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Emerging Debt and Equity Markets: An Exploratory Investigation of Integration Using Daily Data

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Abstract: In this paper we examine integration between emerging and U.S. debt and equity markets. We first investigate price changes around significant "events," in this case changes in short-term U.S. interest rates brought about by actions of the Federal Reserve. Second, we estimate the predictability of returns using both domestic and U.S. variables. Finally, we test whether a single latent variable can explain these returns. The evidence suggests that the degree of integration varies with security types and the country of origin. However, these differences between security types become less apparent over time.

JEL classification: F36, G14, G15

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Emerging Debt and Equity Markets:
An Exploratory Investigation of Integration Using Daily Data

1. INTRODUCTION

Investor interest in emerging markets appears to have increased significantly over the last few years. This has naturally resulted in large capital inflows to these countries. The capital flows have taken a number of forms. In addition to direct investment by multinational corporations, debt and equity securities have also become important investment vehicles. Capitalization of emerging market sovereign debt has grown from United States $50 billion to United States $1.2 trillion over the period 1989 to 1993. Moreover, the yearly volume of trade in emerging country debt is $2.2 trillion. A significant portion of this debt, 39%, is in the form of Brady bonds, and 36% is in the form of sovereign and corporate bonds. Similar growth in emerging equity markets has been noted by a number of earlier authors (see, e.g., Claessens and Gooptu 1993, Tesar and Werner 1993, Harvey 1995).

The rapid growth of emerging capital markets has prompted researchers to examine issues related to the degree and speed of integration and the pricing of these assets. For example, Bonser-Neal et al (1990) examine the impact of liberalization of investment restrictions on country fund premia. Bekaert and Harvey (1995) provide evidence on variations in the degree of the integration of emerging equity markets over time. Harvey (1995) examines the potential diversification benefits to investors from investing in emerging market equities, and Bekaert and Urias (1994) examine the diversification benefits to investors from investing in emerging market closed-end country funds. Most of this research, however, has been focused on emerging equity markets. Moreover, an overwhelming portion of these studies have employed monthly data, thereby limiting the types of questions that can be addressed.

In this paper we seek to extend the literature on emerging capital markets by (i) examining the integration of emerging bond and equity markets with United States capital markets and (ii) employing daily observations so as to provide potential insights into the short-term price behavior of both emerging debt and equity securities that cannot be gleaned from the analysis of less frequently reported data. Three sets of tests are used to examine the integration of emerging capital markets. The first two tests compare the power of United States financial market conditions in explaining returns in emerging markets. The third test examines the commonalties in the pricing relationships of emerging equity and debt securities and their United States counterparts. In the first set of tests, we compare the reactions of emerging debt and equity markets react to shocks in world markets to six changes in the "target" fed funds rate established by the Federal Reserve. The second set of tests compares the ability of commonly employed descriptors of United States and domestic market conditions to predict bond and equity returns in emerging markets.[1] [2] Finally, we employ a formal test of the hypothesis that a single latent variable explains variation in the returns on emerging debt and equity securities and their United States counterparts. Each set of tests is run on the first half of our sample period and on the second half. Comparisons of the results across the two halves provides evidence regarding the process of integration.

Price reactions to monetary policy changes by the Federal Reserve provide evidence that is consistent with increasing integration of both emerging and United States bond and stock markets. The reactions of emerging market debt instruments to changes in the Fed's policy were similar to those of United States debt and equity market throughout the sample period. Differences in reactions between United States and emerging equity markets that are observed during the first half

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[1] We are aware that it may be possible for security returns in completely segmented financial markets to be highly correlated. Conversely, security returns in highly integrated markets may display little or no correlation. However, as the recent Mexican Peso crises indicates, shocks tend to be transmitted across securities markets whose underlying economies are interlinked through trade and/or capital flows.

[2] See Campbell and Hamao (1992) for a detailed discussion on the relationship between the predictability of security returns and market integration.

of the sample period are no longer apparent during the second half. A similar pattern is observed when comparing the reactions of non-Brady emerging market debt and the market for United States government securities.

Evidence from the predictability regressions provides additional evidence that emerging and United States markets display increasing integration over time. The results indicate that while, emerging debt and equity markets display significantly different levels of sensitivity to United States financial market conditions during the first half of the sample period, there is no evidence of differential sensitivity to United States market conditions during the second half. A similar pattern is observed when comparing Brady bonds with other emerging market debt instruments. The evidence also indicates that non-Brady debt instruments display greater sensitivity to domestic conditions which is to be expected given that Brady bonds are collateralized by United States government securities while non-Brady debt in our sample is not.

The single latent variable tests indicate that, when testing the over-identifying restrictions in a generalized method of moments (GMM) framework, it is possible to reject the hypothesis that a single latent variable can explain the variation in returns on emerging market debt and equity securities and their United States counterparts. However, the hypothesis of a single latent variable cannot be rejected in tests on data in either the first half of the sample or the second half. Thus, these tests provide no insights into the process of integration between emerging and United States financial markets.

Our results from the tests for a single latent variable can be contrasted with the evidence from other financial markets, which is itself mixed. For example, Ferson and Harvey (1993) find that multiple factors are needed to explain the predictable variation in international stock returns. However, Campbell and Clarida (1987) and Jorion (1992) find that the predictable variation in Eurodeposit returns is consistent with a single latent risk factor model. Moreover, Ilmanen (1995), finds that a single factor (the world bond index) can explain predictable returns in six developed

countries. Our predictability results complement the extant literature on the predictability of security returns and market integration. For example, they demonstrate that conditions in United States equity and bond markets can predict returns on emerging market debt instruments. These results augment the literature that shows that bond market variables can predict future stock returns in United States markets (see, e.g., Fama and French 1988, 1989; Keim and Stambaugh 1986; and Whitelaw 1994) as well as other developed markets (see, e.g., Solnik 1990). Our analysis also suggests that United States interest rates have some predictive power in explaining returns in emerging equity markets. This contrasts with the finding of Campbell and Hamao (1992), who present evidence that United States interest rate variables can explain returns in Japanese equity markets, at least during part of their sample.

Our evidence on price reactions to interest rate changes by the Federal Reserve also complements the existing literature on the price reactions to changes in Fed policy. Waud (1970) provides evidence that, after adjusting for serial dependence in the index and time trends, "abnormal returns" on the S&P 500 stock index are significantly positive when it is announced that the Fed's discount rate would be decreased and vice-versa for discount rate increases. He also provides some evidence that the announcements may be anticipated. Other authors (e.g., Cook and Hahn 1989) find that both short-term and longer-term *yields* on United States government securities are positively related to increases in the fed funds rate target (the main policy tool of the Fed) and vice-versa for decreases.[3]

The remainder of the paper is structured as follows. In section 2 we describe the data and explain our construction of the return measures. This section also contains a description of the empirical methodology used to examine the data. Section 3 contains our results and a discussion of

[3] This implies, of course, that the *rate of return* on these fixed income securities would be negatively correlated with changes in the target fed funds rate.

the implications of our tests for the hypothesis of increasing integration. Section 4 provides a summary and some concluding remarks.

2. DATA, HYPOTHESES, AND METHODOLOGY

First we describe our data and sources. We then present our hypotheses and the methodologies employed in the analysis.

2.1. The Data

We examine data on a variety of emerging markets securities for the period March 2, 1992, through May 10, 1994. Part of our data consists of daily prices on eleven emerging market bonds during this period. These bond data were obtained from First National Bank of Chicago's Emerging Market's Division. Prices are as quoted on Reuters at 4:00 pm eastern standard time (EST). The original database contained fifty-one bonds. However, complete data were available for only eleven of these securities. Table 1 presents a description of the eleven bonds that were issued by the governments of Argentina, Brazil, Mexico, Morocco, Nigeria, Panama, Poland, and Venezuela. Six of these instruments are "Brady bonds," which are denominated in United States dollars and whose principal is secured by United States Treasury securities. In most cases, interest payments are secured by rolling interest guarantees. The remaining five instruments, while also dollar-denominated, differ from Brady bonds in an important respect. Unlike Brady bonds, neither principal nor interest is backed by specific collateral (e.g., United States Treasury bonds or bills). All of these debt securities, unlike their equity counterparts, are traded in New York and London. The location of their markets, combined with their collateral characteristics and dollar-denomination, make these securities the most liquid emerging market instruments.

We also obtained daily returns data on twenty emerging country equity indices and fifteen regional equity indices from the Morgan Stanley Capital International Emerging Markets Database

(MSCI). In order to allow for comparisons across bond and equity markets, five country indices and one regional index are employed in our analysis. The country equity indices are for Argentina, Brazil, Mexico, Poland, and Venezuela and represent value-weighted portfolios of equity securities that can be held by foreign investors. We also employ a regional Latin American equity index (EME), which is a value-weighted (by market capitalization) return index for seven Latin American countries, including four countries for which we have individual return series. Descriptions of these indices are presented in Table 2. No data were available on equity returns in Morocco, Nigeria, and Panama. The returns on all equity indices are expressed in United States dollars. MSCI computes these returns assuming reinvestment of any dividends. The exchange rate used by MSCI for obtaining United States dollar returns is WM/Reuter's exchange rate at 3 pm EST. The prices used to compute these returns are the official closing prices in the dominant stock exchanges in each country.

The remainder of our information consists of data from United States financial markets. Conditions in United States bond markets are proxied by the federal funds rate (FFR) returns on a series of 10-year maturity United States Treasury bonds (TBY), and returns on an index of corporate high yield bonds (JBR). The FFR series was obtained from the Federal Reserve Bank of Atlanta. The last two series were obtained from Merrill Lynch's Global Securities Research and Economics group. The T-Bond series tracks the returns on the 10-year Treasury bond that was auctioned in the most recent quarterly auction. The non-investment grade series represents returns on Merrill Lynch's High Yield Master Index. Bonds are included in the index if they are non-convertible, publicly traded coupon bonds, rated less than investment grade by Moody's or Standard and Poor's, and not in default. As of December 31, 1994 there were 814 bonds included in the index. Conditions in United States equity markets are proxied by the return on a value weighted index of all equity securities on the CRSP tapes (VWEI).

Summary statistics for all data series are presented in Table 3. Daily returns on all bonds are computed as follows:

$$R_t = \text{LOG}\left[\frac{P_t + AI_t}{P_{t-1} + AI_{t-1}}\right],$$

where R_t represents the return for period t, P_t represents the closing price for period t, and AI_t, the accrued interest. Holders of bonds issued by Poland and Panama did not receive interest payments over the sample period. In these cases, accrued interest is not considered when computing bond returns. Returns were also computed on three bond portfolios. The first is an equally weighted portfolio of all eleven bonds in the sample (PFB). The second is an equally weighted portfolio of the six Brady bonds in the sample (PFBB). The last is an equally weighted portfolio of the remaining five bonds in the sample (PFNB). These data indicate that emerging market bond returns are extremely volatile. However, the return volatility of our equity indices appears to be at least as large as that of the bond series. Further, the mean returns for bonds and equities from the same country display identical signs indicating that, while financial market performance varies across countries, each country's bond and equity markets display similar performance.[4]

2.2. Hypotheses and Methodology

2.2.A. Announcement Effects

Our first set of tests investigates the "announcement effects" associated with changes in the fed funds rate target. Because a change in the short-term interest rate changes the way in which securities are priced, and pricing of assets should be similar in integrated markets, a comparison of the reactions of emerging markets and their United States counterparts should yield insights into

[4] The Bayesian odds ratio test proposed by Sims (1988) was performed on all data series for the entire sample period as well as for the two halves of the sample period. The presence of a unit root was rejected at the 1% confidence level for all series and sub-series, indicating that the series are stationary. Thus, examining market integration using cointegration tests is uninformative.

their degree of integration.[5] There are six rate changes announced during our sample period. Details of these changes are presented in Table 4. The first three are decreases in the target rate. All of these three changes occurred in the first half of the sample period. The last three changes, which occur during the second half of the sample, are increases in the fed funds rate. We use the "mean adjusted return" methodology to estimate abnormal returns generated by emerging debt and equity instruments during a seven-day event window surrounding each rate change.[6] Because these announcements often come at the end of the business day in New York, we take the next trading day as "day 0" for the purposes of the event study. In particular, we calculate the average return over the 25 days prior to the event window and calculate abnormal returns (both daily and cumulative) as the return on any day (or days) in the event period less this average return. This process is repeated to estimate abnormal returns on PFB, EME, PFBB, PFNB, and VWEI.

The series of abnormal returns thus estimated are subject to two sets of tests. First, we investigate the hypothesis that changes in the fed funds rate have no effect on emerging and United States financial markets. To accomplish this, we test for differences in the abnormal returns generated by the three rate decreases and the abnormal returns generated by the three rate increases. Two tests are employed: ANOVA and the Mann-Whitney-Wilcoxon rank test. Second, we test for difference in reactions to the rate changes across security types. To assess changes in the relative degrees of market integration, we examine the change in the differences in market reactions over the two halves of the sample. We first compare the reactions of different securities to the Fed's rate

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[5] See Chen and Knez (1995) for a detailed discussion of the notion of integration and similarities in pricing resulting from integration.

[6] We do not employ the so-called market model to generate "abnormal returns," precisely because we have *a priori* reasons to believe that the market index itself may be significantly influenced by changes in the target fed funds rate. Using a market model would tend to bias the "abnormal" returns toward zero. While it is well known that abnormal returns are usually insensitive to the parametric specification used to calculate benchmark returns for firm (or industry) specific events (see, e.g., Brown and Warner 1985), it seems highly likely, especially given Waud's (1970) results, that any market model based methodology would bias our measures of abnormal returns toward zero. Moreover, use of the market model approach would not allow us to conduct a symmetric test for United States. equity securities (i.e., the abnormal return would be identically zero on every day).

changes in the first half of our sample period. We then replicate these tests for the three changes in the second half of the period. To make each comparison, we construct a series of differences between the announcement returns for one security type and the corresponding returns for a second portfolio. These differences are constructed using matched pairs of abnormal returns on PFB, EME, PFBB, PFNB, and VWEI. To test whether these differences are significant we employ three tests: a t-test, the sign test, and the Wilcoxon sign-rank test. Results of these tests are discussed in the following section.

2.2.B Predictability

In order to obtain insights into the subset of underlying factors driving the respective series, we present some simple predictability tests, focusing attention on the differences, if any, between the common predictive variables across securities and countries.

First, because Brady bonds are backed by United States Treasury securities, relative to the returns on other emerging market securities, Brady bond returns should be relatively more sensitive to returns on United States debt. Or equivalently, other securities issued by emerging countries should be more sensitive to conditions in domestic markets. Second, if markets become more integrated through time, there should be a stronger link between returns on emerging debt and equity securities and United States market conditions during the later part of our sample. Finally, because the strength of underlying economic linkages and thus security payoffs may vary across countries, the degree of integration of may also differ across countries. For example, it is well known that Venezuela has been turning its economic energies increasingly inward, while Mexico has made a major effort to link its economy more closely to other countries, particularly to the United States. Thus, the changes in the strength of the linkages between conditions in United States markets and returns on emerging market securities should vary with the country of origin.

In order to investigate these hypotheses, we run a set of seemingly unrelated regressions (SUR) in which a vector of variables is regressed on its lagged value: In addition to the returns on

foreign debt and equity securities discussed earlier, the variables input into the system include data on United States interest rates and a United States based equity market index.[7] In particular, United States bond market conditions are proxied by the Federal funds rate, the daily return on a series of 10-year maturity Treasury bonds, changes in United States terms structure as proxied by the changes in the difference between the return on the 10-year Treasury series and the Federal Funds rate (CTP), and changes in the default spread on United States bonds as measured by the change in the difference between the return on the Merrill Lynch High Yield Master Index and the 10-year Treasury return (CDS). Conditions in the United States stock market are proxied by the return on the value-weighted CRSP equity index.

In order to assess differences in the degree of integration between emerging debt and equity markets, the above system is estimated for a vector consisting of all proxies for United States markets conditions and the returns on PFB and EME. The time trend in integration is examined by comparing the estimates of this system over the first and second halves of the sample period. To assess differences between the sensitivity of Brady bonds and other forms of emerging market debt, the system is reestimated for a vector consisting of all proxies for United States markets conditions, the return on EME, and the returns on PFBB and PFNB. Finally, to assess differences in integration across emerging economies, for each country for which we have both a bond and a stock series, the system is reestimated for a vector consisting of all proxies for United States markets conditions and the bond and stock series.

2.2C. Single Latent Variable Tests (SLVM)

To formally test for pricing relationships across securities in our sample we employ a single latent variable model (SLVM). This enables us to assess whether conditional expectations of the

[7] We use returns, rather than excess returns over some riskless security, since we wish to use the level of short-term U.S. rates as an explanatory variable. In any case, the qualitative conclusions using excess returns are identical to those using the level of returns and are available from the authors upon request.

returns of emerging market securities are generated by the same underlying structure (see Hansen 1982 and Campbell and Clarida 1987). The SLVM is based on a single (unobservable) factor with constant, conditional betas and the assumption that expected returns of the risk factor are linear in a set of forecasting instruments. We employ the SLVM to assess whether the expected returns of emerging market debt securities, conditional on the predictive instruments, are proportional to the expected returns of emerging market equity securities, conditioned on the same predictive variables. The SLVM imposes the restriction that the ratio of any two regression coefficients should be constant across the two forecasting equations. These cross-equation restrictions are tested using Hansen's (1982) generalized method of moments, which is based on the orthogonality of the regression residuals and the predictive instruments. The test statistic reflects the correlation between the residuals and each instrument series in the system. If the residuals are predictable, the cross equation restrictions are rejected.

3. THE EVIDENCE

We first present comparisons of the reactions of emerging market debt and equity returns to changes in the fed funds rate. We next report evidence on the predictability of returns. Finally, we present our results on tests of the single latent variable model.

3.1. Announcement Effects

Table 5 documents the reaction of the returns in emerging markets to changes in United States monetary policy. It presents the 7-day cumulative abnormal return (CAR) for each of these portfolios. As noted earlier, during this sample period there are six changes in the target fed funds rate. The first three are interest rate decreases, while the last three are interest rate increases. Abnormal returns on the CRSP equity index reported in Panel C are an indicator of United States market reactions to these changes. The first interest rate decrease (25 basis points on April 9,

1992), occurred between regularly scheduled FOMC meetings and seems to have surprised market participants. Significant positive abnormal returns on the CRSP value-weighted equity index support this hypothesis. The remaining two decreases (on July 2, 1992, and September 4, 1992) occurred at regularly scheduled meetings of the FOMC, and they appear to have been anticipated or ignored by the United States investors as evidenced by lack of a significant reaction in United States equity markets. The interest rate increases in the sample (occurring in early 1994) were the first such rate hikes in five years. Significantly negative reactions indicate that investors in United States equity markets were surprised by the first two hikes. The last hike appears to have been anticipated by United States investors.

While most of the portfolios display significant reactions to some of the rate changes, three portfolios—PFB, EME, and PFNB—do not display significant reactions to any of the rate changes. The incidence of significant reactions to the Fed's rate changes appears to be randomly distributed over the remaining portfolios and over time. The signs of the CARs on PFB, VWEI, and PFBB are generally consistent with theoretical predictions—positive reactions to interest rate decreases and negative abnormal returns in reaction to interest rate increases. In the case of EME and PFNB, however, the signs of the abnormal returns display consistency only during the second half of the sample period. Surprisingly, the CARs on TBR indicate that the market for government debt consistently displayed a positive reaction to the rate cuts, but its reaction to the rate hikes was inconsistent. The CARs on JBR indicate that non-investment grade debt also displayed inconsistent reactions to the rate changes, with the inconsistencies being concentrated in the earlier part of the sample period.

Tables 6 and 7 are devoted to a comparison of the CAR's generated by the various portfolios. First, in Table 6, we present results of tests of the hypothesis that the CAR's generated by rate increases and decreases were identical for each portfolio. We test this hypothesis by comparing the CAR's generated by the three rate cuts in the first half of our sample with the abnormal returns generated by the three rate hikes in the second half of the sample. The absence of

any market reaction would indicate that the two sets of CAR's should not be statistically different. Both ANOVA and Mann-Whitney-Wilcoxon rank tests indicate that the null hypothesis can be rejected for the abnormal returns generated by PFB, PFBB, and VWEI. There is weak evidence against the null for abnormal returns on PFNB. However, the null cannot be rejected for EME, TBR, and JBR. These indicate that emerging debt markets appear to behave like United States equity markets. Further, they are more sensitive to changes in United States market conditions than emerging equity markets with the market for Brady bonds displaying greater sensitivity to United States market conditions than the market for other emerging debt instruments.

In Table 7 we present pairwise comparisons of abnormal returns across portfolios. Three tests are used to makes these comparisons: a t-test for differences in means, the sign test, and the Wilcoxon sign-rank test. The results indicate that there is little difference between the reaction of EME and PFB to the first three rate changes. This can be explained as follows: PFB is a portfolio of all debt instruments in our sample. While EME appears to generate significantly lower abnormal returns in reaction to these rate cuts than the portfolio of all Brady bonds, the abnormal returns earned by EME and the portfolio of non-Brady bonds are statistically indistinguishable. However, the returns on the non-Brady emerging debt instruments differed significantly from reactions by US government securities. The tests also indicate that Brady bond price reactions to the rate cuts are significantly different from the price reaction of the other emerging debt instruments, as well as being different from the reaction of non-investment grade debt securities issued by United States firms.

Tests for differences in abnormal returns generated by the rate hikes in the second half of the sample period, presented in Panel B, appear to indicate that emerging equity and debt markets reactions are indistinguishable from United States market reactions. Further, all emerging debt markets display similar reactions to these rate hikes. This is consistent with the notion that returns on all emerging market securities more closely mirror returns on U. S. price-linked securities in the

later part of sample period, and further, they then display similar sensitivities to changes in United States market conditions in the latter half of the sample period.

3.2. Sources of Predictability

We report only those estimated equations from the system where returns on portfolios of emerging markets securities constitute the dependent variable. Table 8 contains estimated parameters for equations using the returns on PFB and EME as dependent variables. Over the entire sample period, own lagged returns provide consistent predictive power in regressions where the returns on EME is used as the dependent variable. Lagged values of VWEI also display predictive power over the entire sample period. However, there is little evidence that United States factors display any predictive power for EME in either of the two sub-periods or that their predictive power increased over time.

In stark contrast, the ability of United States variables to predict bond returns displayed a marked tendency to increase over time. Over the entire sample period as well in the second subperiod, the lagged change in term premium, the default spread, and the return on the United States equity index display significant predictive power. However, coefficients on the United States variables are not significant for estimates from the first sub-period. This evidence of increased predictive power is also borne out by the marked increase in the R^2 of the regressions and the F-values for tests of joint predictive power of United States variables over the two sub-periods. The last column of Table 8 provides calculated F-values for the marginal predictive power of the subset of variables representing United States market conditions. For the overall sample, United States variables have predictive power for emerging debt securities. Further, the results indicate that the difference in predictive power across debt and equity markets essentially disappeared in the second half of the sample.

Table 9 provides a breakdown of the results for Brady bonds and other emerging market debt instruments. These results provide support for the hypothesis that returns on Brady bonds,

because of their collateral considerations, are strongly dependent on both the level and structure of interest rates in the United States.[8] Returns on other emerging market debt securities, while also displaying some sensitivity to United States market conditions, appear to be significantly influenced by domestic market conditions as well. Both sets of securities display similar patterns with regard to changes in their sensitivities to United States market conditions over the two sub-periods. There is little evidence that Brady bond returns were affected by United States market conditions during the first sub-period. In the second sub-period, however, these returns appear to have a significant relationship to changes in the term premium, the default spread, and the returns in United States, equity markets.

Non-Brady debt also displays little sensitivity to United States conditions during the first sub-period and significant relationships with United States variables during the second sub-period. However, unlike Brady bond returns these returns, appear to be related only to the Fed funds rate and United States equity returns. Further, unlike Brady bond returns, they are sensitive to domestic equity market returns. Thus, it would appear that the sensitivity of emerging market debt instruments to United States market conditions increased over the period under consideration, and any differential in sensitivity to United States market conditions appears to vanished by the second half of the sample period. However, the nature of the evolving relationship is dictated by the type of debt instrument, with the uncollateralized non-Brady debt displaying greater dependence on domestic conditions, and Brady bonds, which are collateralized with United States Treasury securities, displaying little sensitivity to domestic conditions.

3.3. Single Latent Variable Model

[8] While this may seem like a result that should always hold, we note that Treasury bond returns themselves (not shown) are not generally dependent on either their own past lagged returns or the lagged return spread. Thus, lagged returns on United States. bonds can explain future Brady bond returns but not future U.S. bond returns themselves.

In this section the focus is on the common variation in expected returns for emerging market bond and equity portfolios, as well as the common variation in Brady bonds versus other sovereign debt instruments. In particular, this section analyzes whether predictable variation in returns in emerging market securities is consistent with a simple asset pricing model and market integration, and whether the pricing relationship was subject to change over time.

Table 10 presents GMM estimation of an SLVM for the returns on emerging debt and United States treasury securities. Estimates were obtained for the entire sample period, and for each half of the sample period. The predictive instruments employed were FFR, VWEI, CTP, DS, and EMGLR. Results from a test of the hypothesis that returns on the portfolio of emerging market debt (PFB) and 10-year maturity United States Treasury securities (TBR) are driven by a single latent variable indicate that one can reject the hypothesis over the entire sample period. The chi-square statistic in this case has a value of 10.34. Estimates for each of the two halves of the sample period indicate that the hypothesis of a single latent variable driving the two series cannot be rejected for either sub-period. Given that the hypothesis is rejected for the entire period, the inability to reject it for either sub-period would appear to indicate that the test has sufficient power only when a relatively large number of observations is employed in the estimation. Further, the lack of significance in either of the two sub-periods implies that no conclusions can be reached regarding the evolution of the pricing relationship between returns on emerging market debt instruments and United States debt securities.

Results from the GMM estimation of a SLVM for returns on emerging market and United States equities are presented in Table 11. Once again, the GMM estimates are presented for the entire sample period and the two halves of the period. In this case, the conditioning instruments are the FFR, TBR, CTP, DS, and PFALL. The Chi-square statistics indicate that the hypothesis that the two return series are driven by a single latent variable cannot be rejected at conventional confidence levels for either the overall period or either of the two sub-periods. Thus, these tests provide little insight into the process of integration between emerging and United States markets.

We note, however, that the lack of significant differences in returns may be due to the low power of these types of tests (see, e.g., Cumby and Huzinga 1992).

3.4. Evidence from Individual Countries

In Table 12 we provide country by country results for the five countries for which we have both bond and equity data for the individual countries. With the exception of the Argentenian portfolio, results for the bond portfolios typically mirror those for the aggregate bond portfolios—U. S. factors display a marked increase in predictive power over the two sub-periods. The lagged return on the United States equity index is consistently significant only during the second sub-period. Results are mixed for other United States variables, including the change in term premium and the default spread. For example, in the case of Brazil and Poland, the United States default spread appears to have weak predictive power only during the first sub-period. This is consistent with the fact that the first sub-period coincided with poor economic conditions in most of the world, possibly resulting in high default risk on emerging market debt.

The evidence from the regressions on the predictability of emerging equity returns is varied. In contrast to the market for Argentina's debt, the market for its equity appear to consistently reflect changes in the United States equity markets, especially during the second-sub period. A similar increase in the predictive ability of United States variables is also evident in the case of Venezulean equity markets. Polish equity market, also display a strong relationship with United States variables. However, changes in the strength of this relationship does not appear to be as marked as it is in the cases of Argentina and Venezuela.

4. SUMMARY AND CONCLUSIONS

In this paper we examine the behavior of daily returns on bonds and stocks from emerging markets. Our purpose has been to provide an exploratory analysis of the degree to which the

returns on these instruments are sensitive to the price movements in United States financial markets. We also examine whether these linkages change over subperiods of the overall sample. Moreover, we consider both day-to-day movements and movements associated with potentially important "events."

A set of predictability regressions provide broad evidence that the return on emerging market debt securities are more closely tied to the lagged day to day price movements of the United States debt and equity securities than lagged returns in emerging equity markets, while the returns on emerging market equity indices seem to be solely driven by their own lagged values. Moreover, by breaking the bond return data into subsets, we are able to verify that returns on emerging debt instruments that are collateralized by United States Treasury securities (Brady Bonds) are more sensitive to price movements in United States markets than other emerging debt instruments. However, the degree of predictability for both types of debt securities is rising over time because United States factors are typically important in the second half of the sample period but less so in the first half.

The evidence from an event study provides some additional information concerning the links between prices in emerging and developed markets. In particular, we find that prices of all securities whose cash flows are derived from a United States entity, i.e., the United States government (Brady bonds) or a United States corporation (United States equities), tend to react significantly to changes in the short-term targeted fed funds rate. Moreover, price changes on Brady bonds appear to be more sensitive than those of other emerging market securities to United States interest rate policy. Moreover, these differences seem to decline over time, suggesting increasing integration even for emerging market instruments that are not explicitly collateralized by United States government securities. However, formal tests for similarities in the pricing of emerging market securities and their United States counterparts based on a single latent variable model of asset pricing reject the hypothesis that a single latent variable generates the returns on both emerging market debt and United States treasury securities. However, the tests do not reveal

any trend in the pricing relationship, and thus do not provide any insights into the process of integration of these markets.

The conclusions we can draw from this study are obviously tentative. The sample period in short; covering, for example, only one interest rate cycle. The robustness of our conclusion concerning increased integration must await further data. Moreover, we have not examined whether it is possible to generate "abnormal" risk-adjusted returns from the predictability of emerging market returns. These and other further "efficiency" questions are topics worthy of further investigation if for no other reason than to contrast them with the extant evidence obtained from longer sampling intervals.

A final set of tests, broken down by country, provides another potential avenue for further research. We find some evidence of greater financial market price linkages between countries that are attempting to integrate their real economies with the United States (e.g., Mexico), when compared to those who appear to be turning their real economic activity inwards (e.g., Venezuela). This suggests that the degree of financial integration may be related to the strength of real economic linkages. The investigation of the relationship between these linkages would appear to be of interest to researchers.

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Table 1: A description of the LDC bonds issued by Argentina, Brazil, Mexico, Morocco, Nigeria, Poland, and Venezuela.

Bond	Issue Date	Maturity Date	Coupon	Issue Size (US$ bn)	Repayment	Options
Bonex89[1]	12/28/89	12/28/99	6 Month LIBOR	4.5	scheduled	callable
Brazil Exit[2]	08/31/89	09/15/13	6% (FIXED)	1.1	pro-rata sinking fund	eligible for debt equity conversion
Mexico Par[3]	03/28/90	12/31/19	6.25% (FIXED)	22.8	bullet	redeemable
Mexico Discount[4]	03/28/90	12/31/19	6 Month LIBOR + 0.8125	12.0	bullet	redeemable
Morocco[5]	09/20/90	01/01/09	6 Month LIBOR + 0.8125	2.8	pro-rata sinking fund	-
Nigeria Par[6]	01/21/92	11/15/20	5.5% (STEP-UP)	2.1	bullet	-
Venezuela Par[7]	12/18/90	03/31/20	6.75% (FIXED)	6.7	bullet	callable
Venezuela DCB[8]	12/18/90	12/18/07	6 Month LIBOR + 0.875	5.6	scheduled	callable
Venezuela FLIRB[9]	12/18/90	03/31/07	5% (STEP-UP)	2.6	scheduled	callable
Panama[10]	10/31/85	09/30/97	6 Month LIBOR + 1.375	0.6	sinking fund	-
Poland DDRA11	07/20/88	12/31/02	6 Month LIBOR + 0.8125	8.4	bullet	-

[1] Issued by the Central Bank of Argentina and the guarantor is the Republic of Argentina. Neither interest nor principal is collateralized.

[2] Neither interest nor principal is collateralized.

[3] Principal collateralized by U.S. Treasury zero coupon bonds and interest by an 18-month rolling interest guarantee. The contract includes oil value recovery rights.

[4] Principal collateralized by U.S. Treasury zero coupon bonds and interest by an 18-month rolling interest guarantee. The contract includes oil value recovery rights.

[5] Registered loan guaranteed by the Kingdom of Morocco. Outcome of restructuring of debt under 1985-88 refinancing agreement. No principal collateral.

[6] Principal collateralized by U.S. Treasury zero coupon bonds held by FRB, NY. Twelve months of interest is collateralized by assets held by FRB, NY. The contract includes oil recovery rights.

[7] Principal fully backed by U.S. Treasury zero coupon bonds. Interest is backed by cash or permitted investments equivalent to 14 months of interest payments. Bonds are issued with registered, detachable, unsecured negotiable oil obligation certificates at the rate of 5 per U.S.$1,000 of debt initially exchanged for bonds, which entitle holder to semiannual cash payment beginning in 1996 if and when the price of oil

exceeds the strike price (Strike price: U.S.$26.00 [U.S.$20.50 adjusted for inflation at 4% per year]). Ref. Price: Realized per barrel value of crude oil exports. Payments: semi-annual after grace period if reference period exceeds strike price up to a ceiling of U.S.$3.00 per obligation.)

[8] Principal fully backed by U.S. Treasury zero coupon bonds. Interest is backed by cash or permitted investments equivalent to 14 months of interest payments. The contract includes oil obligation certificates.

[9] No principal collateral. Rolling interest guarantee.

[10] Registered loan guaranteed by the Republic of Panama. No principal collateral.

[11] Registered loan (Dresdner Bank as international agent). Accrued and unpaid interest estimated at 23% as of 2/2/93. Interest not paid since 1/4/89. Neither principal nor interest is collateralized.

Table 2: This table contains information on the emerging equity market indices in the sample. It provides information on the capitalization of the various markets, the number of companies and securities included in the index, and the extent of the coverage by the indices.

Country	First day in sample	Market Cap (US$b)	Companies in index	Securities in index	% Coverage
Argentina	03/02/92	28.35	19	19	64.4
Brazil	03/02/92	53.71	43	48	54.0
Mexico	03/02/92	115.88	26	34	58.6
Poland[1]	03/02/92	na	na	na	na
Venezuela	01/01/93	5.03	16	18	62.3
EME	03/02/92	224.71	119	133	-

[1] Information was not available for the Polish equity index.

Table 3: Panel A of this table presents summary statistics of the return series for the portfolio of equities on the CRSP tape (VWEI), the federal funds rate (FFR), and the return on a constant maturity 30-year Treasury bond (TBR). Panel B presents summary data on the emerging market debt instruments in our sample. Panel C presents summary data on Morgan Stanley Capital International's emerging equity market indices in our sample. In addition to equity indices for Argentina, Brazil, Mexico, Poland, and Venezuela, summary information is also presented for a Latin American regional equity index (EME).

	Mean	Standard Deviation	Minimum	Maximum	First-order autocorrelation
Panel A: U.S. Return Series					
VWEI	0.000265	0.005451	- 0.025865	0.023754	0.10[b]
TBR	0.000301	0.003923	- 0.011281	0.013694	0.09[b]
JBR	0.000436	0.001058	- 0.008365	0.003974	0.34[c]
FFR	0.000130	0.000015	0.000103	0.000199	0.73[c]
Panel B: Emerging Market Debt Instruments					
Bonex '89	- 0.000318222	0.0124316	- 0.1994974	0.0177332	- 0.02
Brazil EXIT	- 0.000307635	0.0120620	- 0.0773883	0.0677519	0.06
Mexico Par	0.000003413	0.0087960	- 0.0486196	0.0416791	0.13[c]
Mex. Discount	0.000032678	0.0065842	- 0.0310149	0.0457493	0.06
Morocco	0.000927055	0.0113137	- 0.0564785	0.0451046	0.05
Nigeria Par	0.000126672	0.0143693	- 0.0764742	0.0987030	0.15[c]
Panama	0.001308600	0.0246171	- 0.2006707	0.1076307	0.07
Poland DDRA	0.001190700	0.0206035	- 0.1267934	0.0838815	0.03
Venezuela Par	- 0.000383783	0.0134402	- 0.0716714	0.0780719	0.11[b]
Venez. DCB	- 0.000492715	0.0142474	- 0.0646554	0.0679013	0.08[a]
Venez. FLIRB	- 0.000332491	0.0140771	- 0.0857235	0.0628896	0.03
Panel C: Emerging Equity Market Indices					
EME	0.000333775	0.0130381	- 0.0688887	0.0438197	0.18[c]
Argentina	- 0.000075081	0.0258810	- 0.1052892	0.0995306	0.04
Brazil	0.000387967	0.0314802	- 0.1152371	0.0922497	0.11[b]
Mexico	0.000210474	0.0162485	- 0.0645330	0.0602407	0.17[c]
Venezuela	- 0.001045800	0.0208352	- 0.0898539	0.1027541	0.14[b]

Poland	0.005349000	0.0376942	- 0.1088931	0.1253280	0.20[c]

[a] Significant at the 10% confidence level
[b] Significant at the 5% confidence level
[c] Significant at the 1% confidence level

Table 4: This table presents the dates and magnitude of the six federal funds rate target changes in our sample period.

Date	From	To	Rate Change
04/09/92	4.00	3.75	-0.25
07/02/92	3.75	3.25	-0.50
09/04/92	3.25	3.00	-0.25
02/04/94	3.00	3.25	+0.25
03/22/94	3.25	3.50	+0.25
04/18/94	3.50	3.75	+0.25

Table 5: This table presents evidence on the reactions of returns on U.S. and emerging equity and debt market instruments to changes in the target fed-funds rate made by the Federal Reserve Board. Mean-adjusted cumulative abnormal returns are captured for a seven-day window around the six changes that occurred during our sample period. In each case, the mean return is estimated over a 25-day window starting 28 days prior to the rate change. Cumulative abnormal returns are presented for an equally weighted portfolio of emerging market debt instruments (PFB), a value-weighted index of emerging market equities (EME), a 10-year U.S. government T-bond index (TBR), an index of non-investment grade U.S. bonds (JBR), the value-weighted CRSP index (VWEI), an equally weighted portfolio of Brady bonds (PFBB), and an equally weighted portfolio of non-Brady emerging market debt instruments (PFNB). Z-scores are presented in parentheses.

	PFB	EME	TBR	JBR	VWEI	PFBB	PFNB
Decrease 1	0.0049	- 0.0018	0.0023	-0.0010	0.0278	0.0360	- 0.0265
4/9/92	(0.04)	(- 0.06)	(0.60)	(-1.90)[a]	(2.16)[b]	(2.53)[b]	(- 1.68)
Decrease 2	0.0173	0.0771	0.0161	-0.0012	0.0190	0.0058	0.0283
7/2/92	(1.38)	(1.40)	(5.09)[c]	(-2.72)[b]	(1.25)	(0.51)	(1.35)
Decrease 3	0.0034	- 0.0208	0.0173	0.0000	0.0115	0.0070	- 0.0005
9/4/92	(0.34)	(- 0.61)	(3.95)[c]	(0.02)	(0.98)	(1.05)	(- 0.03)
Increase 1	- 0.0254	- 0.0202	0.0124	0.0059	- 0.0276	- 0.0214	- 0.0294
2/4/94	(- 1.31)	(- 0.51)	(3.43)[c]	(8.82)[c]	(- 3.04)[c]	(- 0.82)	(- 1.78)
Increase 2	- 0.0700	- 0.0012	-0.0055	-0.0101	- 0.0240	- 0.0687	- 0.0714
3/22/94	(- 1.91)[a]	(- 0.03)	(-1.62)	(-11.12)[c]	(- 1.96)[a]	(- 2.04)[b]	(- 1.51)
Increase 3	- 0.0535	- 0.03	0.0007	-0.0058	- 0.0003	- 0.0364	- 0.0703
4/18/94	(- 1.46)	(- 0.83)	(0.21)	(-6.40)[c]	(- 0.03)	(- 1.08)	(- 1.49)

Panel A. Abnormal returns on an equally weighted portfolio of all emerging market debt securities in our sample.

	AR(-3)	AR(-2)	AR(-1)	AR(0)	AR(1)	AR(2)	AR(3)	CAR
Decrease 1	- 0.0055	- 0.0019	0.0011	0.0013	0.0032	0.0012	0.0056	0.0049
4/9/92	(- 1.18)	(- 0.40)	(0.24)	(0.27)	(0.69)	(0.25)	(1.20)	(0.04)
Decrease 2	- 0.0050	0.0049	0.0016	0.0080	0.0056	0.0007	0.0014	0.0173
7/2/92	(- 1.05)	(1.04)	(0.35)	(1.69)	(1.19)	(0.15)	(0.29)	(1.38)
Decrease 3	- 0.0005	- 0.0005	0.0029	0.0045	0.0002	- 0.0023	- 0.0008	0.0034
9/4/92	(- 0.14)	(- 0.14)	(0.76)	(1.18)	(0.05)	(- 0.60)	(- 0.20)	(0.34)
Increase 1	- 0.0057	- 0.0087	0.0015	- 0.0138	- 0.0001	0.0045	- 0.0031	- 0.0254
2/4/94	(- 0.79)	(- 1.19)	(0.21)	(- 1.89)[a]	(- 0.01)	(0.62)	(- 0.42)	(- 1.31)
Increase 2	- 0.0023	- 0.0404	0.0309	0.0067	- 0.0173	- 0.0031	- 0.0446	- 0.0700
3/22/94	(- 0.17)	(- 2.92)[b]	(2.24)[b]	(0.48)	(- 1.25)	(- 0.22)	(- 3.22)[c]	(- 1.91)[a]
Increase 3	- 0.0276	- 0.0134	0.0022	- 0.0249	0.0001	- 0.0075	0.0176	- 0.0535
4/18/94	(- 1.99)[b]	(- 0.96)	(0.16)	(- 1.79)	(0.01)	(- 0.54)	(1.27)	(- 1.46)

Panel B. Abnormal returns on the value-weighted emerging market equity index.

	AR(-3)	AR(-2)	AR(-1)	AR(0)	AR(1)	AR(2)	AR(3)	CAR
Decrease 1	- 0.0102	- 0.0212	0.0027	0.0215	0.0001	-0.0015	0.0067	- 0.0018
4/9/92	(- 1.01)	(- 2.11)[b]	(0.27)	(2.15)[c]	(0.02)	(-0.15)	(0.66)	(- 0.06)
Decrease 2	0.0087	0.0378	0.0116	-0.0029	-0.0003	0.0129	0.0094	0.0771
7/2/92	(0.42)	(1.82)[a]	(0.56)	(-0.14)	(-0.02)	(0.62)	(0.45)	(1.40)
Decrease 3	-0.0078	- 0.0015	0.0066	0.0033	-0.0095	- 0.0159	0.0041	- 0.0208
9/4/92	(-0.61)	(- 0.12)	(0.52)	(0.26)	(-0.75)	(- 1.25)	(0.32)	(- 0.61)
Increase 1	- 0.0055	- 0.0127	0.0065	- 0.0105	0.0138	-0.0127	0.0029	- 0.0202
2/4/94	(- 0.36)	(- 0.84)	(0.30)	(- 0.70)	(0.91)	(- 0.84)	(0.19)	(- 0.51)
Increase 2	- 0.0239	- 0.0224	0.0420[c]	0.0184	- 0.0136	- 0.0130	- 0.0147	- 0.0012
3/22/94	(- 1.53)	(- 1.43)	(2.69)	(1.18)	(- 0.87)	(- 0.84)	(- 0.94)	(- 0.03)
Increase 3	- 0.0111	- 0.0090	- 0.0249	- 0.0278	- 0.04	0.0267	0.0470	- 0.03
4/18/94	(- 0.71)	(- 0.58)	(- 1.60)	(- 1.77)[a]	(- 2.26)[b]	(1.70)	(3.00)[c]	(- 0.83)

Panel C. Abnormal returns on the CRSP value-weighted equity index.

	AR(-3)	AR(-2)	AR(-1)	AR(0)	AR(1)	AR(2)	AR(3)	CAR
Decrease 1	- 0.0168	- 0.0093	0.0168	0.0084	0.0055	0.0144	0.0089	0.0278
4/9/92	(- 3.47)[c]	(- 1.90)[a]	(3.47)[c]	(1.73)	(1.12)	(2.95)[c]	(1.82)[a]	(2.16)[b]
Decrease 2	0.0023	0.0107	0.0017	0.0047	- 0.0092	0.0022	0.0100	0.0190
7/2/92	(0.40)	(1.88)[a]	(-0.31)	(0.82)	(- 1.61)	(0.38)	(1.75)[a]	(1.25)
Decrease 3	0.0054	0.0014	- 0.0018	- 0.0055	0.0039	0.0080	0.0002	0.0115
9/4/92	(1.22)	(0.32)	(- 0.41)	(- 1.26)	(0.89)	(1.82)[b]	(0.05)	(0.98)
Increase 1	0.0030	- 0.0033	- 0.0240	0.0018	- 0.0005	0.0030	- 0.0077	- 0.0276
2/4/94	(0.87)	(-0.96)	(- 7.02)[c]	(0.54)	(- 0.13)	(0.89)	(- 2.24)[b]	(- 3.04)[c]
Increase 2	0.0005	0.0052	0.0007	0.0005	- 0.0096	- 0.0061	- 0.0049	- 0.0240
3/22/94	(0.11)	(- 1.11)	(0.14)	(0.12)	(- 2.07)[b]	(- 1.29)	(- 1.05)	(- 1.96)[a]
Increase 3	0.0003	0.0003	- 0.0083	- 0.0030	- 0.0040	0.0145	- 0.0001	- 0.0003
4/18/94	(0.06)	(0.06)	(- 1.78)[a]	(- 0.64)	(- 0.87)	(3.11)[c]	(- 0.01)	(- 0.03)

Panel D. Abnormal returns of an equally weighted portfolio of Brady bonds.

	AR(-3)	AR(-2)	AR(-1)	AR(0)	AR(1)	AR(2)	AR(3)	CAR
Decrease 1	0.0001	- 0.0027	0.0059	0.0091	0.0098	0.0053	0.0089	0.0360
4/9/92	(0.02)	(- 0.49)	(1.08)	(1.68)	(1.80)[a]	(0.97)	(1.63)	(2.53)[b]
Decrease 2	- 0.0025	0.0039	0.0037	0.0027	0.0004	- 0.0012	- 0.0012	0.0058
7/2/92	(- 0.57)	(0.91)	(0.85)	(0.61)	(0.09)	(- 0.29)	(- 0.27)	(0.51)
Decrease 3	0.0009	- 0.0018	0.0037	0.0065	0.0018	- 0.0030	- 0.0008	0.0070
9/4/92	(0.34)	(- 0.68)	(1.38)	(2.46)[b]	(0.69)	(- 1.12)	(- 0.30)	(1.05)
Increase 1	- 0.0036	- 0.0101	0.0006	- 0.0127	0.0008	0.0058	- 0.0010	- 0.0214
2/4/94	(- 0.36)	(- 1.02)	(0.06)	(- 1.28)	(0.08)	(0.59)	(- 0.10)	(- 0.82)
Increase 2	- 0.0114	- 0.0325	0.0317	0.0104	- 0.0236	- 0.0072	- 0.0361	- 0.0687
3/22/94	(- 0.90)	(- 2.56)[b]	(2.50)[b]	(0.82)	(- 1.86)[a]	(- 0.59)	(- 2.84)[b]	(- 2.04)[b]
Increase 3	- 0.0346	- 0.0169	0.0015	- 0.0163	- 0.0059	0.0013	0.0343	- 0.0364
4/18/94	(- 2.72)[b]	(- 1.33)	(0.12)	(- 1.28)	(- 0.46)	(0.11)	(2.70)[b]	(- 1.08)

Panel E. Abnormal returns of an equally weighted portfolio of the other emerging market bonds.

	AR(-3)	AR(-2)	AR(-1)	AR(0)	AR(1)	AR(2)	AR(3)	CAR
Decrease 1	- 0.0110	- 0.0011	0.0036	- 0.0066	- 0.0033	- 0.0030	0.0023	- 0.0265
4/9/92	(- 1.88)[a]	(- 0.18)	(- 0.61)	(1.11)	(- 0.56)	(- 0.50)	(0.39)	(- 1.68)
Decrease 2	- 0.0076	0.0059	- 0.0005	0.0133	0.0107	0.0026	0.0038	0.0283
7/2/92	(- 0.95)	(0.74)	(0.06)	(1.68)	(1.36)	(0.33)	(0.48)	(1.35)
Decrease 3	- 0.0019	0.0007	0.0021	0.0024	- 0.0015	- 0.0016	- 0.0007	- 0.0005
9/4/92	(- 0.31)	(0.12)	(0.34)	(0.39)	(- 0.24)	(- 0.26)	(- 0.12)	(- 0.03)
Increase 1	- 0.0079	- 0.0073	0.0036	- 0.0150	- 0.0009	0.0033	- 0.0051	- 0.0294
2/4/94	(- 1.27)	(- 1.17)	(0.58)	(- 2.40)[b]	(- 0.15)	(0.52)	(- 0.82)	(- 1.78)
Increase 2	0.0068	- 0.0483	0.0303	0.0029	- 0.0110	0.0011	- 0.0530	- 0.0714
3/22/94	(0.38)	(- 2.70)[b]	(1.69)	(0.16)	(- 0.62)	(0.06)	(- 2.96)[c]	(- 1.51)
Increase 3	- 0.0207	- 0.0990	- 0.0029	- 0.0336	0.0061	- 0.0163	0.0009	- 0.0703
4/18/94	(- 1.16)	(- 0.55)	(- 0.16)	(- 1.87)[a]	(0.34)	(- 0.91)	(0.05)	(- 1.49)

Panel F. Abnormal returns on a series of 10-year T-bonds.

	AR(-3)	AR(-2)	AR(-1)	AR(0)	AR(1)	AR(2)	AR(3)	CAR
Decrease 1	-0.0000	-0.0021	0.0057	-0.0009	0.0028	0.0009	0.0021	0.0023
4/9/92	(-0.01)	(-0.56)	(1.50)	(-0.24)	(0.73)	(0.25)	(0.56)	(0.60)
Decrease 2	0.0034	-0.0008	0.0020	-0.0014	0.0013	0.0117	0.0000	0.0161
7/2/92	(1.07)	(-.027)	(0.62)	(-0.45)	(0.40)	(3.71)[c]	(0.01)	(5.09)[c]
Decrease 3	0.0025	-0.0001	0.0009	0.0034	0.0024	-0.0013	0.0096	0.0173
9/4/92	(0.56)	(-0.02)	(0.21)	(0.77)	(0.55)	(-0.31)	(2.19)[b]	(3.95)[c]
Increase 1	0.0050	0.0109	0.0006	0.0024	0.0048	-0.0079	-0.0034	0.0124
2/4/94	(1.39)	(3.03)[c]	(0.15)	(0.66)	(1.33)	(-2.20)[b]	(-0.94)	(3.43)[c]
Increase 2	-0.0046	-0.0012	-0.0012	-0.0012	-0.0049	0.0018	0.0057	-0.0055
3/22/94	(-1.37)	(-0.35)	(-0.35)	(-0.35)	(-1.43)	(0.55)	(1.68)	(-1.62)
Increase 3	0.0064	0.0014	-0.0067	-0.0020	0.0082	0.0015	-0.0081	0.0007
4/18/94	(1.89)[a]	(0.40)	(-1.99)[b]	(-0.60)	(2.42)[b]	(0.46)	(-2.38)	(0.21)

Panel G. Abnormal returns on a portfolio of non-investment grade bonds.

	AR(-3)	AR(-2)	AR(-1)	AR(0)	AR(1)	AR(2)	AR(3)	CAR
Decrease 1	-0.0004	-0.0004	-0.0003	-0.0001	0.0005	-0.0001	-0.0001	-0.0010
4/9/92	(-0.77)	(-0.86)	(-0.58)	(-0.26)	(0.97)	(-0.16)	(-0.22)	(-1.90)[a]
Decrease 2	-0.0001	-0.0003	-0.0001	0.0000	0.0002	-0.0005	-0.0005	-0.0012
7/2/92	(-0.19)	(-0.66)	(-0.28)	(0.00)	(0.40)	(-1.19)	(-1.19)	(-2.72)[b]

Decrease 3	0.0002	-0.0001	-0.0002	-0.0004	0.0000	-0.0004	0.0009	0.0000
9/4/92	(0.23)	(-0.15)	(-0.28)	(-0.47)	(0.00)	(-0.54)	(1.22)	(0.02)
Increase 1	0.0008	0.0030	0.0007	0.0011	0.0019	-0.0004	-0.0012	0.0059
2/4/94	(1.20)	(4.50)[c]	(1.06)	(1.70)	(2.85)[b]	(-0.66)	(-1.83)	(8.82)[c]
Increase 2	-0.0032	-0.0007	-0.0007	-0.0007	-0.0045	-0.0006	0.0004	-0.0101
3/22/94	(-3.53)[c]	(-0.81)	(-0.81)	(-0.81)	(-5.00)[c]	(-0.61)	(0.46)	(-11.12)[c]
Increase 3	0.0004	0.0010	-0.0014	-0.0025	-0.0005	0.0007	-0.0035	-0.0058
4/18/94	(0.46)	(1.05)	(-1.49)	(-2.80)[b]	(-0.56)	(0.79)	(-3.85)[c]	(-6.40)[c]

Table 6: This table presents a comparison of market reactions to the three *decreases* in the fed funds target rate during the first half of our sample period with the reactions to the three *increases* in the fed funds target rate during the second half. This comparison is made between the mean-adjusted abnormal returns during seven-day windows surrounding each change. The Mann-Whitney-Wilcoxon (MWW) rank test and ANOVA are employed to compare the two sets of abnormal returns. Comparisons of reactions are presented for an equally weighted portfolio of all emerging market bonds in our sample (PFB), a portfolio of emerging market equities (EME), the value-weighted CRSP equity index (VWEI), an equally weighted portfolio of all Brady bonds in our sample (PFBB), and an equally weighted portfolio of other emerging market bonds (PFNB). The rank sums for the reactions to the rate decreases during the first half of our sample are presented for the MWW test, and the F-statistics for ANOVA are presented.

Portfolio	MWW rank sums	ANOVA
PFB	552[b]	6.72[b]
EME	498	0.49
TBR	488	0.82
JBR	467	0.15
VWEI	546[b]	4.69[b]
PFBB	555[c]	7.08[b]
PFNB	507	3.18[a]

Table 7: This table presents a comparison of the reactions of various markets to changes in the target fed funds rate. Panel A presents comparisons of reactions across security types to the three rate decreases in the first half of our sample. Panel B presents the same comparisons for the three rate increases in the second half. These comparisons are made by subtracting the mean-adjusted abnormal returns in the column market (during each day in a seven-day window surrounding the announcement of the rate change from the corresponding mean-adjusted abnormal return in the row market). The tests employed are the t-test, the sign test, and the Wilcoxon sign-rank test. Comparisons of reactions are presented for an equally weighted portfolio of all emerging market bonds in our sample (PFB), a portfolio of emerging market equities (EME), the value-weighted CRSP equity index (VWEI), an equally weighted portfolio of all Brady bonds in our sample (PFBB), and an equally weighted portfolio of other emerging market bonds (PFNB). The table presents the student t-statistic, the sign statistic, and the Wilcoxon signed rank statistic.

Panel A. Market reactions to three fed funds rate cuts.

Interest decreases		TBR	JBR	PFNB	PFBB	PFB	EME
	T-statistic	-1.73[a]	0.79				
PFNB	Sign-stat	-1.50	1.50	-	-	-	-
	Signed-rank stat	-38.50	23.50				
	T-statistic	0.17	3.16[c]	2.10[b]			
PFBB	Sign-stat	1.50	5.5[b]	2.50	-	-	-
	Signed-rank stat	14.50	81.5[c]	53.5[b]			
	T-statistic			0.54	- 1.98[b]	- 0.88	
EME	Sign-stat			1.50	- 3.50	- 0.50	-
	Signed-rank stat			19.5	- 55.5[b]	- 29.5	
	T-statistic			1.53	0.11	0.79	1.36
VWEI	Sign-stat			3.50	3.50	3.50	1.50
	Signed-rank stat			38.50	13.50	21.5	35.5

Panel B. Market reactions to three fed funds rate hikes.

		TBR	JBR	PFNB	PFBB	PFB	EME
	T-statistic	-1.45	-0.31				
PFNB	Sign-stat	-1.50	0.50	-	-	-	-
	Signed-rank stat	-37.50	-9.50				
	T-statistic	-1.08	-0.13	0.48			
PFBB	Sign-stat	-3.50	0.50	2.50	-	-	-
	Signed-rank stat	-32.50	-5.50	15.5			
	T-statistic			1.36	1.38	1.54	
EME	Sign-stat			3.50	4.50	6.50[b]	-
	Signed-rank stat			41.5	43.5	48.5	
	T-statistic			- 0.06	- 0.28	- 0.09	- 0.97
VWEI	Sign-stat			0.50	0.50	0.50	- 0.50
	Signed-rank stat			9.50	3.50	9.50	- 10.50

Table 8: This table presents evidence on the ability of returns in U.S. and emerging markets to predict returns on emerging equity and debt securities. The predictive power of these variables is assessed by estimating the following system of seemingly unrelated regressions:

$$\begin{bmatrix} x_{1t} \\ . \\ . \\ x_{nt} \end{bmatrix} = \begin{bmatrix} \alpha_1 \\ . \\ .. \\ \alpha_n \end{bmatrix} + \begin{bmatrix} \beta_{11} \ldots\ldots\ldots \beta_{1n} \\ \ldots\ldots\ldots \\ \ldots\ldots\ldots \\ \beta_{n1} \ldots\ldots\ldots \beta_{nn} \end{bmatrix} \begin{bmatrix} x_{1t-1} \\ . \\ . \\ x_{nt-1} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1t} \\ . \\ .. \\ \varepsilon_{nt} \end{bmatrix},$$

where n = 7, x_1 represents the fed funds rate (FFR), x_2 represents a 10-year Treasury bond return series (TBR), x_3 represents the change in term premium (CTP), where the term premium is captured by the difference between TBR and FFR, x_4 represents the default spread (DS), as measured by the difference between the return on a portfolio of below-investment grade corporate bonds and the return on the 10-year Treasury bond (DS), x_5 represents the return on the value-weighted CRSP equity index (VWEI), and x_6 represents the return on an equally weighted portfolio of emerging market bonds (PFB), and x_7 represents the return on a portfolio of emerging market equities (EME). The system is estimated for the entire sample period, the first half of the sample period, and the second half of the period. Only the coefficient estimates for the regressions predicting PFB and EME are presented. T-statistics are presented in parentheses below the coefficient estimates. The adjusted R-squares these regressions are also presented. F-statistics for the subset of variables proxying for U.S. market conditions are presented in the last column. F-statistics for tests comparing the coefficients of the explanatory variables are presented below each pair of coefficients. F-statistics comparing the conditional explanatory power of the subset of U.S. market variables are presented in the last column.

	α	*FFR*	*TBR*	*CTP*	*DS*	*VWEI*	*PFB*	*EME*	*Adj-R^2*	*U.S.*
Complete										
PFB	0.003	-0.074	-0.002	0.331	0.388	0.169	0.183	0.046	0.08	2.81[b]
	(0.71)	(-0.63)	(-0.02)	(2.19)[b]	(2.19)[b]	(2.29)[b]	(3.72)[c]	(1.36)		
EME	0.006	-0.181	-0.077	-0.294	-0.391	0.227	0.039	0.131	0.03	1.61
	(1.03)	(-1.00)	(-0.38)	(-1.26)	(-1.43)	(1.99)[b]	(0.51)	(2.53)[b]		
		0.44	0.17	8.94[c]	10.18[c]	0.32	4.52[b]	3.38[a]		2.27[b]
First Half										
PFB	0.001	-0.007	0.062	0.082	0.094	-0.038	0.153	0.028	0.01	0.39
	(0.23)	(-0.08)	(0.54)	(0.72)	(0.69)	(-0.61)	(2.23)[b]	(0.99)		
EME	-0.003	0.069	-0.207	-0.463	-0.532	0.230	-0.005	0.130	0.03	1.83
	(-0.40)	(0.32)	(-0.75)	(-1.68)[a]	(-1.60)	(1.51)	(-0.03)	(1.87)[a]		
		0.15	1.08	4.48[b]	4.07[b]	3.56[a]	1.03	2.47		2.52[b]
Second Half										
PFB	0.017	-0.547	-0.195	0.807	0.909	0.404	0.107	0.083	0.13	5.35[c]
	(1.76)[a]	(-1.74)[a]	(-0.85)	(2.43)[b]	(2.43)[b]	(3.08)[c]	(1.48)	(1.41)		
EME	0.021	-0.636	0.044	0.114	0.008	0.231	0.033	0.136	0.03	1.32
	(1.62)	(-1.55)	(0.14)	(0.26)	(0.02)	(1.35)	(0.34)	(1.74)[a]		
		0.06	0.85	3.46[a]	4.59[b]	1.38	0.84	0.61		1.59

[a] Significant at the 10% confidence level
[b] Significant at the 5% confidence level
[c] Significant at the 1% confidence level

Table 9: This table presents evidence on the power of returns in U.S. and emerging markets in predicting returns on different types of emerging debt securities. The predictive power of these variables is assessed by estimating the following system of seemingly unrelated regressions:

$$\begin{bmatrix} x_{1t} \\ \cdot \\ \cdot \\ x_{nt} \end{bmatrix} = \begin{bmatrix} \alpha_1 \\ \cdot \\ \cdot \\ \alpha_n \end{bmatrix} + \begin{bmatrix} \beta_{11} \ldots\ldots\ldots \beta_{1n} \\ \ldots\ldots\ldots \\ \ldots\ldots\ldots \\ \beta_{n1} \ldots\ldots\ldots \beta_{nn} \end{bmatrix} \begin{bmatrix} x_{1t-1} \\ \cdot \\ \cdot \\ x_{nt-1} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1t} \\ \cdot \\ \cdot \\ \varepsilon_{nt} \end{bmatrix},$$

where n = 8, x_1 represents the fed funds rate (FFR), x_2 represents the 10-year Treasury bond return (TBR), x_3 represents the change in term premium (CTP) where the term premium is captured by the difference between TBR and FFR, x_4 represents the default spread as measured by the difference between the return on a portfolio of below-investment grade corporate bonds and the return on the 10-year Treasury bond (DS), x_5 represents the return on the value-weighted CRSP equity index (VWEI), x_6 represents the return on an equally weighted portfolio of Brady bonds (PFBB), x_7 represents the return on a portfolio of emerging market equities (EME), and x_8 represents returns on an equally weighted portfolio of other emerging debt securities (PFNB). The system is estimated for the entire sample period, the first half of the sample period, and the second half of the period. Only the coefficient estimates for the regressions predicting PFBB and PFNB are presented. T-statistics are presented in parentheses below the coefficient estimates. The adjusted R-squares these regressions are also presented. F-statistics for the subset of variables proxying for U.S. market conditions are presented in the last column. F-statistics for tests comparing the coefficients of the explanatory variables are presented below each pair of coefficients. F-statistics comparing the conditional explanatory power of the subset of U.S. market variables are presented in the last column.

	α	*FFR*	*TBR*	*CTP*	*DS*	*VWEI*	*PFBB*	*PFNB*	*EME*	*Adj-R^2*	*U.S.*
Complete											
PFBB	0.003	-0.098	-0.097	0.522	0.627	0.187	0.201	0.020	-0.043	0.07	4.75[c]
	(0.76)	(-0.77)	(-0.68)	(3.18)[c]	(3.27)[c]	(2.33)[b]	(3.56)[c]	(0.55)	(-0.80)		
PFNB	0.002	-0.037	0.100	0.153	0.182	0.154	0.091	0.075	0.125	0.06	1.12
	(0.42)	(-0.27)	(0.65)	(0.86)	(0.88)	(1.77)[b]	(1.50)	(1.90)[a]	(2.16)[b]		
		0.29	2.35	6.24[b]	12.15[c]	0.21	4.64[b]	2.78[a]	6.62[b]		2.74[b]
First Half											
PFBB	0.005	-1.159	-1.02	0.206	0.154	-0.026	-0.007	0.003	0.107	0.02	2.01[a]
	(1.62)	(-1.63)	(-0.82)	(1.65)[a]	(1.02)	(-0.38)	(-0.09)	(0.09)	(1.74)[a]		
PFNB	-0.002	0.097	0.215	-0.096	-0.054	-0.061	-0.047	0.041	0.212	0.04	1.10
	(-0.63)	(0.83)	(1.44)	(-0.64)	(-0.29)	(-0.74)	(-0.55)	(1.10)	(2.88)[c]		
		5.04[b]	4.74[b]	4.28[b]	2.16	0.19	0.23	1.12	1.38		3.75[c]
Second Half											
PFBB	0.009	-0.301	-0.213	1.035	1.287	0.404	0.232	0.044	-0.127	0.12	5.17[c]
	(0.88)	(-0.88)	(-0.85)	(2.86)[c]	(3.17)[c]	(2.84)[c]	(2.81)[c]	(0.68)	(-1.61)		
PFNB	0.026	-0.824	-0.156	0.525	0.523	0.404	0.079	0.120	0.042	0.12	4.01[c]
	(2.35)[b]	(-2.31)[b]	(-0.60)	(1.39)	(1.23)	(2.71)[c]	(0.91)	(1.77)[a]	(0.51)		
		3.32[a]	0.07	2.80[a]	6.45[b]	0.00	4.83[b]	1.92	4.96[b]		1.69

[a] Significant at the 10% confidence level
[b] Significant at the 5% confidence level
[c] Significant at the 1% confidence level

Table 10: The following table presents generalized method of moments (GMM) coefficient estimates for the following system of equations that is designed to test for the existence of a single latent variable driving returns on a portfolio of all emerging market debt instruments in our sample (PFB) and the returns on a 10-year U.S. government bond (TBR).

$$PFB_t = a_1 + a_2 * FFR_{t-1} + a_3 * CTP_{t-1} + a_4 * DS_{t-1} + a_5 * VWEI_{t-1} + a_6 * EMGLR_{t-1} + u_{1,t}$$

$$TBR_t = b_1 * [a_1 + a_2 * FFR_{t-1} + a_3 * CTP_{t-1} + a_4 * DS_{t-1} + a_5 * VWEI_{t-1} + a_6 * EMGLR_{t-1}] + u_{2,t}.$$

These expressions are estimated for the entire sample period, the first half of the sample period, and the second half of the sample period. In the above expressions, PFB and EME are the daily returns on equally weighted portfolios of all emerging market debt in our sample and those on the Latin American regional equity index, respectively. The federal funds rate (FFR), the daily return on the CRSP value-weighted index (VWEI), a daily series of returns on a 10-year Treasury bond (TBR), the change in TBY-FFRET (CTP), and the default spread in U.S. markets as measured by the difference between the return on a portfolio of all below investment grade corporate bonds and the 10 year treasury bond return (DS) are the independent variables in the above system. The t-statistics on the estimated coefficients using standard errors are adjusted for heteroscedasticity and first-order autocorrelation following Newey and West (1987) are presented below the coefficient estimates. CHISQ is the number of observations times the minimized value of the GMM objective function.

Coefficients/Statistics	Complete	First Half	Second Half
b_1	0.291	1.499	0.168
	(2.10)[b]	(2.57)[b]	(2.09)[b]
a_1	0.000	-0.001	0.024
	(0.00)	(-1.00)	(1.46)
a_2	0.004	0.056	-0.800
	(0.05)	(1.27)	(-1.43)
a_3	0.157	-0.091	0.195
	(1.16)	(-1.20)	(0.50)
a_4	-0.012	0.175	-0.108
	(-0.07)	(1.70)[a]	(-0.22)
a_5	0.077	-0.001	0.274
	(1.13)	(-0.03)	(2.04)[b]
a_6	0.074	0.028	0.125
	(2.21)[b]	(1.93)[a]	(1.94)[a]
CHISQ	10.34[a]	2.33	3.28

[a] Significant at the 10% confidence level
[b] Significant at the 5% confidence level
[c] Significant at the 1% confidence level

Table 11: The following table presents Generalized Method of Moments (GMM) coefficient estimates for the following system of equations that is designed to test for the existence of a single latent variable driving returns on a portfolio of emerging market equity instruments (EME) and a portfolio of U.S. equities (VWEI):

$$EME_t = a_1 + a_2 * FFR_{t-1} + a_3 * TBR_{t-1} + a_3 * CTP_{t-1} + a_4 * DS_{t-1} + a_5 * PFALL_{t-1} + u_{1,t}$$

$$VWEI_t = b_1 * [a_1 + a_2 * FFR_{t-1} + a_3 * TBR_{t-1} + a_3 * CTP_{t-1} + a_4 * DS_{t-1} + a_5 * PFALL_{t-1}] + u_{2,t}.$$

In the above expressions, PFB and EME are the daily returns on equally weighted portfolios of all emerging market debt in our sample and those on the Latin American regional equity index, respectively. The federal funds rate (FFR), the daily return on the CRSP value-weighted index (VWEI), the daily return on the constant-maturity 30-year Treasury bond (TBY), and the change in TBY-FFRET (CTP) are the independent variables in the above system. The t-statistics on the estimated coefficients using standard are errors adjusted for heteroscedasticity and first-order autocorrelation following Newey and West (1987). CHISQ is the number of observations times the minimized value of the GMM objective function. The degrees of freedom (DOF) is equal to the number of overidentifying restrictions.

Coefficients/Statistics	Complete	First Half	Second Half
b_1	1.449	-0.051	4.198
	(2.26)[b]	(-0.08)	(2.29)[b]
a_1	0.005	0.008	0.001
	(1.89)[a]	(2.48)[b]	(0.40)
a_2	-0.133	-0.217	-0.033
	(-1.74)[a]	(-2.28)[b]	(-0.30)
a_3	0.043	0.014	0.100
	(0.56)	(0.13)	(1.34)
a_4	-0.110	-0.207	0.015
	(-1.18)	(-1.50)	(0.17)
a_5	0.145	0.129	0.035
	(1.40)	(0.83)	(0.35)
a_6	0.087	0.100	0.006
	(1.97)[b]	(1.22)	(0.25)
CHISQ	5.34	2.42	4.30

Table 12: This table presents evidence on the predictive power of returns in U.S. and emerging markets in Argentina, Brazil, Mexico, Poland, and Venezuela, respectively. For each country, the predictive power of these variables is assessed by estimating the following system of seemingly unrelated regressions:

$$\begin{bmatrix} x_{1t} \\ . \\ . \\ x_{nt} \end{bmatrix} = \begin{bmatrix} \alpha_1 \\ . \\ .. \\ \alpha_n \end{bmatrix} + \begin{bmatrix} \beta_{11} \cdots\cdots \beta_{1n} \\ \cdots\cdots \\ \cdots\cdots \\ \beta_{n1} \cdots\cdots \beta_{nn} \end{bmatrix} \begin{bmatrix} x_{1t-1} \\ . \\ . \\ x_{nt-1} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1t} \\ . \\ .. \\ \varepsilon_{nt} \end{bmatrix},$$

where n = 7, x_1 represents the fed funds rate (FFR), x_2 represents a 10-year Treasury Bond return series (TBR), x_3 represents the change in term premium (CTP) where the term premium is captured by the difference between TBR and FFR, x_4 represents the default spread (DS) as measured by the difference between the return on a portfolio of below-investment grade corporate bonds and the return on the 10-year Treasury bond (DS), x_5 represents the return on the value-weighted CRSP equity index (VWEI), and x_6 represents the return on an equally weighted portfolio of domestic bonds (PFCB), and x_7 represents the return on a portfolio of domestic country's equity index (EMCI). The system is estimated for the entire sample period, the first half of the sample period, and the second half of the period. Only the coefficient estimates for the regressions predicting PFB and EME are presented. T-statistics are presented in parentheses below the coefficient estimates. The adjusted R-squares these regressions are also presented. F-statistics for the subset of variables proxying for U.S. market conditions are presented in the last column.

Panel A. Argentina.

	α	*FFR*	*TBR*	*CTP*	*DS*	*VWEI*	*PFCB*	*EMCI*	*Adj-R^2*	*U.S.*
PFCB										
Complete	-0.003	0.071	0.201	-0.249	0.220	0.013	-0.009	0.030	-0.00	0.61
	(-0.46)	(0.39)	(0.98)	(-1.07)	(0.80)	(0.12)	(-0.20)	(1.26)		
First Half	-0.003	0.076	0.391	-0.594	0.326	-0.045	-0.015	0.024	0.00	1.48
	(-0.40)	(0.33)	(1.28)	(-2.00)[b]	(0.89)	(-0.28)	(-0.22)	(0.86)		
Second Half	-0.003	0.092	-0.052	0.539	-0.314	0.044	0.010	0.063	-0.01	0.86
	(-0.27)	(0.24)	(-0.18)	(1.32)	(-0.68)	(0.28)	(0.16)	(1.34)		
EMCI										
Complete	0.007	-0.232	-0.503	-0.489	1.044	-0.496	0.111	0.022	0.01	2.45[b]
	(0.64)	(-0.65)	(-1.25)	(-1.07)	(1.93)[a]	(2.28)[b]	(1.23)	(0.48)		
First Half	0.002	-0.084	-0.850	-1.190	1.641	0.373	0.259	0.062	0.01	1.58
	(0.11)	(-0.16)	(-1.20)	(-1.72)[a]	(1.93)[a]	(0.99)	(1.68)[a]	(0.93)		
Second Half	0.017	-0.513	-0.184	0.798	-0.240	0.744	-0.009	-0.103	0.05	4.81[c]
	(1.03)	(-0.96)	(-0.46)	(1.39)	(-0.37)	(3.31)[c]	(-0.10)	(-1.57)		

Panel B. Brazil.

	α	*FFR*	*TBR*	*CTP*	*DS*	*VWEI*	*PFCB*	*EMCI*	*Adj-R^2*	*U.S.*
PFCB										
Complete	0.010	-0.313	-0.094	0.247	-0.213	-0.198	0.042	0.022	0.02	2.61[b]
	(1.84)[a]	(-1.88)[a]	(-0.50)	(1.14)	(-0.84)	(1.97)[b]	(0.91)	(1.22)		
First Half	-0.002	0.039	0.320	0.263	-0.411	-0.007	0.070	0.008	0.00	1.48
	(-0.33)	(0.28)	(1.73)[a]	(1.46)	(-1.87)[a]	(-0.08)	(1.03)	(0.46)		
Second Half	0.060	-1.962	-0.634	-0.089	0.358	0.459	-0.051	0.026	0.11	7.55[c]
	(4.45)[c]	(-4.48)[c]	(-2.00)[b]	(-0.19)	(0.69)	(2.69)[c]	(-0.80)	(0.88)		
EMCI										
Complete	0.021	-0.650	-0.395	-0.510	0.467	0.300	-0.111	0.072	0.00	1.29
	(1.48)	(-1.47)	(-0.79)	(-0.89)	(0.70)	(1.12)	(-0.90)	(1.52)		
First Half	0.003	-0.145	-0.479	-0.363	0.406	0.385	-0.172	0.062	-0.01	0.55
	(0.18)	(-0.26)	(-0.67)	(-0.52)	(0.47)	(1.02)	(-0.65)	(0.93)		
Second Half	0.055	-1.730	0.270	-0.710	0.543	0.229	-0.132	0.080	0.00	0.94
	(1.79)[a]	(-1.73)[a]	(-0.37)	(-0.68)	(0.46)	(0.59)	(-0.90)	(1.17)		

Panel C. Mexico.

	α	*FFR*	*TBR*	*CTP*	*DS*	*VWEI*	*PFCB*	*EMCI*	*Adj-R^2*	*U.S.*
PFCB										
Complete	0.002	10.054	-0.021	0.268	-0.336	0.128	0.078	0.036	0.04	3.51[c]
	(0.61)	(-0.59)	(-0.21)	(2.29)[b]	(-2.44)[b]	(2.22)[b]	(1.67)[a]	(1.84)[a]		
First Half	0.001	-0.024	0.010	0.044	-0.063	0.039	-0.046	-0.030	-0.02	0.40
	(0.33)	(-0.31)	(0.10)	(0.44)	(-0.52)	(0.69)	(-0.68)	(-1.54)		
Second Half	0.009	-0.280	-0.189	0.861	0.956	0.256	0.012	0.117	0.15	6.29[c]
	(1.18)	(-1.18)	(-1.09)	(3.35)[c]	(-3.40)[c]	(2.65)[c]	(0.18)	(3.43)[c]		
EMCI										
Complete	0.002	-0.075	0.170	-0.367	0.408	0.219	0.073	0.155	0.03	0.96
	(0.32)	(-0.34)	(0.67)	(-1.28)	(1.21)	(1.55)	(0.64)	(3.19)[c]		
First Half	-0.002	0.045	0.017	-0.660	0.643	0.111	-0.088	0.212	0.04	0.91
	(-0.20)	(0.17)	(0.05)	(-1.90)[a]	(1.51)	(0.56)	(-0.37)	(3.13)[c]		
Second Half	0.010	-0.328	0.358	0.259	-0.176	0.275	0.197	0.080	0.03	1.41
	(0.67)	(-0.65)	(0.97)	(0.49)	(-0.29)	(1.34)	(1.36)	(1.11)		

Panel D. Poland.[1]

	α	*FFR*	*TBR*	*CTP*	*DS*	*VWEI*	*PFCB*	*EMCI*	*Adj-R^2*	*U.S.*
PFCB										
Complete	0.026	-0.814	-0.227	-0.014	0.092	0.731	-0.008	0.026	0.03	3.45[c]
	(1.49)	(-1.42)	(-0.58)	(-0.03)	(0.15)	(3.39)[c]	(-0.14)	(0.84)		
First Half	0.018	-0.509	-0.246	-0.972	1.432	-0.064	0.150	0.036	-0.02	1.15
	(0.67)	(-0.56)	(-0.45)	(-1.40)	(1.96)[a]	(-0.24)	(1.14)	(0.26)		
Second Half	0.033	-1.033	-0.521	0.695	-0.725	1.082	-0.062	0.028	0.07	5.19[c]
	(1.62)	(-1.58)	(-1.08)	(1.00)	(-0.92)	(4.08)[c]	(-0.94)	(0.84)		
EMCI										
Complete	0.100	-3.106	1.244	-2.513	1.068	0.531	0.110	0.169	0.09	4.37[c]
	(3.08)[c]	(-2.97)[c]	(1.73)[a]	(-2.46)[b]	(0.94)	(1.35)	(1.02)	(2.98)[c]		
First Half	-0.007	0.278	0.479	-0.397	1.075	0.235	0.179	-0.072	0.11	2.88[b]
	(-0.22)	(0.27)	(0.78)	(-0.51)	(1.31)	(0.79)	(1.21)	(-0.47)		
Second Half	0.122	-3.812	1.560	-2.498	0.213	0.684	0.074	0.175	0.11	5.47[c]
	(3.24)[c]	(-3.13)[c]	(1.74)[a]	(-1.93)[a]	(1.15)	(1.39)	(0.61)	(2.82)[c]		

[1] Note that because MSCI only began following the Polish and Venezulean equity markets in January 1993, the predictive regressions for the first subperiod are based on only 57 observations, and the predictive regressions for the whole period are based on 339 observations. The regressions for the second subperiod are based on 275 observations. In cases of all other countries, the predictive regressions for both subperiods are based on 275 observations and the regressions for the complete sample period on 550 observations.

Panel E. Venezuela.

	α	*FFR*	*TBR*	*CTP*	*DS*	*VWEI*	*PFCB*	*EMCI*	*Adj-R^2*	*U.S.*
PFCB										
Complete	0.009	-0.274	-0.179	0.936	-1.083	0.269	0.151	0.013	0.06	3.36[c]
	(0.71)	(-0.69)	(-0.66)	(2.41)[b]	(-2.52)[b]	(1.81)[a]	(2.50)[b]	(0.33)		
First Half	0.020	-0.592	-0.291	0.559	-0.308	-0.243	0.070	-0.042	-0.03	1.31
	(0.97)	(-0.86)	(-0.77)	(1.00)	(-0.53)	(-1.24)	(0.44)	(-0.59)		
Second Half	0.007	-0.250	-0.375	1.287	-1.509	0.449	0.123	0.044	0.08	4.01[c]
	(0.53)	(-0.56)	(-1.11)	(2.64)[c]	(-2.77)[c]	(2.48)[b]	(1.81)[a]	(0.95)		
EMCI										
Complete	0.017	-0.560	0.613	0.993	-0.849	0.056	0.166	0.163	0.07	3.25[c]
	(0.92)	(-0.96)	(1.52)	(1.73)[a]	(-1.34)	(0.25)	(1.86)[a]	(2.73)[c]		
First Half	-0.019	0.438	1.232	1.058	-1.229	0.200	0.726	0.025	-0.01	1.00
	(-0.43)	(0.31)	(1.56)	(0.92)	(-1.02)	(0.49)	(2.20)[b]	(0.17)		
Second Half	0.027	-0.865	0.500	1.389	-1.244	0.117	0.109	0.192	0.08	3.36[c]
	(1.33)	(-1.34)	(1.04)	(1.99)[b]	(-1.59)	(0.45)	(0.12)	(2.87)[c]		