.57]	[0.13]	[-0.51]	[0.16]	[-0.49]	[0.30]	[-0.60]	[0.18]
$Crisis_{i,t} r_{w,t+1}$	1.33***	-0.43	1.03***	-0.34	1.26**	-0.39	1.23**	-0.46
	[3.12]	[-0.62]	[3.23]	[-0.40]	[2.78]	[-0.57]	[2.85]	[-0.67]
Observations	5,702	3,351	5,702	3,351	5,702	3,351	5,667	3,351
Adjusted R-squared	0.446	0.060	0.449	0.059	0.447	0.061	0.446	0.057
Region	DM	EM	DM	EM	DM	EM	DM	EM

Table 8: Exchange Rate Returns, Globalization, Political Risk, Cycles and Crises

We estimate a panel factor model with betas that vary over time with openness, political risk, cycles and crises. Specifically, we estimate

$$r^{fx}_{i,t+1} = \alpha_i + \alpha_{open}Open_{i,t} + \alpha_{pr}PR_{i,t} + \alpha_{cycle}Cycle_{i,t} + \alpha_{crisis}Crisis_{i,t} + \delta_0' Z_{i,t} + \delta_{open}' Open_{i,t}Z_{i,t} + \delta_{pr}' PR_{i,t}Z_{i,t} + \delta_{cycle}' Cycle_{i,t}Z_{i,t}$$
$$+ \delta_{crisis}' Crisis_{i,t}Z_{i,t} + \beta_0 r^{fx}_{w,t+1} + \beta_{open}Open_{i,t}r^{fx}_{w,t+1} + \beta_{pr}PR_{i,t}r^{fx}_{w,t+1} + \beta_{cycle}Cycle_{i,t}r^{fx}_{w,t+1} + \beta_{crisis}Crisis_{i,t}r^{fx}_{w,t+1} + \varepsilon_{i,t+1},$$

where r^{fx} denotes exchange rate excess returns, $Z_{i,t}$ is a vector of instruments which help estimate the expected return of market i (specifically, dividend yields $DY_{i,t}$ and short-term interest rates$i_{i,t}$), $Open_{i,t}$ is either financial openness (FI) or trade openness (TI), $PR_{i,t}$ is a political risk indicator, $Cycle_{i,t}$ is a business cycle variable and $Crisis_{i,t}$ is a crisis indicator. Note that α_i denotes a country-specific fixed effect, while the remaining coefficients are constrained to be the same across countries. All regressions include fixed effects and standard errors clustered at the country-level. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

VARIABLES	(1) r^{fx}_{it+1}	(2) r^{fx}_{it+1}	(3) r^{fx}_{it+1}	(4) r^{fx}_{it+1}	(5) r^{fx}_{it+1}	(6) r^{fx}_{it+1}	(7) r^{fx}_{it+1}	(8) r^{fx}_{it+1}
$FI^{Smm}_{i,t}$	-0.0028	0.046***						
	[-0.29]	[3.16]						
$FI^{dj}_{i,t}$			-0.00028	-0.0096				
			[-0.42]	[-0.57]				
$TI^{QT}_{i,t}$					-0.031	0.034*		
					[-0.82]	[1.80]		
$TI^{dj}_{i,t}$							-0.00071	0.011
							[-0.32]	[0.70]
$PR_{i,t}$	-0.050	-0.15**	-0.045	-0.087	-0.045	-0.13	-0.045	-0.12
	[-1.14]	[-2.33]	[-1.08]	[-0.98]	[-1.11]	[-1.70]	[-1.04]	[-1.37]
$Cycle_{i,t}$	-0.018	0.19	-0.015	0.13	-0.017	0.16	-0.0048	0.10
	[-0.47]	[1.00]	[-0.44]	[0.62]	[-0.42]	[0.84]	[-0.14]	[0.60]
$Crisis_{i,t}$	0.0016	0.0056	0.0033	0.036	-0.0029	0.030	0.0050	0.034
	[0.062]	[0.47]	[0.15]	[1.14]	[-0.100]	[1.47]	[0.22]	[1.58]
$DY_{i,t}$	-1.20	-0.43	-1.52	-0.0019	-1.42	-0.56	-1.41	-0.27
	[-0.81]	[-0.31]	[-1.54]	[-0.0013]	[-0.65]	[-0.39]	[-1.31]	[-0.19]
$FI^{Smm}_{i,t}DY_{i,t}$	-0.19	-0.45**						
	[-0.31]	[-2.48]						
$FI^{df}_{i,t}DY_{i,t}$			0.015	0.31*				
			[0.70]	[1.86]				
$TI^{QT}_{i,t}DY_{i,t}$					0.077	-0.36		
					[0.040]	[-0.76]		
$TI^{df}_{i,t}DY_{i,t}$							0.024	0.086
							[0.38]	[0.27]
$PR_{i,t}DY_{i,t}$	1.65	0.95	1.77	-0.060	1.63	1.39	1.67	0.48
	[1.31]	[0.46]	[1.57]	[-0.028]	[1.46]	[0.66]	[1.39]	[0.21]
$Cycle_{i,t}DY_{i,t}$	0.056	-1.66	0.20	-0.31	0.10	-1.19	-0.065	-0.14
	[0.046]	[-0.45]	[0.16]	[-0.086]	[0.086]	[-0.34]	[-0.051]	[-0.039]
$Crisis_{i,t}DY_{i,t}$	-0.28	-0.62	-0.30	-0.76	-0.17	-0.80	-0.34	-0.67
	[-0.37]	[-1.07]	[-0.50]	[-1.31]	[-0.23]	[-1.16]	[-0.53]	[-1.01]
$i^S_{i,t}$	0.36*	-0.68***	0.38	-0.75***	0.40	-0.50***	0.34	-0.79***
	[1.89]	[-4.62]	[1.31]	[-8.35]	[1.65]	[-3.48]	[1.18]	[-6.30]
$FI^{Smm}_{i,t}i^S_{i,t}$	-0.062	-0.18***						
	[-0.53]	[-4.80]						
$FI^{df}_{i,t}i^S_{i,t}$			0.00081	0.16				
			[0.22]	[0.93]				
$TI^{QT}_{i,t}i^S_{i,t}$					-0.041	-0.30*		
					[-0.37]	[-1.89]		
$TI^{df}_{i,t}i^S_{i,t}$							-0.0047	-0.31
							[-0.28]	[-0.85]
$PR_{i,t}i^S_{i,t}$	-0.32	1.13***	-0.40	0.95***	-0.39	1.04***	-0.36	1.33***
	[-1.23]	[5.08]	[-1.19]	[5.53]	[-1.23]	[4.83]	[-1.07]	[3.41]
$Cycle_{i,t}i^S_{i,t}$	0.13	-1.97***	0.11	-1.84***	0.091	-1.99***	0.067	-1.78***
	[0.28]	[-3.38]	[0.24]	[-3.17]	[0.21]	[-3.42]	[0.13]	[-4.29]
$Crisis_{i,t}i^S_{i,t}$	-0.45**	0.017	-0.42**	-0.12	-0.46**	-0.066	-0.44**	-0.042
	[-2.80]	[0.26]	[-2.50]	[-1.55]	[-3.13]	[-1.17]	[-2.55]	[-0.50]
$r_{w,t+1}$	-3.31***	-0.23	-2.89**	-0.62	-2.54**	-0.91	-2.33**	-0.29
	[-3.54]	[-0.30]	[-3.12]	[-0.93]	[-2.45]	[-1.18]	[-2.42]	[-0.41]
$FI^{Smm}_{i,t}r_{w,t+1}$	0.25	0.59**						
	[0.89]	[2.67]						
$FI^{dj}_{i,t}r_{w,t+1}$			-0.019	-0.0070				
			[-1.00]	[-0.015]				
$TI^{QT}_{i,t}r_{w,t+1}$					-0.68	0.95*		
					[-0.90]	[1.93]		
$TI^{dj}_{i,t}r_{w,t+1}$							-0.13*	0.50
							[-2.12]	[1.59]
$PR_{i,t}r_{w,t+1}$	4.37***	0.83	4.23***	1.74*	4.54***	1.08	3.65***	0.79
	[4.30]	[0.68]	[4.08]	[1.84]	[4.89]	[0.91]	[3.45]	[0.66]
$Cycle_{i,t}r_{w,t+1}$	0.88	0.40	0.54	0.39	0.66	0.69	0.069	0.39
	[0.83]	[0.30]	[0.49]	[0.26]	[0.57]	[0.49]	[0.065]	[0.24]
$Crisis_{i,t}r_{w,t+1}$	2.36***	1.16	2.23***	1.23	2.21***	1.37*	1.89**	1.40
	[5.35]	[1.53]	[4.68]	[1.51]	[5.48]	[1.75]	[3.15]	[1.62]
Observations	3,235	3,135	3,235	3,135	3,235	3,135	3,235	3,135
Adjusted R-squared	0.419	0.262	0.419	0.252	0.419	0.261	0.426	0.257
Region	DM	EM	DM	EM	DM	EM	DM	EM

Table 9: Equity Beta: Effect of Changes in Openness, Political Risk, Cycle and Crises

This table characterizes the economic effects of changes in openness, political risk, cycle and crisis levels on the equity beta for developed and emerging markets. The columns in the table correspond to the regression specifications in Table 6, which allow betas to vary with the variables mentioned above. The first eight rows report the 5th and 95th percentiles for the instruments. The following rows calculate the total effect on beta. Rows labeled "Low" ("High") compute the total beta using the the 5th (95th) percentile for the variable of interest and the mean level for all other variables.

	FI_1^{Seq}	FI_2^{Seq}	$FI_3^{df,eq}$	$FI_4^{df,eq}$	TI_5^{QT}	TI_6^{QT}	$TI_7^{df,debt}$	$TI_8^{df,debt}$
$Open_{p5}$	0.50	0.00	0.02	0.01	0.62	0.30	0.26	0.18
$Open_{p95}$	1.00	1.00	2.05	0.40	1.00	1.00	2.63	1.43
PR_{p5}	0.68	0.47	0.68	0.47	0.68	0.47	0.68	0.47
PR_{p95}	0.92	0.79	0.92	0.79	0.92	0.79	0.92	0.79
$Cycle_{p5}$	-0.05	-0.06	-0.05	-0.06	-0.05	-0.06	-0.05	-0.06
$Cycle_{p95}$	0.03	0.05	0.03	0.05	0.03	0.05	0.03	0.05
$Crisis_{p5}$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
$Crisis_{p95}$	0.21	0.43	0.21	0.43	0.21	0.43	0.21	0.43
Low Openness	1.11	1.05	1.06	1.18	1.00	1.19	1.06	1.18
High Openness	1.07	1.33	1.11	1.07	1.09	1.12	1.13	1.09
Low Political Risk	1.06	0.84	1.07	0.80	1.08	0.81	1.06	0.80
High Political Risk	1.09	1.39	1.08	1.43	1.07	1.41	1.08	1.42
Low Cycle	1.05	1.23	1.05	1.24	1.04	1.24	1.05	1.24
High Cycle	1.10	1.08	1.10	1.09	1.10	1.08	1.10	1.08
Low Crisis	1.00	1.02	1.00	1.02	1.00	1.02	1.00	1.02
High Crisis	1.28	1.52	1.28	1.52	1.28	1.52	1.28	1.52
Sample	DM	EM	DM	EM	DM	EM	DM	EM

Table 10: Bond Beta: Effect of Changes in Openness, Political Risk, Cycle and Crises

This table characterizes the economic effects of changes in openness, political risk, cycle and crisis levels on the bond beta for developed and emerging markets. The columns in the table correspond to the regression specifications in Table 7, which allow betas to vary with the variables mentioned above. The first eight rows report the 5th and 95th percentiles for the instruments. The following rows calculate the total effect on beta. Rows labeled "Low" ("High") compute the total beta using the the 5th (95th) percentile for the variable of interest and the mean level for all other variables.

	FI_1^{Seq}	FI_2^{Seq}	$FI_3^{df,eq}$	$FI_4^{df,eq}$	TI_5^{QT}	TI_6^{QT}	$TI_7^{df,debt}$	$TI_8^{df,debt}$
$Open_{p5}$	0.71	0.00	0.58	0.23	0.88	0.25	0.26	0.18
$Open_{p95}$	1.00	1.00	6.07	1.15	1.00	1.00	1.18	1.53
PR_{p5}	0.73	0.48	0.73	0.48	0.73	0.48	0.73	0.48
PR_{p95}	0.93	0.80	0.93	0.80	0.93	0.80	0.93	0.80
$Cycle_{p5}$	-0.04	-0.07	-0.04	-0.07	-0.04	-0.07	-0.04	-0.07
$Cycle_{p95}$	0.03	0.05	0.03	0.05	0.03	0.05	0.03	0.05
$Crisis_{p5}$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
$Crisis_{p95}$	0.23	0.44	0.23	0.44	0.23	0.44	0.23	0.44
Low Openness	1.32	0.63	1.23	0.63	1.27	0.33	1.27	0.52
High Openness	1.34	0.47	1.65	0.44	1.36	0.69	1.51	0.71
Low Political Risk	1.21	0.63	1.29	0.61	1.24	0.65	1.24	0.67
High Political Risk	1.44	0.53	1.46	0.53	1.44	0.50	1.43	0.50
Low Cycle	1.36	0.55	1.40	0.54	1.37	0.52	1.38	0.54
High Cycle	1.32	0.59	1.36	0.58	1.33	0.60	1.32	0.59
Low Crisis	1.26	0.62	1.32	0.60	1.27	0.61	1.27	0.62
High Crisis	1.56	0.43	1.55	0.45	1.55	0.44	1.55	0.42
Sample	DM	EM	DM	EM	DM	EM	DM	EM

Table 11: Exchange Rates Beta: Effect of Changes in Openness, Political Risk, Cycle and Crises

This table characterizes the economic effects of changes in openness, political risk, cycle and crisis levels on the exchaneg rate beta for developed and emerging markets. The columns in the table correspond to the regression specifications in Table 8, which allow betas to vary with the variables mentioned above. The first eight rows report the 5th and 95th percentiles for the instruments. The following rows calculate the total effect on beta. Rows labeled "Low" ("High") compute the total beta using the the 5th (95th) percentile for the variable of interest and the mean level for all other variables.

	FI_1^{Seq}	FI_2^{Seq}	$FI_3^{df,eq}$	$FI_4^{df,eq}$	TI_5^{QT}	TI_6^{QT}	$TI_7^{df,debt}$	$TI_8^{df,debt}$
$Open_{p5}$	0.50	0.00	0.51	0.22	0.81	0.38	0.21	0.20
$Open_{p95}$	1.00	1.00	9.52	0.99	1.00	1.00	3.10	1.35
PR_{p5}	0.67	0.54	0.67	0.54	0.67	0.54	0.67	0.54
PR_{p95}	0.90	0.80	0.90	0.80	0.90	0.80	0.90	0.80
$Cycle_{p5}$	-0.05	-0.07	-0.05	-0.07	-0.05	-0.07	-0.05	-0.07
$Cycle_{p95}$	0.03	0.04	0.03	0.04	0.03	0.04	0.03	0.04
$Crisis_{p5}$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
$Crisis_{p95}$	0.20	0.36	0.20	0.36	0.20	0.36	0.20	0.36
Low Openness	0.53	0.42	0.69	0.63	0.75	0.28	0.75	0.45
High Openness	0.66	1.01	0.52	0.63	0.62	0.88	0.36	1.02
Low Political Risk	-0.05	0.52	-0.02	0.41	-0.07	0.49	0.08	0.54
High Political Risk	1.00	0.74	0.99	0.86	1.02	0.77	0.95	0.74
Low Cycle	0.60	0.60	0.62	0.61	0.62	0.59	0.65	0.62
High Cycle	0.67	0.65	0.67	0.65	0.67	0.66	0.66	0.66
Low Crisis	0.52	0.53	0.54	0.53	0.54	0.52	0.56	0.53
High Crisis	1.00	0.95	0.99	0.97	0.99	1.01	0.95	1.02
Sample	DM	EM	DM	EM	DM	EM	DM	EM

Table 12: Cross-Sectional Dispersion in Risk Premiums

This table reports statistics for expected returns calculated based on Tables 6, 7, and 8 for equity, bond, and exchange rate markets, respectively. Global expected returns are estimated using the following predictive regressions:

$$r^e_{w,t+1} = \alpha + \beta_1 r^e_{us,t} + \beta_2 DY_{us,t} + \beta_3 i^S_{us,t} + \beta_4 term_{us,t} + \varepsilon_{w,t}$$

$$r^b_{w,t+1} = \alpha + \beta_1 r^b_{us,t} + \beta_2 i^S_{us,t} + \beta_3 term_{us,t} + \varepsilon_{w,t}$$

$$r^{fx}_{w,t+1} = \alpha + \beta_1 r^{fx}_{w,t} + \beta_2 i^S_{us,t} + \beta_3 term_{us,t} + \varepsilon_{w,t}$$

where $DY_{us,t}$ is the U.S. dividend yield, $i^S_{us,t}$ is the U.S. short rate and $term_{us,t}$ is the U.S. term premium. Note that expected returns are calculated using a balanced sample. In addition to mean expected returns, this table shows the results of the Bunzel and Vogelsang (2005) trend tests conducted on the cross-sectional dispersion in expected returns. A bold number means that the trend beta is significantly different from zero at the 5% significance level. The cross-sectional dispersion, CS_t is reported in annualized volatility units and is calculated as

$$CS_t = \sqrt{\frac{1}{N}\sum_{i=1}^{N}\left(r_{i,t} - \frac{1}{N}\sum_{i=1}^{N} r_{i,t}\right)^2}.$$

	Developed		Emerging	
	mean	CS Trend Test	mean	CS Trend Test
Panel A: Equities				
FI^{Seq}	0.023	-0.010	0.052	-0.016
$FI^{df,eq}_{i,t}$	0.020	-0.004	0.054	-0.012
TI^{QT}	0.022	-0.004	0.070	-0.002
TI^{df}	0.020	-0.003	0.050	-0.015
Panel B: Bonds				
FI^{Sbo}	0.010	0.000	0.024	-0.009
$FI^{df,debt}_{i,t}$	0.011	-0.003	0.025	-0.001
TI^{QT}	0.010	-0.004	0.027	**-0.015**
TI^{df}	0.010	0.000	0.028	-0.004
Panel C: Exchange Rates				
FI^{Smm}	0.016	**-0.008**	0.030	**-0.029**
$FI^{df,debt}_{i,t}$	0.013	-0.006	0.022	**-0.021**
TI^{QT}	0.025	-0.007	0.026	**-0.033**
TI^{df}	0.019	-0.007	0.020	**-0.016**

Table 13: Cross-Sectional Dispersion in Equity Risk Premiums and Globalization

This table reports regressions for the cross-sectional dispersion of the equity risk premium. Expected returns are calculated based on Table 6, with global expected returns estimated using the following predictive regression:

$$r^e_{w,t+1} = \alpha + \beta_1 r^e_{us,t} + \beta_2 DY_{us,t} + \beta_3 i^S_{us,t} + \beta_4 term_{us,t} + \varepsilon_{w,t}$$

where $DY_{us,t}$ is the U.S. dividend yield, $i^S_{us,t}$ is the U.S. short rate and $term_{us,t}$ is the U.S. term premium. Note that expected returns are calculated using a balanced sample and the cross-sectional dispersion of the equity premium is computed in annualized volatility units. We then estimate

$$CS(E_t[r^e_{i,t+1}]) = \alpha + \beta_1 f(Open_{i,t}) + \beta_2 CS(PR_{i,t}) + \beta_3 \overline{PR_{i,t}} + \beta_4 CS(Cycle_{i,t}) + \beta_5 Cycle_{w,t} + \beta_6 CS(Crisis_{i,t}) + \beta_7 Crisis_{w,t} + \beta_8 RV_{w,t} + \beta_9 t + \varepsilon_{i,t}$$

where $f(Open_{i,t})$ is either the cross-sectional dispersion or the mean across countries of the openness variable. We report the complete results for the financial openness variables. In each specification, there are four rows with $TI^{QT}_{i,t}$ and $TI^{df}_{i,t}$. These are the coefficients on the trade openness measures in regressions where financial openness is replaced with trade openness. The remaining coefficients are robust and therefore not reported. Bolded coefficients are also significant at the 10% level or lower and have the same sign in a regression without the trend term. Asterisks (***, **, and *) indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

VARIABLES	(1) $CS(E_t[r^e_{it+1}])$	(2) $CS(E_t[r^e_{it+1}])$	(3) $CS(E_t[r^e_{it+1}])$	(4) $CS(E_t[r^e_{it+1}])$	(5) $CS(E_t[r^e_{it+1}])$	(6) $CS(E_t[r^e_{it+1}])$	(7) $CS(E_t[r^e_{it+1}])$	(8) $CS(E_t[r^e_{it+1}])$
$CS(FI^{Seq}_{i,t})$	**0.036*** **	0.0042						
	[4.51]	[1.13]						
$\overline{FI^{Seq}_{i,t}}$			**-0.13*** **	0.012				
			[-2.99]	[1.42]				
$CS(FI^{df}_{i,t})$					**-0.0073*** **	0.028***		
					[-2.69]	[2.67]		
$\overline{FI^{df}_{i,t}}$							-0.010	0.064**
							[-1.20]	[2.49]
$CS(PR_{i,t})$	0.015	**0.080*** **	-0.023	**0.076*** **	0.021	**0.11*** **	-0.0072	**0.11*** **
	[0.39]	[7.18]	[-0.52]	[6.56]	[1.08]	[11.7]	[-0.38]	[11.9]
$\overline{PR_{i,t}}$	**0.041* **	**0.26*** **	**0.084** **	**0.26*** **	**-0.11*** **	**0.16*** **	-0.021	**0.13*** **
	[1.73]	[6.88]	[2.57]	[6.77]	[-2.63]	[4.06]	[-0.81]	[3.80]
$CS(Cycle_{i,t})$	-0.038***	**-0.025** **	-0.049***	**-0.023** **	**-0.056*** **	**-0.030*** **	**-0.041*** **	**-0.035*** **
	[-3.33]	[-2.57]	[-3.85]	[-2.28]	[-3.94]	[-3.41]	[-2.74]	[-4.05]
$Cycle_{w,t}$	**-0.0011*** **	0.000083	**-0.00099*** **	0.00011	**-0.00073** **	0.00016	**-0.0012*** **	0.00015
	[-3.47]	[0.20]	[-2.97]	[0.27]	[-1.99]	[0.58]	[-3.50]	[0.54]
$CS(Crisis_{i,t})$	**0.069*** **	**0.019*** **	**0.073*** **	**0.019*** **	**0.084*** **	**0.013*** **	**0.073*** **	**0.018*** **
	[7.09]	[4.79]	[6.92]	[4.79]	[8.50]	[3.86]	[10.6]	[4.56]
$Crisis_{w,t}$	**-0.047*** **	**0.025** **	**-0.042*** **	**0.025** **	**-0.042*** **	**0.034*** **	**-0.029** **	**0.037*** **
	[-4.59]	[2.33]	[-3.46]	[2.31]	[-2.82]	[3.44]	[-2.09]	[3.71]
$RV_{w,t}$	**0.24*** **	**0.38*** **	**0.25*** **	**0.38*** **	**0.16** **	**0.36*** **	**0.27*** **	**0.34*** **
	[3.02]	[5.74]	[2.94]	[5.73]	[2.04]	[6.02]	[3.32]	[6.15]
time trend	-0.0096***	-0.0022	-0.012***	-0.000053	0.037*	-0.017***	0.00021	-0.015***
	[-6.79]	[-0.76]	[-7.59]	[-0.017]	[1.95]	[-3.61]	[0.020]	[-3.53]
$CS(TI^{QT}_{i,t})$	-0.0072	**-0.15*** **						
	[-0.34]	[-12.8]						
$\overline{TI^{QT}_{i,t}}$			0.077	**0.44*** **				
			[0.75]	[9.83]				
$CS(TI^{df}_{i,t})$					0.015***	-0.0020		
					[5.81]	[-0.47]		
$\overline{TI^{df}_{i,t}}$							0.045***	**-0.026*** **
							[3.90]	[-2.61]
Observations	235	235	235	235	235	235	235	235
Adjusted R-squared	0.618	0.581	0.588	0.581	0.578	0.588	0.532	0.586
Region	DM	EM	DM	EM	DM	EM	DM	EM

Table 14: Cross-Sectional Dispersion in Bond Risk Premiums

This table reports regressions for the cross-sectional dispersion of the bond risk premium. Expected returns are calculated based on Table 7, with global expected returns estimated using the following predictive regression:

$$r^b_{w,t+1} = \alpha + \beta_1 r^b_{us,t} + \beta_2 i^S_{us,t} + \beta_3 term_{us,t} + \varepsilon_{w,t}$$

where $i^S_{us,t}$ is the U.S. short rate and $term_{us,t}$ is the U.S. term premium. Note that expected returns are calculated using a balanced sample and the cross-sectional dispersion of the risk premium is computed in annualized volatility units. We then estimate

$$CS(E_t[r^b_{i,t+1}]) = \alpha + \beta_1 f(Open_{i,t}) + \beta_2 CS(PR_{i,t}) + \beta_3 \overline{PR_{i,t}} + \beta_4 CS(Cycle_{i,t}) + \beta_5 Cycle_{w,t} + \beta_6 CS(Crisis_{i,t}) + \beta_7 Crisis_{w,t} + \beta_8 RV_{w,t} + \beta_9 t + \varepsilon_{i,t}$$

where $f(Open_{i,t})$ is either the cross-sectional dispersion or the mean across countries of the openness variable. We report the complete results for the financial openness variables. In each specification, there are four rows with $TI^{QT}_{i,t}$ and $TI^{df}_{i,t}$. These are the coefficients on the trade openness measures in regressions where financial openness is replaced with trade openness. The remaining coefficients are robust and therefore not reported. Bolded coefficients are also significant at the 10% level or lower and have the same sign in a regression without the trend term. Asterisks (***, **, and *) indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

VARIABLES	(1) $CS(E_t[r^b_{it+1}])$	(2) $CS(E_t[r^b_{it+1}])$	(3) $CS(E_t[r^b_{it+1}])$	(4) $CS(E_t[r^b_{it+1}])$	(5) $CS(E_t[r^b_{it+1}])$	(6) $CS(E_t[r^b_{it+1}])$	(7) $CS(E_t[r^b_{it+1}])$	(8) $CS(E_t[r^b_{it+1}])$
$CS(FI^{Sbo}_{i,t})$	0.0019	**-0.016****						
	[0.74]	[-2.18]						
$\overline{FI^{Sbo}_{i,t}}$			0.0055	**-0.13*****				
			[0.40]	[-3.23]				
$CS(FI^{df}_{i,t})$					-0.000021	0.0013		
					[-0.088]	[0.72]		
$\overline{FI^{df}_{i,t}}$							-0.0014	-0.016
							[-1.55]	[-1.62]
$CS(PR_{i,t})$	**-0.045*****	0.012	**-0.056*****	**0.10*****	**-0.063*****	0.042***	**-0.068*****	0.028**
	[-3.36]	[0.54]	[-4.86]	[4.23]	[-5.09]	[3.67]	[-5.35]	[2.04]
$\overline{PR_{i,t}}$	**-0.14*****	**0.12*****	**-0.16*****	**0.15*****	**-0.20*****	**0.19*****	**-0.20*****	**0.15*****
	[-5.01]	[3.53]	[-6.05]	[3.68]	[-6.66]	[5.88]	[-6.63]	[3.93]
$CS(Cycle_{i,t})$	-0.046***	**0.037****	-0.049***	0.018	-0.038***	-0.0060	**-0.036****	0.00034
	[-3.35]	[2.34]	[-3.64]	[1.08]	[-2.66]	[-0.50]	[-2.57]	[0.027]
$Cycle_{w,t}$	**-0.0011*****	**-0.0041*****	**-0.0011*****	**-0.0044*****	**-0.0013*****	**-0.0020*****	**-0.0012*****	**-0.0019*****
	[-7.88]	[-7.86]	[-7.94]	[-7.64]	[-7.90]	[-7.17]	[-7.84]	[-6.94]
$CS(Crisis_{i,t})$	**0.0073*****	**0.032*****	**0.0082*****	**0.029*****	**0.015*****	**0.030*****	**0.013*****	**0.033*****
	[3.38]	[4.42]	[3.78]	[4.32]	[6.09]	[5.83]	[4.51]	[6.06]
$Crisis_{w,t}$	0.020***	**-0.047****	0.019***	**-0.051*****	**0.015***	**-0.047*****	**0.017****	**-0.046*****
	[3.01]	[-2.60]	[2.77]	[-3.44]	[1.94]	[-5.08]	[2.11]	[-5.30]
$RV_{w,t}$	**0.21*****	**0.50*****	**0.20*****	**0.62*****	**0.22*****	**0.55*****	**0.22*****	**0.51*****
	[4.72]	[3.07]	[4.71]	[3.38]	[4.46]	[4.27]	[4.38]	[4.29]
time trend	-0.0093***	0.0026	-0.0091***	0.0021	-0.015***	0.022***	-0.011***	0.015***
	[-5.75]	[0.41]	[-5.48]	[0.42]	[-4.67]	[7.33]	[-3.54]	[3.84]
$CS(TI^{QT}_{i,t})$	0.023	-0.028						
	[1.14]	[-1.63]						
$\overline{TI^{QT}_{i,t}}$			0.0058	0.053				
			[0.074]	[1.41]				
$CS(TI^{df}_{i,t})$					**0.029*****	0.041***		
					[7.71]	[6.91]		
$\overline{TI^{df}_{i,t}}$							**0.066*****	**0.11*****
							[9.96]	[9.47]
Observations	206	206	206	206	206	206	206	206
Adjusted R-squared	0.644	0.526	0.643	0.560	0.644	0.478	0.646	0.483
Region	DM	EM	DM	EM	DM	EM	DM	EM

Table 15: Cross-Sectional Dispersion in Exchange Rate Risk Premiums

This table reports regressions for the cross-sectional dispersion of the exchange rate risk premium. Expected returns are calculated based on Table 8, with global expected returns estimated using the following predictive regression:

$$r^{fx}_{w,t+1} = \alpha + \beta_1 r^{fx}_{w,t} + \beta_2 i^S_{us,t} + \beta_3 term_{us,t} + \varepsilon_{w,t}$$

where $i^S_{us,t}$ is the U.S. short rate and $term_{us,t}$ is the U.S. term premium. Note that expected returns are calculated using a balanced sample and the cross-sectional dispersion of the risk premium is computed in annualized volatility units. We then estimate

$$CS(E_t[r^{fx}_{i,t+1}]) = \alpha + \beta_1 f(Open_{i,t}) + \beta_2 CS(PR_{i,t}) + \beta_3 \overline{PR_{i,t}} + \beta_4 CS(Cycle_{i,t}) + \beta_5 Cycle_{w,t} + \beta_6 CS(Crisis_{i,t}) + \beta_7 Crisis_{w,t} + \beta_8 RV_{w,t} + \beta_9 t + \varepsilon_{i,t}$$

where $f(Open_{i,t})$ is either the cross-sectional dispersion or the mean across countries of the openness variable. We report the complete results for the financial openness variables. In each specification, there are four rows with $TI^{QT}_{i,t}$ and $TI^{df}_{i,t}$. These are the coefficients on the trade openness measures in regressions where financial openness is replaced with trade openness. The remaining coefficients are robust and therefore not reported. Bolded coefficients are also significant at the 10% level or lower and have the same sign in a regression without the trend term. Asterisks (***, **, and *) indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	$CS(E_t[r^{fx}_{it+1}])$	$CS(E_t[r^{fx}_{it+1}])$	$CS(E_t[r^{fx}_{it+1}])$	$CS(E_t[r^{fx}_{it+1}])$	$CS(E_t[r^{fx}_{it+1}])$	$CS(E_t[r^{fx}_{it+1}])$	$CS(E_t[r^{fx}_{it+1}])$	$CS(E_t[r^{fx}_{it+1}])$
$CS(FI^{Smm}_{i,t})$	-0.023***	**0.023*** **						
	[-4.49]	[3.12]						
$\overline{FI^{Smm}_{i,t}}$			0.10***	**0.057*** **				
			[3.86]	[3.67]				
$CS(FI^{df}_{i,t})$					**0.0035*** **	**0.0098*** **		
					[4.13]	[3.02]		
$\overline{FI^{df}_{i,t}}$							0.0082***	**0.077*** **
							[4.49]	[5.40]
$CS(PR_{i,t})$	**0.053*** **	0.032	**0.033* **	0.017	**0.026* **	-0.0053	0.023	0.0048
	[2.74]	[1.57]	[1.85]	[0.84]	[1.84]	[-0.18]	[1.56]	[0.17]
$\overline{PR_{i,t}}$	**-0.11*** **	0.047	**-0.14*** **	0.041	**-0.20*** **	-0.0057	**-0.19*** **	0.018
	[-3.54]	[0.56]	[-4.60]	[0.52]	[-8.50]	[-0.078]	[-8.19]	[0.28]
$CS(Cycle_{i,t})$	**-0.051*** **	-0.015	**-0.055*** **	-0.024**	**-0.047*** **	0.018	**-0.056*** **	0.014
	[-2.87]	[-1.13]	[-2.81]	[-1.98]	[-3.55]	[1.00]	[-4.00]	[0.83]
$Cycle_{w,t}$	0.00023	**-0.00092*** **	-0.000025	**-0.00073*** **	**0.00031* **	**-0.0022*** **	**0.00031* **	**-0.0022*** **
	[0.94]	[-3.42]	[-0.11]	[-2.77]	[1.94]	[-6.95]	[1.86]	[-7.00]
$CS(Crisis_{i,t})$	**-0.011** **	-0.0045	**-0.010** **	-0.0080*	**0.044*** **	0.0077	**0.040*** **	0.00093
	[-2.43]	[-1.03]	[-2.51]	[-1.68]	[10.2]	[1.50]	[10.7]	[0.18]
$Crisis_{w,t}$	**0.060*** **	**-0.019* **	**0.047*** **	**-0.039*** **	0.0029	**-0.033*** **	0.0098	**-0.028** **
	[3.54]	[-1.97]	[3.00]	[-3.91]	[0.21]	[-2.68]	[0.69]	[-2.54]
$RV_{w,t}$	**0.17** **	-0.18**	**0.20** **	-0.14**	**0.21*** **	0.047	**0.21*** **	0.10
	[2.17]	[-2.48]	[2.59]	[-2.16]	[2.98]	[0.56]	[3.02]	[1.40]
time trend	-0.022***	-0.025***	-0.019***	-0.022***	-0.010***	-0.017***	-0.016***	-0.0099***
	[-5.93]	[-6.83]	[-6.15]	[-6.66]	[-7.01]	[-4.15]	[-7.60]	[-2.62]
$CS(TI^{QT}_{i,t})$	**0.099*** **	**0.051*** **						
	[5.46]	[3.08]						
$\overline{TI^{QT}_{i,t}}$			**-0.19*** **	**-0.068* **				
			[-5.51]	[-1.97]				
$CS(TI^{df}_{i,t})$					**0.010*** **	0.0054		
					[6.44]	[1.22]		
$\overline{TI^{df}_{i,t}}$							**0.052*** **	0.024***
							[7.00]	[3.31]
Observations	189	189	189	189	189	189	189	189
Adjusted R-squared	0.480	0.787	0.474	0.787	0.717	0.567	0.714	0.592
Region	DM	EM	DM	EM	DM	EM	DM	EM

Figure 1: Openness Measures

This figure shows *de jure* and *de facto* openness measures for developed and emerging markets. The averages are equally weighted across countries and are calculated as $open^{x}_{cg,t} = \sum_{i=1}^{N} w_{i,t} x_{i,t}$, where cg is the country group (emerging or developed), x is the openness measure, $w_{i,t}$ is the country weight i and N is the number of countries. For a description of all the openness measures, see Appendix 1. Countries are classified as developed or emerging markets according to IMF classifications (for details, see Appendix 2).

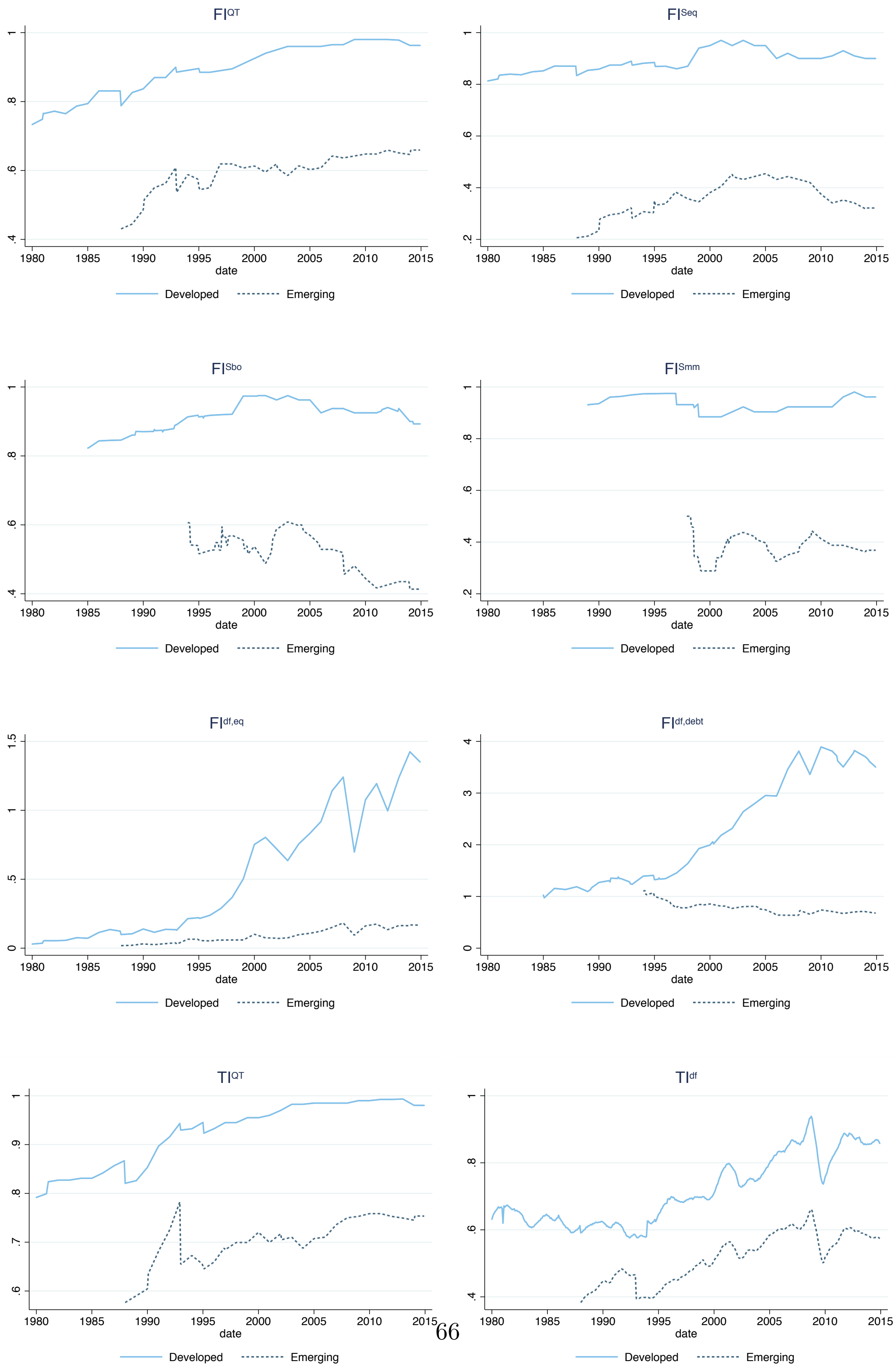
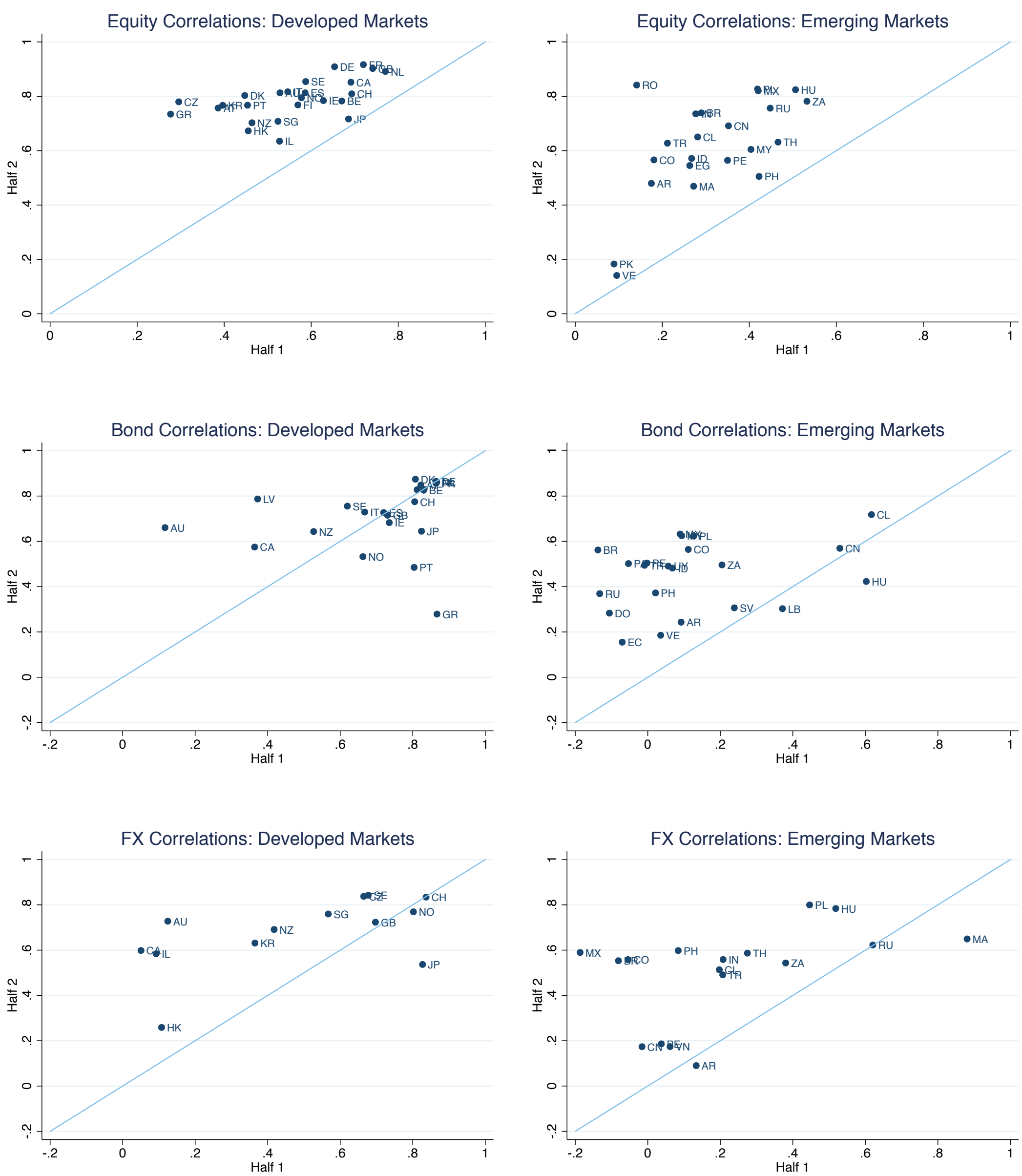


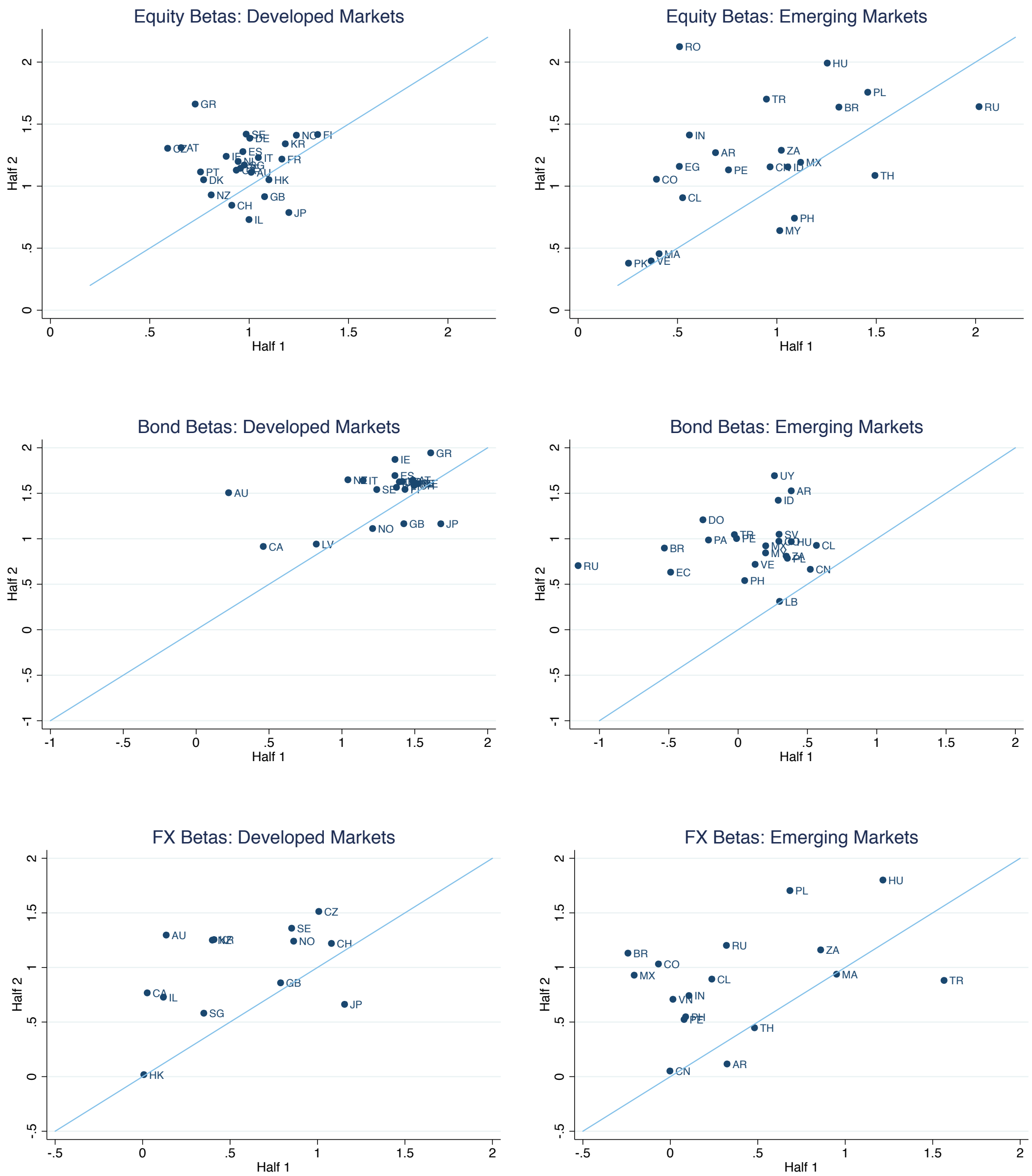
Figure 2: Correlations, Betas and Idiosyncratic Risk: First Half versus Second Half

Correlations, betas and idiosyncratic risk: first half versus second half of sample. This figure shows various statistics based on equity, bond, and exchange rate returns in the first versus second half of the sample. Given the unbalanced nature of the panel data, the midpoint is country-specific. Start dates for each country can be found in Appendix 2. (*a*) Correlations between country returns and world returns for each asset class. (*b*) Betas with world returns and (*c*) annualized idiosyncratic risk, calculated from the following country-specific regressions for each half: $r_{i,t} = \alpha_i + \beta_i r_{w,t} + \varepsilon_{i,t}$. We report scatter plots for developed and emerging markets, which are grouped according to International Monetary Fund classifications (for details, see Appendix 2). The solid line in each graph is a 45° line.

(a) Correlations with World Returns



(b) Betas with World Returns



(c) Idiosyncratic Risk

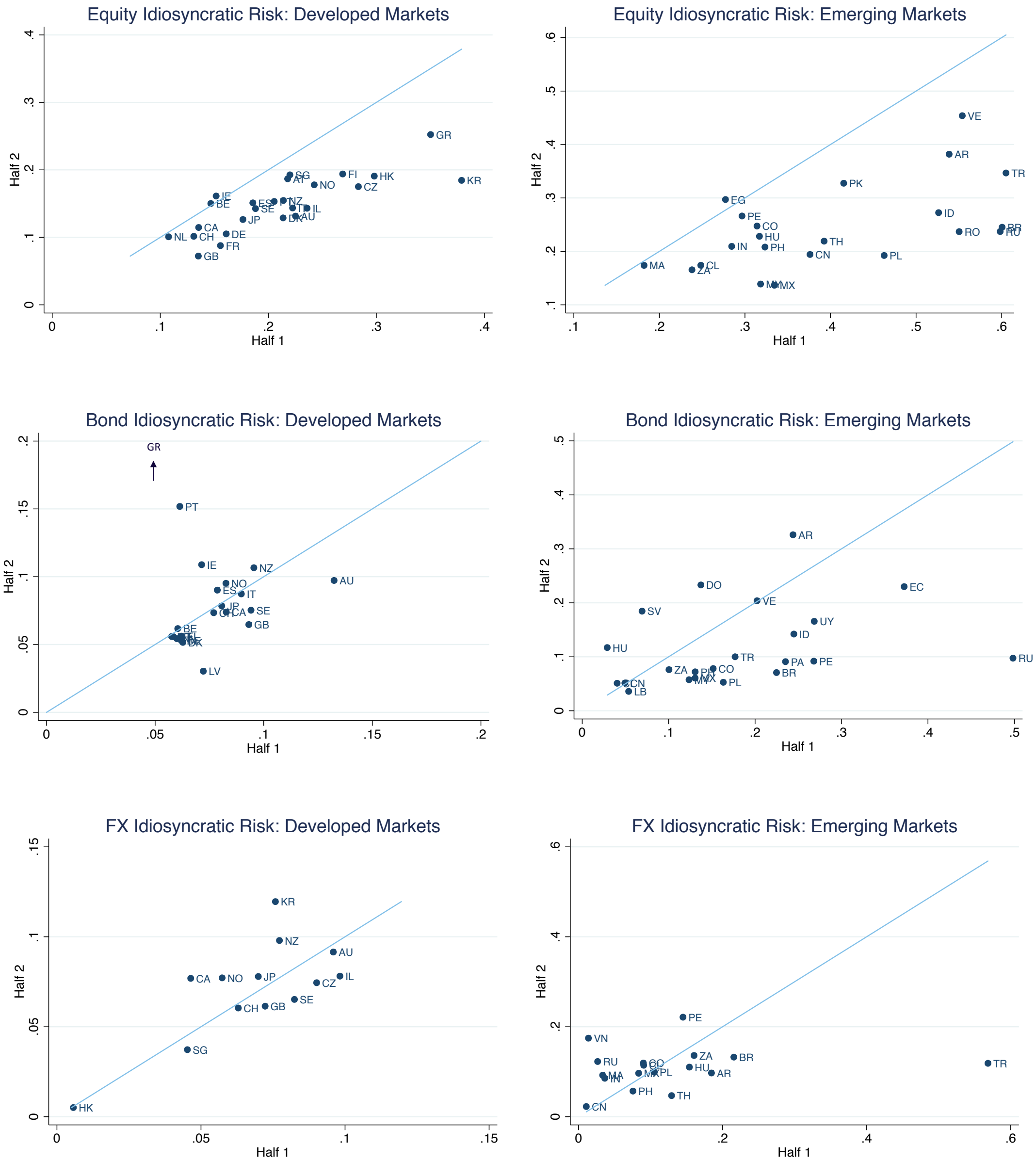
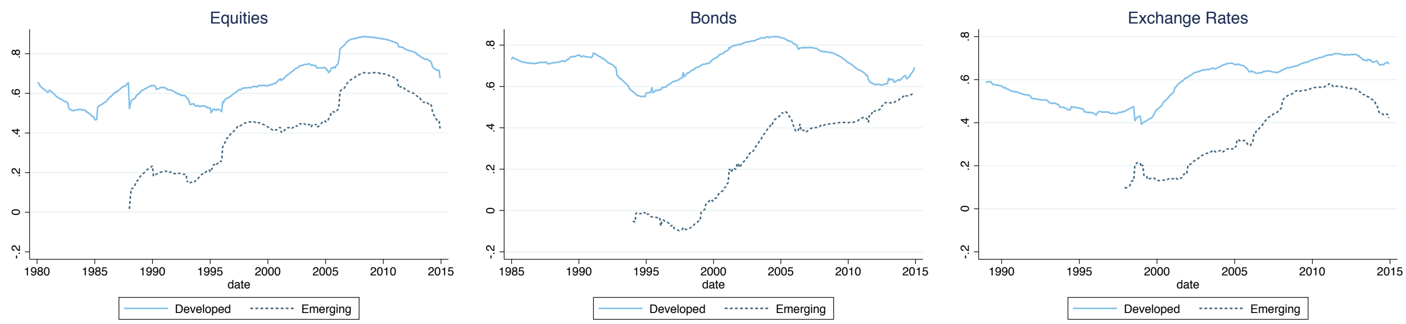


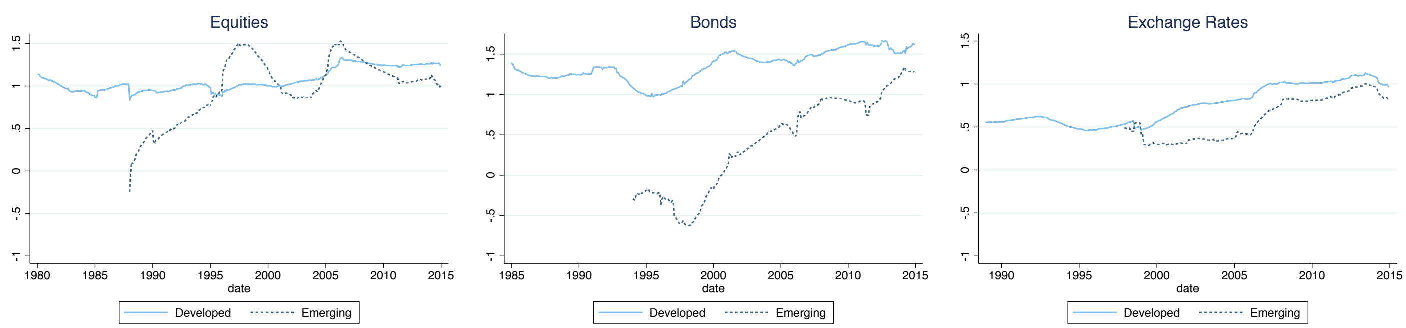
Figure 3: Time-Varying Correlations, Betas and Idiosyncratic Risk

This figure plots regional time-varying correlations, betas, and idiosyncratic risk for equity, bond, and exchange rate returns using a kernel method. For each country, given any date t_0, we split the sample into five-year subsamples and use the 30 data points before and after this point. Within these subsamples, we use a normal kernel to assign weights to the individual observations according to how close they are to t_0. We then compute kernel-weighted (a) correlations, (b) betas, and (c) idiosyncratic risk at the country level. Finally, we construct regional measures as the equally weighted average across countries.

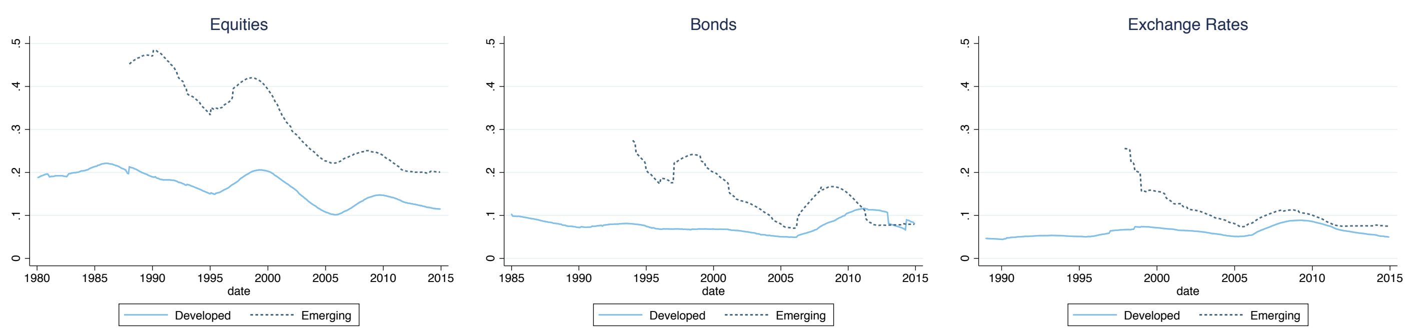
(a) Correlations Dynamics



(b) Beta Dynamics



(c) Idiosyncratic Risk Dynamics



Appendix A Data Description

Table A1: Data Description

The following table describes the variables used in this paper. Note that all variables with a quarterly or annual frequency are turned into monthly variables using the weighted average of the quarterly or annual variable in the current quarter/year and last quarter/year. That is, in cases where there is only annual data, a variable, $X_{i,t}$ is calculated as follows,

$$X_{i,t} = \frac{12-m}{12} X_{i,s-1,a} + \frac{m}{12} X_{i,s,a},$$

where $X_{i,s,a}$ is the variable in the current year, $X_{i,s-1,a}$ is the variable in the previous year, and m is the current month. Meanwhile, in cases where there is only quarterly data, $X_{i,t}$ is

$$X_{i,t} = \frac{3-m}{3} X_{i,s-1,q} + \frac{m}{3} X_{i,s,q},$$

where $X_{i,s,q}$ is the variable in the current quarter, $X_{i,s-1,q}$ is the variable in the previous quarter, and m is the current month.

Variable	Description
Local Financial Data:	
$r^e_{i,t}$	Local excess log equity returns are constructed using country-level stock market total returns indices in U.S. dollars. Returns are in excess of the one-month U.S. Treasury bill from Ibbotson Associates. Frequency: Monthly. Source: MSCI (and Datastream for Venezuela and Romania).
$r^b_{i,t}$	Local excess log bond returns are constructed using country-level bond market total returns indices in U.S. dollars. Returns are in excess of the one-month U.S. Treasury bill from Ibbotson Associates. In emerging markets, we use external debt indices, while in developed markets we use local currency bond indices. Frequency: Monthly. Source: JPMorgan Emerging Markets Bond Index (EMBI), Barclays Emerging Markets Aggregate Index, Citibank World Global Bond Index (WGBI).
$r^{fx}_{i,t}$	Local log excess currency returns are constructed using country-level spot rates and one-month forward rates (appreciation is positive): $r^s_{i,t+1} = i_{i,t} - i_{us,t} + \Delta s_{i,t+1} \approx s_{i,t+1} - f_{i,t}$. Frequency: Monthly. Source: Bloomberg.
$r^{e,LC}_{i,t}$	Local net log equity returns in local currency are constructed using country-level stock market total returns indices in local currency. Frequency: Monthly. Source: MSCI (and Datastream for Venezuela and Romania).

continued

Table A1 – *Continued*

Variable	Description
$r^{b,LC}_{i,t}$	Local net log bond returns in local currency are constructed using country-level bond market total returns indices in dollars and local log currency returns. Frequency: Monthly. Source: JPMorgan Emerging Markets Bond Index (EMBI), Barclays Emerging Markets Aggregate Index, Citibank World Global Bond Index (WGBI), International Financial Statistics, Bloomberg.
$i^{S}_{i,t}$	Nominal short-term interest rate in local currency (3-month Treasury bill, 3 month interbank rate or money market rate). Rates are annualized. Frequency: Monthly. Source: Global Financial Data, Datastream, International Financial Statistics.
$DY_{i,t}$	Dividend yield for country i. Frequency: Monthly. Source: Datastream.
Global Financial Data:	
$r^{e}_{w,t}$	Global excess log equity returns are constructed as the GDP weighted average of G7 country-level stock market total returns indices in U.S. dollars. Returns are in excess of the one-month U.S. Treasury bill from Ibbotson Associates. Frequency: Monthly. Source: MSCI, International Financial Statistics.
$r^{b}_{w,t}$	Global excess log bond returns are constructed as the GDP weighted average of G7 country-level bond market total returns indices in U.S. dollars. Returns are in excess of the one-month U.S. Treasury bill from Ibbotson Associates. Frequency: Monthly. Source: Citibank World Global Bond Index (WGBI), International Financial Statistics.
$r^{fx}_{w,t}$	Global log excess currency returns are constructed as the GDP weighted average of G7 country-level excess currency returns (appreciation is positive). Note that for countries that adopted the Euro (Germany, France and Italy), we use the Deutsche Mark total returns before 1999 and subsequently the Euro. All currencies are based against the U.S. dollar so the currency basket has six currencies. Frequency: Monthly. Source: Bloomberg, International Financial Statistics.
$RV_{w,t}$	Global realized variance is constructed as the GDP weighted average of G7 country-level local realized variance. More specifically, we use daily log equity returns in U.S. dollars to calculate the local realized variance as $$RV_{i,t+1} = \sum_{d=1}^{Ndays} \left(ln \frac{P_{t+1,d}}{P_{t+1,d-1}} \right)^2 \left(\frac{22}{Ndays} \right),$$ where $Ndays$ represents the number of trading days in a month and $P_{t+1,d}$ is the value of the MSCI index on day d of month $t+1$. Source: MSCI, International Financial Statistics.

continued

Table A1 – *Continued*

Variable	Description
***De jure* Integration Measures:**	
$FI^{Seq}_{i,t}$	Measure of equity market openness, compiled originally by Schindler (2009) and then extended by Fernández et al. (2015), based on a coding of the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) narrative description. This index refers to restrictions on equity shares or other equity securities, excluding those investments for the purpose of acquiring a lasting economic interesting. We use one minus the index, which is between zero and one, so that higher scores indicate less restrictions in place and thus more openness. The dataset's coverage is from 1995 to 2013. We extend the index back to 1980 using other *de jure* measures to predict the value.[10] Frequency: Annual. Source: Fernández et al. (2015), Quinn and Toyoda (2008), Chinn and Ito (2008).
$FI^{Sbo}_{i,t}$	Measure of bond market openness, compiled originally by Schindler (2009) and then extended by Fernández et al. (2015), based on a coding of the IMF's AREAER narrative description. Specifically, this index accounts for restrictions on bonds or other debt securities with an original maturity of more than one year. We use one minus the index, which is between zero and one, so that higher scores indicate less restrictions in place and thus more openness. The dataset's coverage is from 1997 to 2013, therefore, we extend the index back to 1980 using other *de jure* measures to predict the value.[10] Frequency: Annual. Source: Fernández et al. (2015), Quinn and Toyoda (2008), Chinn and Ito (2008).
$FI^{Smm}_{i,t}$	Measure of money market openness, compiled originally by Schindler (2009) and then extended by Fernández et al. (2015), based on a coding of the IMF's AREAER narrative description. Specifically, this category refers to restrictions on money market instruments, which includes securities with an original maturity of one year or less, in addition to short-term instruments such as certificates of deposit, among others. We use one minus the index, which is between zero and one, so that higher scores indicate less restrictions in place and thus more openness. The dataset's coverage is from 1995 to 2013. We extend the index back to 1980 using other *de jure* measures to predict the value. [10] Frequency: Annual. Source: Fernández et al. (2015), Quinn and Toyoda (2008), Chinn and Ito (2008).

continued

[10] The Schindler el al (2015) measure starts in 1995 for equity and money markets and in 1997 for bond markets; therefore, we use the *de jure* measures complied by Quinn and Toyoda (2008), QT_Cur100 and QT_Cap100, and Chinn and Ito (2008), CI_KA_Open, to predict the Schindler indicators from 1980 to 1994 (1996 for bonds). We predict the value based on the following panel regressions:

$$S^{j}_{i,t} = \alpha_{i,t} + \beta_1 CI\_KA\_Open_{i,t} + \beta_2 QT\_Cur100_{i,t} + \beta_3 QT\_Cap100_{i,t} + \varepsilon_{i,t}$$

for $j = \{\text{eq, bo, mm}\}$.

Table A1 – *Continued*

Variable	Description
$FI_{i,t}^{QT}$	The Quinn and Toyoda (2008) capital account openness measure is a 0 to 4 indicator, in half integer units, with 4 representing an economy with fully open capital flows. It covers (a) restrictions on capital outflows by residents, and (b) restrictions on capital inflows by non-residents. The measure is rescaled from 0 to 1, with higher scores indicating greater openness. The data series ends in 2011, therefore we predict this data through 2014 using a regression with all ten Schindler capital account subcategories as explanatory variables (see Schindler et al (2015) for details on all ten categories). Frequency: Annual. Source: Quinn and Toyoda (2008), Fernández et al. (2015).
$TI_{i,t}^{QT}$	The Quinn and Toyoda (2008) current account openness measure is a 0 to 8 indicator, with 8 indicating the government's full compliance with the IMF's Article VIII obligations to free the proceeds from international trade of goods and services from government restriction. It is the sum of two components: trade (exports and imports) and invisibles (payments and receipts for financial and other services)). The measure is rescaled from 0 to 1, with higher scores indicate greater openness. The data ends in 2011, therefore we predict this data through 2014 using a regression with trade openness, measured as exports plus imports over GDP, and the Schindler et al (2015) capital account measure as explanatory variables. Frequency: Annual. Source: Quinn and Toyoda (2008), Fernández et al. (2015), International Financial Statistics.
***De facto* Integration Measures:**	
$TI_{i,t}^{df}$	Measure of *de facto* trade openness defined as exports plus imports divided by GDP. Frequency: Monthly. Soruce: International Financial Statistics.
$FI_{i,t}^{df,eq}$	This ratio is defined using Lane and Milesi-Ferretti's Net Foreign Assets database: Equity Assets + Liabilities / GDP. In this database, portfolio equities holdings measure ownership of shares of companies and mutual funds below the 10% threshold that distinughes portfolio from direct investment. Frequency: Annual. Source: Lane and Milesi-Ferretti (2007)
$FI_{i,t}^{df,debt}$	This ratio is defined using Lane and Milesi-Ferretti's Net Foreign Assets database: Debt Assets + Liabilities / GDP. In this database, portfolio debt securities are defined to include both long and short-term debt, including money markets. We use this indicator for both bond and currency markets. Frequency: Annual. Source: Lane and Milesi-Ferretti (2007)
Other Variables:	

continued

Table A1 – *Continued*

Variable	Description
$PR_{i,t}$	The political risk rating indicator for country i, which ranges between 0 (high risk) and 1 (low risk) Frequency: Monthly. Source: International Country Risk Guide.
$CorpGov_{i,t}$	This measure of quality of institutions is a combination of three subcomponents of the political risk indicator: corruption, bureaucracy, and law and order. This index was rescaled to range between 0 (high risk) and 1 (low risk) Frequency: Monthly. Source: International Country Risk Guide.
$Cycle_{i,t}$	This country-specific business cycle variables is calculated as the difference between current GDP growth and a moving average of past GDP. Year-over-year GDP growth is in real terms. Frequency: Quarterly (annual for countries where quarterly data is not available). Source: International Financial Statistics and OECD.
$Cycle_{w,t}$	This global business cycle variables is calculated asthe GDP-weighted average of G7 country-specific business cycles (i.e. $Cycle_{i,t}$). GDP growth is in real terms. Frequency: Quarterly (annual for countries where quarterly data is not available). Source: International Financial Statistics and OECD.
$Crisis_{i,t}$	A measure by Reinhart and Rogoff which combines seven varieties of financial crises: banking crises, currency crashes, currency conversions/debasement, default on external debt, default on domestic debt, stock market crashes (if the country has a stock market), and high inflation. The crisis variable is the average of these seven components and takes values between 0 and 1. Frequency: Annual. Source: Reinhart and Rogoff (2009).
$Cycle_{w,t}$	This global crisis variables is calculated as the GDP-weighted average of G7 country-specific crises variables (i.e. $Crisis_{i,t}$). GDP growth is in real terms. Frequency: Annual. Source: Reinhart and Rogoff (2009).

Appendix B Country Start Dates and Classifications

Table A2: Country Start Dates and Classifications

Country Label	ISO Code	Region	Equities	Bonds	FX
Argentina	AR	Emerging	1988m1	1994m1	1997m12
Austria	AT	Developed	1980m1	1992m11	
Australia	AU	Developed	1980m1	1985m1	1989m1
Belgium	BE	Developed	1980m1	1991m2	
Bulgaria	BG	Emerging		1997m2	
Brazil	BR	Emerging	1988m1	1994m1	1999m3
Canada	CA	Developed	1980m1	1985m1	1989m1
Switzerland	CH	Developed	1981m1	1985m1	1989m1
Chile	CL	Emerging	1988m1	1999m6	1998m5
China: Mainland	CN	Emerging	1993m1	1994m4	1999m1
Colombia	CO	Emerging	1993m1	1997m3	1999m3
Czech Republic	CZ	Developed	1995m2		1997m1
Germany	DE	Developed	1980m1	1985m1	
Denmark	DK	Developed	1980m1	1989m5	
Dominican Republic	DO	Emerging		2001m12	
Ecuador	EC	Emerging		1994m1	
Egypt	EG	Emerging	1995m1	2001m8	2009m3
Spain	ES	Developed	1980m1	1991m2	
Finland	FI	Developed	1988m1	1995m1	
France	FR	Developed	1980m1	1985m1	
United Kingdom	GB	Developed	1980m1	1985m1	1989m1
Greece	GR	Developed	1988m1	2000m5	
Hong Kong	HK	Developed	1980m1		1989m1
Hungary	HU	Emerging	1995m1	1999m2	1998m8
Indonesia	ID	Emerging	1988m1	1997m2	2004m3
Ireland	IE	Developed	1988m1	1992m11	
Israel	IL	Developed	1993m1		1998m8
India	IN	Emerging	1993m1	2004m6	1999m1
Italy	IT	Developed	1980m1	1985m2	
Japan	JP	Developed	1980m1	1985m1	1989m1
Korea, South	KR	Developed	1988m1		1999m1
Lebanon	LB	Emerging		2008m2	
Sri Lanka	LK	Emerging		2008m1	
Latvia	LV	Developed		2011m7	
Morocco	MA	Emerging	2002m2		2002m1
Mexico	MX	Emerging	1988m1	1994m1	1997m12
Malaysia	MY	Emerging	1988m1	1996m11	2005m5
Netherlands	NL	Developed	1981m2	1985m1	
Norway	NO	Developed	1980m1	1995m1	1989m1
New Zealand	NZ	Developed	1988m1	1992m11	1989m1
Panama	PA	Emerging		1994m1	
Peru	PE	Emerging	1993m1	1994m1	2000m8
Philippines	PH	Emerging	1988m1	1994m1	1999m1
Pakistan	PK	Emerging	1993m1	2004m5	
Poland	PL	Emerging	1993m1	1994m1	1998m8
Portugal	PT	Developed	1988m1	1995m1	
Romania	RO	Emerging	1997m1		2005m3
Russian Federation	RU	Emerging	1995m2	1997m2	2001m9
Sweden	SE	Developed	1980m1	1991m1	1989m1
Singapore	SG	Developed	1980m1		1989m1
El Salvador	SV	Emerging		2001m9	
Thailand	TH	Emerging	1988m1		1997m12
Turkey	TR	Emerging	1988m1	1996m7	1997m12
Ukraine	UA	Emerging		2008m2	
Uruguay	UY	Emerging		1997m2	
Venezuela, Republica Bolivariana de	VE	Emerging	1990m2	1994m1	
Vietnam	VN	Emerging		2005m12	2005m11
South Africa	ZA	Emerging	1993m1	1995m1	1997m12

Appendix C Correlations

Table A3: Openness Measures Correlations

This table shows the correlations across correlations measures. Panel A calculates the correlation across variables over the whole panel, while Panel B calculates the correlation for each variable at the country level, and then takes the average across countries. Note that this second calculation excludes countries with no variation in a pair of variables from the average.

	TI^{QT}	FI^{QT}	FI^{Seq}	FI^{Sbo}	FI^{Smm}	PR	$Cycle$	$Crisis$	TI^{df}	$FI^{df,eq}$	$FI^{df,debt}$
Panel A: Whole Sample											
TI^{QT}	1.00										
FI^{QT}	0.84	1.00									
FI^{Seq}	0.68	0.80	1.00								
FI^{Sbo}	0.62	0.75	0.86	1.00							
FI^{Smm}	0.64	0.77	0.84	0.80	1.00						
PR	0.52	0.54	0.55	0.51	0.52	1.00					
$Cycle$	-0.06	-0.06	-0.02	-0.04	-0.04	-0.01	1.00				
$Crisis$	-0.28	-0.25	-0.18	-0.16	-0.10	-0.34	-0.13	1.00			
TI^{df}	0.23	0.21	0.17	0.10	0.14	0.17	-0.01	-0.17	1.00		
$FI^{df,eq}$	0.32	0.38	0.33	0.32	0.32	0.40	-0.00	-0.19	0.55	1.00	
$FI^{df,debt}$	0.37	0.44	0.39	0.36	0.39	0.32	-0.04	-0.10	0.65	0.70	1.00
Panel B: Average Across Countries											
TI^{QT}	1.00										
FI^{QT}	0.67	1.00									
FI^{Seq}	0.36	0.45	1.00								
FI^{Sbo}	0.32	0.42	0.64	1.00							
FI^{Smm}	0.46	0.48	0.63	0.56	1.00						
PR	0.12	0.14	0.13	0.11	0.15	1.00					
$Cycle$	-0.09	-0.11	-0.04	-0.07	-0.05	0.03	1.00				
$Crisis$	-0.16	-0.12	-0.07	-0.05	-0.02	-0.22	-0.22	1.00			
TI^{df}	0.23	0.26	0.12	0.08	0.20	0.10	0.04	-0.06	1.00		
$FI^{df,eq}$	0.40	0.45	0.20	0.25	0.27	0.20	0.00	-0.25	0.54	1.00	
$FI^{df,debt}$	0.09	0.22	0.15	0.19	0.20	-0.08	-0.01	0.23	0.31	0.31	1.00

Appendix D Decomposition of the Cross-Sectional Dispersion

Consider the sequence of the cross-sectional dispersion as:

$$CS_t^2 = \frac{1}{N}\left(x_{i,t} - \overline{x}_t\right)^2 \tag{A1}$$

This statistic can be decomposed as follows:

$$\begin{aligned} CS_t^2 &= \frac{1}{N}\sum_{i=1}^{N}\left[\left(x_{i,t} - \overline{x}_i\right) + \left(\overline{x}_i - \overline{x}_t\right)\right]^2 \\ &= \frac{1}{N}\sum_{i=1}^{N}\left(x_{i,t} - \overline{x}_i\right)^2 + \frac{1}{N}\sum_{i=1}^{N}\left(\overline{x}_i - \overline{x}_t\right)^2 + 2\frac{1}{N}\sum_{i=1}^{N}\left(x_{i,t} - \overline{x}_i\right)\left(\overline{x}_i - \overline{x}_t\right) \end{aligned} \tag{A2}$$

Taking time-series expectations, it follows that

$$E_t\left[\frac{1}{N}\sum_{i=1}^{N}\left(x_{i,t} - \overline{x}_i\right)^2\right] = \frac{1}{N}\sum_{i=1}^{N} var(x_{i,t}), \tag{A3}$$

$$\begin{aligned} E_t\left[\frac{1}{N}\sum_{i=1}^{N}\left(\overline{x}_i - \overline{x}_t\right)^2\right] &= E_t\left[\frac{1}{N}\sum_{i=1}^{N}\left(\overline{x}_i - \overline{\overline{x}}\right)^2 + \frac{1}{N}\sum_{i=1}^{N}\left(\overline{\overline{x}} - \overline{x}_t\right)^2 + 2\frac{1}{N}\sum_{i=1}^{N}\left(\overline{x}_i - \overline{\overline{x}}\right)\left(\overline{\overline{x}} - \overline{x}_t\right)\right] \\ &= E_t\left[\frac{1}{N}\sum_{i=1}^{N}\left(\overline{x}_i - \overline{\overline{x}}\right)^2 + \sum_{i=1}^{N}\left(\overline{\overline{x}} - \overline{x}_t\right)^2\right] \\ &= \overline{CS}^2 + E_t\left[\left(\overline{\overline{x}} - \overline{x}_t\right)^2\right] \\ &= \overline{CS}^2 + var(\overline{x}_t), \end{aligned} \tag{A4}$$

where $\overline{CS}^2 = \frac{1}{N}\sum_{i=1}^{N}\left(\overline{\overline{x}} - \overline{x}_t\right)^2$ is the cross-sectional variance applied to country means, and

$$\begin{aligned} E_t\left[2\frac{1}{N}\sum_{i=1}^{N}\left(x_{i,t} - \overline{x}_i\right)\left(\overline{x}_i - \overline{x}_t\right)\right] &= 2\frac{1}{T}\sum_{i=1}^{T}\frac{1}{N}\sum_{i=1}^{N}(x_{i,t} - \overline{x}_i)\overline{x_i} - 2\frac{1}{T}\sum_{i=1}^{T}\frac{1}{N}\sum_{i=1}^{N}(x_{i,t} - \overline{x}_i)\overline{x_t} \\ &= 2\frac{1}{N}\sum_{i=1}^{N}\overline{x}_i\frac{1}{T}\sum_{i=1}^{T}\left(x_{i,t} - \overline{x}_i\right) - 2\frac{1}{T}\sum_{t=1}^{T}\overline{x}_t\frac{1}{N}\sum_{i=1}^{N}\left(x_{i,t} - \overline{x}_i\right) \\ &= 0 - 2\frac{1}{T}\sum_{t=1}^{T}\overline{x}_t\left(\overline{x}_t - \overline{\overline{x}}\right) \\ &= -2var(\overline{x}_t). \end{aligned} \tag{A5}$$

Hence, collecting terms, we find that

$$E_t \left[CS_t^2 \right] = \frac{1}{N} \sum_{i=1}^{N} var(x_{i,t}) + \overline{CS}^2 - var(\overline{x}_t). \tag{A6}$$