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Valuing Emerging Market Equities—A Pragmatic Approach Based on the Empirical Evidence

by Niso Abuaf, Pace University and Ramirez and Co.*

Though practitioners and academics rely on similar conceptual frameworks when valuing international equities in general and emerging market equities in particular, they emphasize different aspects of the framework. In contrast to academics, practitioners adjust discount rates as opposed to cash flows, and use the U.S. instead of the global equity market risk premium.

In this paper, I propose a pragmatic approach to estimating the cost of equity for industry groups operating in African, Asian, and Latin American emerging markets, and high-risk European markets as well. Grounded in observed empirical estimates, my approach has two building blocks:

1. Use of the U.S.-based Capital Asset Pricing Model (CAPM) with a beta that is designed to represent industry (instead of individual company) risk.

2. An adjustment of the U.S.-based CAPM that involves assigning a certain proportion—from 35% to as much as 100%—of a given country's political risk to a specific industry. These proportions are approximations that are meant to reflect the extent of an industry's exposure to country risk.[1]

When the worldwide privatization boom began in the late 1980s, sellers, buyers, and financial intermediaries recognized their need for a framework for valuing assets in different regions of the world. But standard international corporate finance theory could offer little assistance, primarily because it continued to insist that when valuing, say, telephone assets in Mexico, one should account for Mexican risk by adjusting the expected cash flows and then discounting these cash flows using a U.S.-based weighted average cost of capital (WACC). The appeal of this approach is its similarity to valuing telephone assets in the U.S. The problem, however, was that analysts had no intuitively satisfying way of adjusting cash flows to reflect country risks, such as those encountered when investing and operating in Mexico.

As an alternative method, a number of colleagues and I have proposed a pragmatic approach to capturing the effects of country risk by increasing the cost of equity, which results in an increase in the WACC.[2] Using such an approach, and assuming well-integrated global capital markets, one would view the risk associated with the Mexican telephone assets as consisting of two parts:

- U.S. telephone-asset risk and
- The additional risk associated with an investment in Mexico.

Such an approach, which has been embraced by some academics as well as many (if not most) practitioners, reflects a departure from the classic theoretical approach that calls for modeling the risk of the telecommunications industry worldwide, and then using a global telecom beta to adjust the expected returns on the global capital markets. In some versions of this classic approach, a further adjustment is used to take account of differences of Mexico's telecom beta from a global or U.S. telecom beta—differences that could arise from differences in the life-cycle maturity, or other industry characteristics, of the Mexican telecom industry.

A Brief Look at Existing Approaches

There is a rich body of applied literature on the valuation of international equities and investments, particularly as they relate to emerging market investments. What follows is a brief summary of positions taken by a number of finance scholars and practitioners since the early 1990s:

- In 1995, Ohio State professor Rene Stulz noted an "increasing synchronization (or correlation) of both real international business activity and world financial markets," a phenomenon that he argued was "partly offsetting the benefits of global diversification." This finding suggested that investors would find it increasingly difficult to improve their

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1. These approximations are based on the statistical evidence presented in one of my earlier studies, but with a slight variation. See Abuaf (2011). (Full citations of all articles are provided in the References at the end.) In that research, I regress returns on ADRs against returns on the S&P 500 (both represented as log differences) and levels of CDS spreads, which is the proxy for country risk used throughout this paper. In this paper, however, I modify my earlier research such that the second independent variable is the change in, as opposed to the level of, the CDS. Using this method, the coefficient of the S&P 500 would be interpreted as the traditional beta, and the coefficient of the change in CDS would be interpreted as the modified duration of equities (also known as the "semi-elasticity") with respect to CDS. That is, the coefficient of the CDS represents the percentage change in the cost of equity for a given percentage point change in CDS. Thus, the higher this coefficient, the greater the exposure of a given stock or industry to country risk.

2. See Abuaf and Chu (1991, 1994) and Abuaf, Chu, Czapla, Lawley and Thadani (1997).

3. See Stulz (1995). Stulz's finding is similar to a small cap premium in the Fama-French model in the sense that, just as we would expect a premium for investing in small-cap stocks, we might expect a premium for investing in emerging markets, which may behave like small-cap stocks.

risk-return profiles by diversifying internationally, implying that an investor might want to consider adding a risk premium when valuing international investments.[3]

• In 1996, MIT's Don Lessard argued that how managers adjust for risk—whether by raising the discount rate or reducing expected cash flows—should depend primarily on whether the risks are "systematic" or instead "diversifiable" by world capital markets. Adjustments of the discount rate should be made only in cases where investors cannot manage the risks most effectively by holding well-diversified portfolios.[4]

• Also in 1996, Stephen Godfrey and Ramon Espinoza, two practitioners from Bank of America, proposed that a "credit spread [be] added to the U.S. dollar risk-free rate to reflect transfer risks" and "a country-specific business volatility premium used to reflect risks associated with the local business environment." (This is essentially what I propose in this study.)

• In 1998, Tom Keck, Eric Levengood, and Al Longfield argued that, "While partly segmented markets may in fact have some different types of risk, the primary driver of differences in cost of capital is likely to be risk-price differentials"—that is, the same risk priced differently.

• In 1999, Rene Stulz restated the classical finance approach by arguing that "if the extra risk premium is used to compensate for country risks, then it must be demonstrated that those risks are not diversifiable and that shareholders charge a risk premium to hold those risks."

• In the same year, and in a similar spirit, two other academics, Ronald Schramm and Henry Wang, argued that practitioners must make an "important judgment call"—namely, whether the "base portfolio" is the home-country market (assuming markets are segmented) or the global market (assuming integrated markets)."

In 2004, another academic, Jaime Sabal, reinforced the classical approach by arguing that the practitioners' approach of incorporating a country risk premium is inappropriate "mainly because country risk is neither the same for all projects nor totally systematic, and there is no reason for it to be closely related to the spread on the government bonds of the country concerned."

• In 2008, academics Luc Soenen and Robert Johnson proposed the following compromise solution: "When valuing projects in emerging economies, we recommend use of the CAPM adjusted for political risk and a measure of co-movement (country beta) between foreign and U.S. stock markets. In the long run, increased international capital market integration can be expected to move country betas toward unity. But in the meantime, corporate planners should consider making the necessary adjustments to the CAPM."

• In 2010, IESE professor Luis Pereiro responded to this diversity of approaches by describing the choice of a cost of equity model for an emerging-market firm as "very personal." As Pereiro went on to say, "it depends on how conceptually sound the model looks to the analyst, and on her view on which risks can—and which cannot—be diversified away by the investor." (And, indeed, by analyzing the empirical sensitivity of various industry groups to CDSs, I use judgment to categorize industries as low, medium, and high sensitivity and propose corresponding weights to CDSs in various industries across countries.

• In 2011, New York University valuation guru Aswath Damodaran wrote that the simplest and most widely used proxy for the country risk premium is the default spread that investors charge for buying bonds issued by the country. That default spread can be estimated from two sources: (1) the yields on bonds issued by the country in a currency where there is a default free bond yield to which it can be compared, or (2) spreads in the credit default swaps (CDS) market.

• And, finally, as if to summarize all the previous arguments, in 2010 three Brazilian academics—Javier Garcia-Sanchez, Lorenzo Preve, and Virginia Sarria-Allende—made the following statement:

Current methodologies based on adjustments of the discount rate present several problems. On the one hand, the practice of adding country risk to CAPM estimates violates the spirit of the model, according to which discount rates should reflect only 'symmetric' (or two-sided), non-diversifiable risks. Country risk, however, is not symmetric and may be at least partially diversifiable (though in respect to the latter, some models of dynamic correlations across countries give some support to the alternative view). On the other hand, popular techniques usually view the impact of emerging market country risk as the same for all firms and industries. It is easy, however, to find differences in business fundamentals or strategies that justify the opposite view: namely, that the effect of country risk on corporate values should depend on company- or industry-specific characteristics.

My own "bottom line." In 2011, I wrote a paper that began by summarizing the arguments on the academic and practitioner sides, and then made a case for letting the data do the judging. What I meant by that was that to the extent that emerging market (ADR) stock returns are correlated with changes in country credit default swap spreads (CDS), we should side with academics who argue for adjusting discount rates. But if such stock returns show little co-movement with CDS, then the appropriate approach is to adjust cash flows.

The main findings of my study were that the U.S. dollar returns on emerging market equities (ADRs) are primarily

4. Consistent with this argument, I later demonstrate the positive correlation of ADR returns with CDSs, which is the basis for my recommendation that managers adjust for risk by raising the discount rate.

a function of two main variables: returns on the broad U.S. equity market (e.g., the S&P 500) and on the corresponding country's CDS spreads. Because CDSs are standardized contracts that are far more liquid than dollar-denominated emerging market bonds, I judged them to be the most reliable publicly available indicators of emerging-market risk.

In principle, then, one should be able to use either the bond spread or the CDS spread as a proxy for country risk. My judgment call was to use CDS spreads, both for reasons I mentioned in the above paragraph and for those summarized by Patrick Augustin in his recent exhaustive survey of the literature. In Augustin's words:

Regarding price discovery, there seems to be consent that the CDS market is more efficient for corporate reference entities. For sovereign reference entities however, results are very mixed and ambiguous… While some conclude in favor of the bond market and others in favor of the CDS market, my interpretation of the literature is that there is increasing price discovery in the credit derivative market as the market has matured.[5]

What's more, as stated earlier, my preference as an adviser to both companies and investors has been to adjust the discount rate primarily for two main reasons. First, my experience in advising practitioners is that adjusting cash flows is an ad hoc process, one that cannot be made systematic or repeatable (by any two groups of analysts). Second, I have never believed that country risk is fully diversifiable. In light of the diversity of opinion reflected above, my approach is to let the data do the judging in determining the following: (1) the extent to which industry betas in emerging markets are similar to industry betas in the U.S.; and (2) the extent to which CDS spreads are statistically significantly correlated with ADR returns. My research shows clearly that industries have different sensitivities to changes in CDS spreads, and my hypothesis is that such sensitivities are likely to be one of the most reliable indicators of exposure to political and country risk.

A Quick Look at the Theory (along with a Brief Bit of Model-Building)

As I said earlier, I take a pragmatic approach that is designed to let the data do the talking. My own intuition is that country risk is not fully diversifiable, and should thus be incorporated in the discount rate. However, this intuition is not written in stone; and as Keynes famously stated, "If the data change, I will change my mind." I also agree with the statements, made by a number of the above authors, that it may be appropriate for investments in different industries to bear different amounts of country risk. But again, as we shall see later on, I will let the data be the judge of that.

In my 2011 study, I commented on the similarity between the practical approach to estimating the cost of emerging-market equities to applications of "extended" Capital Asset Pricing Models (CAPM) models, such as arbitrage pricing theory (APT) or the Fama-French three-factor models (or extensions thereof). Stated differently, the introduction of a political risk premium variable—tied, again to credit default swap (CDS) spreads—is offered here in the same spirit as the above extensions of the CAPM. With this in mind, I postulate that the cost of equity, k_e, can be estimated by an extended CAPM that takes the following form:

$$k_e = \text{dlog (ADR)} = c + \beta(\text{dlogS\&P500}) + \gamma(\Delta\text{CDS}), \quad (1)$$

where ADR represents the levels of emerging market stock prices being investigated; dlog represents log differences (which approximate percentage changes); c is a constant;[6] β (beta) is the traditional CAPM constant; S&P 500 is the level of the broad U.S. market stock index; γ is the sensitivity of ADR returns to changes in CDS spreads; Δ represents first differences; and CDS is represented as a real number.

The Model-Building: The Higher the ADR Sensitivity to CDS, the Lower the P/E Multiple. But to see how the most important elements of this model work, we need to take a couple steps back. In a traditional perpetuity growth model that incorporates CDS as a risk factor, a company's P/E ratio would be expressed as follows:

$$P/E = 1/(k_e - g + \alpha(\text{cds})), \quad (2)$$

where g could be thought of as representing the perpetual growth rate of earnings, and α represents the proportion of CDS risk borne by the specific industry. When cds is zero, equation (2) reduces to the conventional P/E multiple model.

Equation (2) can be interpreted as saying that the higher the absolute value of alpha times CDS, the lower the P/E multiple. And this in turn implies the following:

$$k_e = \text{risk-free rate} + \beta(\text{equity market risk premium}) + \alpha(\text{CDS}). \quad (3)$$

So as alpha times cds increases, the cost of equity increases and the P/E multiple goes down. As I discuss below, that proportion varies anywhere from 0.35 to 1.0. Stated differently, as ADR returns become more sensitive to CDS spreads, we would expect that industry to have a lower P/E multiple. And one final point: although the coefficients α (alpha) and γ (gamma) capture the same concept of sensitivity to changes

5. Augustin (2014).

6. A purist would argue that c equals the risk-free rate minus β times the risk-free rate.

in CDS spreads, they are slightly different in that gamma represents the estimated CDS sensitivity of a particular ADR, while alpha represents the proportion of CDS spread that will be added to the cost of equity, as represented by the CAPM.

The Empirical Results (and What They Tell Us)

My findings are reported in ten tables that appear in the Appendix to this article. In choosing the countries to focus on, I wanted to make sure that various regions of the world such as Latin America, the Asia Pacific region, and Europe were well represented. For this reason, my sample ended up including two Western European countries, Italy and Spain, which strictly speaking should not be counted as emerging market countries, and one Eastern European country—Russia. My reason for including them was the clear message from the European financial crisis that has underscored the political and country risk associated with investing in these countries. Other criteria for countries were that each should have at least ten ADRs, and that the results be statistically meaningful. Use of these two criteria led me to exclude countries such as Argentina, Greece, Indonesia, Israel, Japan, Malaysia, Philippines, Portugal, Thailand, and Turkey. As for the question of frequency of data—and the use of daily versus weekly data—I found that, with two and a half years of data, the bottom line does not change appreciably whether we use daily or weekly data.

My empirical work finds that ADR returns are strongly correlated with: (1) S&P 500 returns where the ADR's beta is virtually the same (statistically speaking) as the corresponding industry's U.S.-based beta; and (2) the corresponding country's changes in CDS spreads, which again capture country risk. Moreover I find that the coefficient in the CDS spread is strongly negatively correlated with the ADR's P/E multiple, suggesting that certain industries are more exposed to political risk than others. (For example, except for the case of South Korea (which has only one ADR with a statistically significant gamma), the correlations of the gammas and the P/Es are significantly negative for all the countries, reaching a high absolute value of 65% for Italy, and a low absolute value of 27% for Chile and Mexico.)

A. Country-by-Country Analysis of Results

Latin America

1. **Brazil.** As the novelist Stefan Zweig once wrote: "Brazil is the country of the future." Unfortunately, Brazil has remained the country of the future since Zweig made this statement right after World War II. In macroeconomic terms, Brazil is a country with tremendous potential, yet chronically plagued by an array of macroeconomic problems, including relatively high inflation and interest rates, the twin current account and budget deficits, extreme volatility in share prices and exchange rates, and, in recent years, low growth. The Brazilian stock market and its major stock exchange, the Bovespa, is the largest in Latin America and the 13th largest in the world. Forecasters expect that over the near future Brazil will have to deal with correcting its macroeconomic imbalances in the face of anemic commodity prices and decelerating Chinese growth.

With this backdrop in mind, I started my empirical analysis by analyzing the returns of the 14 largest-capitalization Brazilian ADRs, which are reported in Table A1, and with three Brazilian companies in my sample that have two classes of ADRs. I would characterize the results for Brazil as strong, with all "γ"s statistically significant. These results imply both a high degree of sensitivity of returns to changes in what are fairly large CDS spreads (and thus high political risk), but also a good "statistical fit," possibly due to Brazil's growing importance in the global landscape.

Based on the theoretical framework I presented earlier, I would expect each industry group to have a "γ" that is distinct, with low political-risk industries having low "γ"s, and high political-risk industries having high "γ"s. Indeed, Petrobras has the highest "γ" even though this study was conducted before the recent much-publicized scandals surrounding this large Brazilian oil company.

As expected, the higher CDS sensitivity industries have lower P/E multiples, and the converse is also true. And many of the companies in the sample have significant sensitivities to CDS spreads. What this implies is that: (1) Brazil as a country has substantial political and country risk (keep in mind that the S&P 500 forward P/E is around 15-16 times); and (2) that such risk, especially for industries like oil and gas and companies like Petrobras that are exposed to it, are reflected in lower P/E multiples than in countries with less risk. (Indeed, the correlation of Brazilian gammas to their corresponding P/Es is -62%.) No surprise, oil and gas and banks seem to score high on political risk, while beverages score low.

2. **Mexico.** The economy of Mexico is the 14th largest in the world in nominal terms and the tenth largest by purchasing power parity. Since the 1994 "tequila crisis," policy makers have improved the country's macroeconomic fundamentals. The economy of Mexico is extremely sensitive to developments in the U.S., and it suffered greatly during the 2007-2009 great contraction. In spite of unprecedented macroeconomic stability since 1994, enormous gaps exist between rich and poor, south and north, and urban and rural, making Mexico a good object of study regarding political risk. Forecasters expect that Mexico will benefit from the U.S. recovery and from domestic fiscal and monetary stimuli.

With the Mexican stock market being the second largest in Latin America, Table A5 presents Mexican ADR sensitivities to the S&P 500 and CDS spreads. Similar to Brazil, the results are strong, with banks exhibiting high CDS sensitivities, and correspondingly low P/E multiples. Mexican gammas and P/Es are not as strongly correlated as Brazil's, possibly reflecting Mexico's more stable political environment.

Yet, Mexican gammas and P/Es still exhibit a correlation of -27%. As expected, the publicly traded Mexican subsidiaries of U.S. multinationals such as Wal-Mart and Kimberly Clark have low CDS sensitivities and relatively high P/E multiples.

3. **Chile.** The economy of Chile is rated as a high-income economy by the World Bank and is considered one of South America's most stable and prosperous nations, leading Latin American nations in competitiveness, income per capita, globalization, economic freedom, and relatively low levels of corruption—accomplishments that are frequently attributed to advice from University of Chicago economists. In 2006 Chile became the country with the highest nominal GDP per capita in Latin America. Like other Latin American countries, Chile suffers from high economic inequality and, for this reason alone, is believed to be subject to considerable political risk. On the other hand, forecasters see a well-managed economy with no major economic imbalances; yet there are clouds on the horizon due to external shocks emanating from declining global commodity prices and decelerating Chinese growth.

The Chilean stock market is the third largest in Latin America. I report sensitivities of Chile's largest-capitalization ADRs in Table A2. Based on the macroeconomic picture outlined above, and as expected, Chilean ADRs are not as sensitive to CDS spreads as those of Brazil and Mexico, but they do exhibit statistically significant sensitivity. Moreover, as we would also expect, Chilean companies' P/E ratios are higher than those of Brazil and Mexico.

The relationship between Chilean gammas and P/Es is not as robust as those of Brazil and Mexico, possibly reflecting Chile's superior stability and credit rating among all Latin American countries. If I exclude outliers, this correlation is still negative for Chile, at -27%, while it is positive if I include outliers.

Asia

4. **China.** According to the IMF, China is the world's second largest economy by nominal GDP, and the world's largest by purchasing power parity. It is the world's fastest-growing major economy, with growth rates averaging 10% over the past 30 years. China is considered the manufacturing hub of the global economy, and as such its growth rate is sensitive to global economic developments. Forecasters expect that Chinese growth will decelerate significantly with official statistics hovering around 7.5%, and unofficial estimates based on CEO interviews and power consumption signaling rates as low as 3%.

On a per capita basis, however, China may be considered a poor country in that it is ranked 82nd in nominal GDP, and 89th in purchasing power, according to the IMF. As a result, analysts expect policy makers to shift the economy from export orientation to enhancing consumption. Moreover, economists expect Chinese political leaders to undertake an array of ambitious structural reforms encompassing anti-corruption, anti-pollution, financial liberalization, and the streamlining of state economic enterprises.

As for the risks, Chinese debt has increased significantly, with total debt to GDP approaching 250% and rising vacancy rates in urban housing. Moreover, Chinese exchange rate, monetary and capital inflow policies could be tested in the medium term.

The Shanghai stock exchange is the world's sixth largest; and unlike the Hong Kong stock exchange, it is still not totally open to foreign investors. With this backdrop, I present in Table A3 the sensitivities of Chinese ADRs to the S&P 500 and to CDS spreads. Despite China's military and economic muscle, Chinese ADRs are also sensitive to political risk, though not as highly as Latin American ADRs (the correlation of gammas and P/Es is -35%). And, twelve out of 20 "γ"s are statistically significant and 16 of the 20 R^2s exceed 24%. My sample includes relatively old-economy giants like Petrochina, China Telecom, and Lenovo, as well as Internet giants like Tencent and Baidu. As expected, Chinese P/E ratios are significantly lower than their U.S. counterparts, possibly due to political risk, despite higher Chinese growth rates.

5. **South Korea.** South Korea is one of the world's wealthiest nations, and is a member of the organization of Economic Cooperation and Development (OECD) and the G-20 major economies. South Korea had one of the world's fastest growing economies from the early 1960s to the late 1990s. During the 1997 Asian financial crisis, the South Korean economy suffered a liquidity crisis and received a bailout from the IMF that restructured and modernized the South Korean economy, similar to the reforms experienced by Mexico after the Tequila crisis. Since then, the South Korean economy has been on a stable footing, suffering no major macroeconomic imbalances. Nonetheless, in addition to potential military threats emanating from its belligerent brother, it is subject to the vicissitudes of the global economy such as a weak yen, decelerating China and weak European demand.

South Korean stocks, whose results I present in Table A8, include giants like POSCO and Korea Electric Power. With 10 observations, and only one "γ" statistically significant, and five out of ten R^2s greater than 24%, I would characterize the South Korean results as weak, possibly because political risk premium has not varied much in this country, and because South Korea has enjoyed macroeconomic stability.

Europe

The Europe that entered the new millennium with great fanfare, enthusiasm, and Napoleonic expectations met its economic Waterloo soon after the onset of the 2007-2009 great contraction. Though the reasons for this Waterloo are beyond the scope of this paper, they can be reduced to the following: a fixed exchange rate in the absence of political

and fiscal union, labor immobility, and structural rigidities ("eurosclerosis"). Unfortunately for the Mediterranean-rim countries (the garlic belt), the burden of the defeat has largely been borne by Greece, Italy, Spain, and Portugal, while the northern-European "uber"economies have prospered, with Germany becoming the world's leading exporter on a per capita basis.

Though current commodity prices, euro depreciation, and ECB quantitative easing will likely improve economic conditions in the medium term, lack of confidence, deflation, and unresolved structural rigidities likely will result in anemic growth rates lingering around 1% for Italy and Spain.

6. **Italy.** Many a tourist's delight, Italy has a diversified economy with high GDP per capita and developed infrastructure. After Germany and France, Italy has the third largest economy in the Eurozone, with GDP per head, in terms of purchasing power parity, about 68% that of the U.S., according to the *Economist, Pocket World in Figures*. Possibly for the reasons described above, the Italian unemployment rate rose to a record high in January 2015 that is more than double the German rate, keeping alive concerns that Eurozone stability is not a forgone conclusion.

With these risks in mind, I present in Table A4 sensitivities of Italian ADRs. My sample set includes jewels of the Italian industry such as ENI (oil and gas), Enel (electric utilities), Telecom Italia, and Fiat (autos). Reflecting the fragility of Italy's economy, twelve out of the 16 "γ"s are statistically significant, with R^2s exceeding 24%. And Eni, Enel, and Telecom Italia are significantly sensitive to CDS spreads, with correspondingly lower P/Es than their U.S. counterparts, as our theory predicts (with the correlation of gammas and P/Es at -65%). At the same time, Fiat is not sensitive to CDS, possibly because of its global diversification.

7. **Spain.** Just behind Italy, Spain has the fourth-largest economy in the Eurozone, with purchasing power parity adjusted GDP per head just a percentage point below Italy's. According to the World Bank, Spain has a high-income economy, and is among the countries with very high human development. But since the global financial crisis, the Spanish economic miracle of the 2000s has been reversed, and its unemployment rate has exceeded 25%.

Consistent with this story, the results I present in Table A9 underscore the sensitivity of Spanish ADRs to CDS spreads, with correspondingly lower P/E multiples than their U.S. counterparts (the correlation of gammas and P/E is -51%). Eight of the 11 observations have statistically significant "γ"s and R^2 s greater than 24%. I would characterize the Spanish results as strong, possibly due to the European crisis.

8. **Russia.** With GDP per capita in terms of purchasing power parity about twenty percentage points lower than those of Italy and Spain, Russia is not in the same league as major Western European nations. Nonetheless, and despite its large landmass in Asia, Russia may still be considered a European country, with some of the risks associated with politically unstable emerging markets. Russia has an abundance of natural resources, including energy that drives its economic growth. As with other countries that are endowed with significant natural resources, corruption is widespread in Russia.

Not surprisingly, the Russian ADR results presented in Table A6 exhibit strong sensitivities to CDS spreads, and low P/E ratios (correlation at -39%). With 11 observations in which all "γ"s are statistically significant, and 10 of 11 R^2 s are above 24%, I would characterize the Russian results as strong, underscoring Russia's significant exposure to political risk.

Africa

9. **South Africa.** With GDP per head in terms of purchasing power parity at 23% that of the U.S., the economy of South Africa is the second largest in Africa, behind Nigeria. Blessed or cursed with an abundance of natural resources, South Africa's unofficial unemployment rate has reached 35%, according to Goldman Sachs.

As expected, the South African ADR results that I present in Table A7 are very sensitive to CDS spreads, exhibiting relatively low P/E multiples (correlation at -28%). With 20 observations in which all "γ"s statistically significant, and 15 of 20 R^2 s are greater than 24%, I would characterize the South African results as strong.

Market Sensitivities (betas), and CDS sensitivities (alphas)

10. **Industry Betas.** Broadly speaking, when I compare the company (ADR) betas reported in Tables A1-A9 to the U.S. industry betas reported in Table A10, I find, as expected, that the ADR betas are not statistically indistinguishable from U.S. industry betas.

11. **Exposure to Country Risk.** As discussed below, and as expected, industries have varying sensitivities to country risk, ranging from low to high.

B. Estimating Equity Costs by Country and by Industry

The theory and empirical results presented in the preceding sections suggest that we can estimate equity costs by country and by industry (using equation (3) earlier). My findings are summarized in Table I, where I assume that the U.S. risk free rate is 4% (slightly higher than the current 30-Year Treasury Bond, yet closer to the long-term equilibrium rate that should theoretically approach growth rate of nominal GDP), and that the U.S. equity market risk premium is 7%. If we also assume that the forward-looking P/E multiple of the S&P 500 is 14.5x and a 5% perpetual growth rate, by using equation (2) we would come up with a cost of equity for the S&P 500 of 11.9%.

Using equation (3), I deduced the α's while using the regression estimates of the sensitivities of the various industry groups to CDS spreads. And to compensate for the imprecision of my estimates, I then categorize all the α's into one

Table 1 **International Cost of Equity Estimates**

		CDS Risk Allocation	Brazil	Chile	China	Italy	Mexico	Russia	South Africa	South Korea	Spain
US Risk Free Rate (%)	4.00										
US Market Risk Premium (%)	7.00										
CDS (%)			1.75	0.80	0.80	1.20	0.90	3.50	1.90	0.60	0.90
Industry	**Beta**	**CDS Risk**	**Values in Percent**								
Consumer Discretionary	1.10	0.35	12.31	11.98	11.98	12.12	12.02	12.93	12.37	11.91	12.02
Consumer Staple	0.50	0.35	8.11	7.78	7.78	7.92	7.82	8.73	8.17	7.71	7.82
Energy	1.25	1.00	14.50	13.55	13.55	13.95	13.65	16.25	14.65	13.35	13.65
Financials	1.40	1.00	15.55	14.60	14.60	15.00	14.70	17.30	15.70	14.40	14.70
Health Care	0.70	0.70	10.13	9.46	9.46	9.74	9.53	11.35	10.23	9.32	9.53
Industrials	1.20	0.70	13.63	12.96	12.96	13.24	13.03	14.85	13.73	12.82	13.03
Information Technology	1.10	0.70	12.93	12.26	12.26	12.54	12.33	14.15	13.03	12.12	12.33
Materials	1.30	0.70	14.33	13.66	13.66	13.94	13.73	15.55	14.43	13.52	13.73
Telecommunications	0.60	0.70	9.43	8.76	8.76	9.04	8.83	10.65	9.53	8.62	8.83
Utilities	0.50	0.70	8.73	8.06	8.06	8.34	8.13	9.95	8.83	7.92	8.13

of three groups: low, medium and high, where these three groups respectively bear 35%, 70%, and 100% of the country risk premium (CDS spread). The country risk exposures of industry groups are as follows:

1. Low exposure: Consumer discretionary, Consumer staple
2. Medium exposure: Health care, Industrials, Information technology, Materials, Telecommunications, and Utilities
3. High exposure: Energy, Financials

Using a similar procedure, I next estimate β's for the same industries using the regression estimates for the U.S. (Table A10). As expected, utilities have one of the lowest k_es, primarily because of their low β, and despite their modest exposure to country/political risk. On the other hand, energy stocks and financials have the highest cost of equities primarily because of their high betas, and high country/political risk exposures. But to repeat the main finding of my study: cost of equity, holding all other things equal, increases with CDS spreads.

Conclusion

Synthesizing these results, then, and those reported in Table I, I propose cost of equity estimations based on the use of three variables: (1) an industry beta, (2) the country's CDS spread, and (3) the industry country-risk exposure.

Most of my results support the hypothesis that ADR returns are significantly dependent on changes in their respective CDS spreads, in addition to returns of the broad market. For most countries, the explanatory power (as reflected in R^2s) of the S&P 500 and of CDS spreads exceeds 25%, and in many cases approaches 40%. Moreover, ADR betas seem statistically indistinguishable from U.S. industry betas—and using daily versus weekly data does not significantly alter that conclusion, except in a few special cases.

As predicted by theory, the coefficient of the CDS spread is strongly negatively correlated with the ADR's P/E multiple, which suggests that certain industries are more exposed to political risk than others. This correlation is higher (in absolute value terms) for countries, such as Brazil, Italy, and Spain, that have had a rockier political and macroeconomic path than more stable countries such as Chile, Mexico, and South Korea.

Moreover, when summarizing my empirical findings on country-risk exposure, I observe that industries have varying sensitivities to political risk, regardless of the country within which they operate. For example, whereas consumer discretionary and staples have low exposure to country risk, health care, industrials, information technology, materials, telecommunications, and utilities have higher, but still moderate exposures. By contrast, energy and financials have high exposure to country risk. To cite two examples, whereas a utility operating in South Korea might have a cost of equity of less than 8%, an energy company in Russia might have a cost of equity as high as 16.25%.

NISO ABUAF is Clinical Professor of Finance and Economics at Pace University, and Chief Economist and Strategist at Ramirez and Co. in New York.

Appendix

Table A1 **Brazilian ADRs vs. S&P 500 and CDS, January 1, 2010–June 21, 2013**

Company (Ticker)	Industry Group	S&P 500 and CDS Regressions			P/E ratio
		S&P500 (t-statistic)	5 Y CDS (t-statistic)	Adjusted R^2	Forward P/E (LTM P/E)
AMBEV-PRF ADR	Beverages	0.51	-7.81	0.28	22.11
(ABV)		(4.33)	(-3.10)		(25.43)
AMBEV-ADR	Beverages	0.51	-8.09	0.24	22.11
(ABV/C)		(3.85)	(-2.86)		(25.43)
PETROBRAS-SP ADR	Oil&Gas	0.76	-21.19	0.50	6.70
(PBR/A)		(5.15)	(-6.76)		(12.02)
PETROBRAS SA-ADR	Oil&Gas	0.88	-19.13	0.48	6.70
(PBR)		(5.62)	(-5.71)		(12.02)
VALE SA-SP P ADR	Iron/Steel	1.02	-12.73	0.47	6.04
(VALE/P)		(6.98)	(-4.11)		(22.18)
VALE SA-SP ADR	Iron/Steel	1.10	-11.94	0.49	6.04
(VALE)		(7.55)	(-3.84)		(22.18)
ITAU UNIBANC-ADR	Banks	1.09	-13.37	0.53	9.19
(ITUB)		(7.85)	(-4.54)		(11.93)
BRADESCO-ADR	Banks	0.96	-13.99	0.55	9.31
(BBD)		(7.61)	(-5.23)		(11.89)
BANCO DO BRA-ADR	Banks	0.74	-19.91	0.42	5.81
(BDORY)		(4.37)	(-5.53)		(6.51)
BANCO SANTANDER	Banks	1.01	-15.79	0.47	9.29
(BSBR)		(6.41)	(-4.72)		(10.96)
TELEFONICA B-ADR	Telecommunications	0.32	-13.50	0.30	12.19
(VIV)		(2.53)	(-4.99)		(12.36)
BRASIL FOODS-ADR	Food	0.83	-10.17	0.39	22.33
(BRFS)		(5.95)	(-3.41)		(45.11)
GERDAU SA-ADR	Iron/Steel	1.38	-11.42	0.50	14.86
(GGB)		(8.36)	(-3.25)		(21.41)
PAO ACUCAR-ADR	Food	0.50	-17.59	0.37	20.57
(CBD)		(3.34)	(-5.54)		(22.56)
ULTRAPAR PA-ADR	Chemicals	0.49	-10.81	0.36	22.98
(UGP)		(4.33)	(-4.51)		(24.45)
CPFL ENERGIA-ADR	Electric	0.35	-13.11	0.35	14.52
(CPL)		(3.06)	(-5.39)		(16.80)
SABESP-ADR	Water	0.53	-14.53	0.33	7.10
(SBS)		(3.64)	(-4.67)		(10.35)

Notes: Data are weekly; The ADR and the S&P 500 variables are in natural log differences.
The CDS variable is in differences expressed as a real number.
LTM stands for trailing last twelve months. S.D. represents standard deviation.
Results are ranked by market cap.

Source: Bloomberg.

Table A2 **Chilean ADRs vs. S&P 500 and CDS, January 1, 2010–June 21, 2013**

Company (Ticker)	Industry Group	S&P 500 and CDS Regressions			P/E ratio
		S&P500 (t-statistic)	5 Y CDS (t-statistic)	Adjusted R^2	Forward P/E (LTM P/E)
QUIMICA Y-SP ADR	Chemicals	0.80	-14.80	0.45	16.99
(SQM)		(7.05)	(-4.10)		(23.27)
BANCO CHILE-ADR	Banks	0.66	-9.15	0.31	13.51
(BCH)		(5.75)	(-2.51)		(14.66)
BANCO SANTAN-ADR	Banks	0.81	-6.58	0.33	12.90
(BSAC)		(6.61)	(-1.69)		(16.38)
ENDESA-ADR (CHL)	Electric	0.53	-12.36	0.35	14.60
(EOC)		(5.33)	(-3.88)		(27.24)
ENERSIS SA-ADR	Electric	0.65	-12.07	0.33	12.70
(ENI)		(5.57)	(-3.26)		(15.21)
LATAM AIRLIN-ADR	Airlines	0.61	-17.67	0.33	22.53
(LFL)		(4.61)	(-4.17)		(883.06)
EMBOT ANDINA-ADR	Beverages	0.32	-12.04	0.15	16.33
(AKO/A)		(2.46)	(-2.90)		(22.29)
EMBOT ANDINA-ADR	Beverages	0.30	-14.01	0.16	16.33
(AKO/B)		(2.28)	(-3.30)		(22.29)
CERVEZAS-ADR	Beverages	0.62	-7.20	0.05	17.71
(CCU)		(2.13)	(-0.78)		(20.98)
CORPBANCA SA-ADR	Banks	0.39	-6.71	0.10	11.89
(BCA)		(2.68)	(-1.46)		(14.88)
PROVIDA-ADR	Investment	0.65	-11.29	0.26	8.47
(PVD)	Companies	(4.77)	(-2.61)		(10.35)
VINA CONCHA-ADR	Beverages	0.46	-11.97	0.18	19.81
(VCO)		(3.24)	(-2.65)		(23.20)

Notes: See Table 1.

Table A3 **Chinese ADRs vs. S&P 500 and CDS, January 1, 2010–June 21, 2013**

Company (Ticker)	Industry Group	S&P 500 and CDS Regressions			P/E ratio
		S&P500 (t-statistic)	5 Y CDS (t-statistic)	Adjusted R^2	Forward P/E (LTM P/E)
PETROCHINA -ADR	Oil&Gas	0.92	-5.76	0.43	8.93
(PTR)		(8.85)	(-1.99)		(14.02)
IND & COMM-ADR	Banks	0.79	-18.38	0.43	5.18
(IDCBY)		(6.41)	(-5.29)		(6.10)
CHINA CONSTR-ADR	Banks	0.69	-15.02	0.38	5.05
(CICHY)		(5.89)	(-4.60)		(6.50)
BANK OF CHIN-ADR	Banks	0.69	-18.57	0.44	4.76
(BACHY)		(6.07)	(-5.85)		(5.57)
CNOOC LTD-ADR	Oil&Gas	1.04	-12.06	0.45	7.26
(CEO)		(8.31)	(-3.45)		(9.44)
CHINA PETRO-ADR	Oil&Gas	0.87	3.01	0.30	6.42
(SNP)		(8.01)	(0.99)		(9.60)
CHINA LIFE-ADR	Insurance	0.71	-11.17	0.25	13.97
(LFC)		(5.04)	(-2.83)		(52.18)
CHINA SHENH-ADR	Coal	0.99	-9.08	0.24	7.47
(CSUAY)		(5.57)	(-1.82)		(11.12)
TENCENT HOLD-ADR	Internet	0.83	-9.75	0.25	25.57
(TCEHY)		(5.41)	(-2.27)		(28.76)
PING AN INSU-ADR	Insurance	0.63	-26.39	0.37	11.39
(PNGAY)		(4.11)	(-6.11)		(20.64)
CHINA TELECO-ADR	Telecommunications	0.92	2.11	0.28	12.99
(CHA)		(7.61)	(0.62)		(19.26)
BAIDU INC-SP ADR	Internet	1.32	-6.29	0.29	18.39
(BIDU)		(6.85)	(-1.17)		(20.96)
WANT WANT-ADR	Food	0.64	-1.91	0.10	26.38
(WWNTY)		(3.82)	(-0.41)		(32.89)
HUANENG POWR-ADR	Electric	0.57	0.83	0.09	8.24
(HNP)		(3.99)	(0.21)		(14.79)
YANZHOU COAL-ADR	Coal	1.16	-19.96	0.37	8.38
(YZC)		(6.42)	(-3.96)		(8.18)
JIANGXI COPP-ADR	Mining	1.08	-27.58	0.48	8.13
(JIXAY)		(6.75)	(-6.16)		(11.01)
CHINA OILFIE-ADR	Oil&Gas Services	1.34	-8.06	0.36	9.40
(CHOLY)		(7.85)	(-1.68)		(12.67)
AIR CHINA-SP-ADR	Airlines	0.92	-11.03	0.21	9.76
(AIRYY)		(4.79)	(-2.06)		(13.79)
LENOVO GROUP-ADR	Computers	1.03	-3.33	0.21	12.55
(LNVGY)		(5.71)	(-0.66)		(16.12)
ALUMINUM COR-ADR	Mining	1.16	-21.84	0.44	n/a
(ACH)		(7.15)	(-4.79)		(n/a)

Notes: See Table 1.

Table A4 **Italian ADRs vs. S&P 500 and CDS, January 1, 2010–June 21, 2013**

Company (Ticker)	Industry Group	S&P 500 and CDS Regressions			P/E ratio
		S&P500 (t-statistic)	5 Y CDS (t-statistic)	Adjusted R^2	Forward P/E (LTM P/E)
ENI SPA-ADR	Oil&Gas	1.24	-3.56	0.69	8.94
(E)		(13.92)	(-5.51)		(16.38)
ENEL SPA - ADR	Electric	0.86	-6.98	0.53	7.56
(ENLAY)		(6.72)	(-7.55)		(34.11)
INTESA SAN- ADR	Banks	1.26	-10.84	0.58	11.97
(ISNPY)		(7.24)	(-8.61)		(13.00)
LUXOTTICA GR-ADR	Healthcare-Products	1.00	-1.30	0.55	26.42
(LUX)		(11.67)	(-2.10)		(26.56)
SAIPEM SPA-ADR	Oil&Gas Services	1.33	-3.70	0.35	n/a
(SAPMY)		(6.90)	(-2.66)		(14.29)
TELECOM ITAL-ADR	Telecommunications	0.47	-6.56	0.32	4.78
(TI/A)		(3.16)	(-6.06)		(n/a)
TELECOM ITAL-ADR	Telecommunications	0.80	-6.46	0.42	4.78
(TI)		(5.44)	(-6.12)		(n/a)
ATLANTIA SPA-ADR	Commercial Services	0.48	-6.13	0.24	13.38
(ATASY)		(2.72)	(-4.77)		(11.09)
FIAT SPA-ADR	Auto Manufacturers	1.89	-3.13	0.28	18.81
(FIATY)		(6.43)	(-1.48)		(13.25)
DAVIDE CAMPA-ADR	Beverages	0.39	2.06	0.01	17.91
(DVDCY)		(1.57)	(1.14)		(21.48)
LOTTOMATICA-ADR	Entertainment	0.19	-4.60	0.12	12.58
(GTKYY)		(1.07)	(-3.65)		(12.74)
FINMECCANICA-ADR	Aerospace/Defense	1.22	-6.84	0.35	8.00
(FINMY)		(5.57)	(-4.34)		(n/a)
MEDIASET SPA-ADR	Media	1.08	-8.10	0.44	96.96
(MDIUY)		(5.90)	(-6.11)		(n/a)
ITALCEMENTI-ADR	Building Materials	1.54	-5.91	0.52	n/a
(ITALY)		(9.02)	(-4.78)		(n/a)
GENTIUM SPA-ADR	Pharmaceuticals	0.91	0.78	0.04	n/a
(GENT)		(2.96)	(0.35)		(n/a)
NATUZZI SPA-ADR	Home Furnishings	0.81	0.17	0.08	n/a
(NTZ)		(3.60)	(0.1)		(n/a)

Notes: See Table 1.

Table A5 **Mexican ADRs vs. S&P 500 and CDS, January 1, 2010–June 21, 2013**

Company (Ticker)	Industry Group	S&P 500 and CDS Regressions			P/E ratio
		S&P500 (t-statistic)	5 Y CDS (t-statistic)	Adjusted R^2	Forward P/E (LTM P/E)
AMERICA MO-ADR A	Telecommunications	0.89	-8.29	0.46	10.64
(AMOV)		(7.28)	(-3.16)		(12.40)
AMERICA MO-ADR L	Telecommunications	0.89	-7.77	0.47	10.64
(AMX)		(7.43)	(-3.02)		(12.40)
WAL-MART MEX-ADR	Retail	0.68	-8.55	0.32	23.91
(WMMVY)		(4.94)	(-2.93)		(32.23)
FOMENTO ECON-ADR	Beverages	0.54	-12.60	0.42	23.65
(FMX)		(4.68)	(-5.08)		(22.35)
GRUPO MODELO-ADR	Beverages	0.60	-5.02	0.23	29.75
(GPMCY)		(4.40)	(-1.73)		(30.41)
COCA-COLA F-ADR	Beverages	0.40	-9.29	0.24	25.15
(KOF)		(3.11)	(-3.43)		(29.14)
GRUPO F INBU-ADR	Banks	0.30	-23.64	0.34	18.24
(GPFOY)		(1.68)	(-6.23)		(29.43)
GRUPO F BANO-ADR	Banks	0.84	-17.51	0.43	12.42
(GBOOY)		(5.01)	(-4.90)		(17.83)
GRUPO TELEV-ADR	Media	0.88	-8.27	0.49	20.47
(TV)		(7.66)	(-3.39)		(18.66)
CEMEX SAB-SP ADR	Building Materials	1.80	-18.72	0.56	n/a
(CX)		(8.50)	(-4.13)		(n/a)
GRUPO CARSO-ADR	Holding	0.46	-18.45	0.21	17.87
(GPOVY)	Companies-Divers.	(2.08)	(-3.94)		(18.93)
KIMBERLY-CLA-ADR	Household	0.67	-7.31	0.28	26.35
(KCDMY)	Products/Wares	(4.75)	(-2.43)		(24.98)
GRUPO AEROPO-ADR	Engineering &	0.75	-9.31	0.32	19.63
(ASR)	Construction	(4.97)	(-2.89)		(21.16)
GRUPO AEROPO-ADR	Engineering &	0.55	-9.32	0.28	19.25
(PAC)	Construction	(4.04)	(-3.18)		(22.03)
PROMOTORA Y-ADR	Engineering &	0.38	-10.69	0.14	24.94
(PUODY)	Construction	(2.20)	(-2.86)		(18.02)
GRUPO SIMEC-ADR	Iron/Steel	0.71	-14.03	0.41	12.16
(SIM)		(4.91)	(-4.56)		(12.18)
GRUMA SAB-ADR	Food	0.91	-6.92	0.22	16.28
(GMK)		(4.46)	(-1.59)		(16.06)
EMP ICA-ADR	Engineering &	1.22	-12.93	0.43	12.39
(ICA)	Construction	(6.49)	(-3.22)		(14.64)
INDUS BACHOC-ADR	Food	0.03	-10.16	0.09	10.38
(IBA)		(0.18)	(-3.15)		(8.26)
GRUPO AEROPO-ADR	Engineering &	0.77	-7.32	0.25	17.93
(OMAB)	Construction	(4.52)	(-2.01)		(17.08)

Notes: See Table 1.

Table A6 **Russian ADRs vs. S&P 500 and CDS, January 1, 2010–June 21, 2013**

Company (Ticker)	Industry Group	S&P 500 and CDS Regressions			P/E ratio
		S&P500 (t-statistic)	5 Y CDS (t-statistic)	Adjusted R^2	Forward P/E (LTM P/E)
GAZPROM-ADR	Oil&Gas	0.76	-11.94	0.51	n/a
(OGZPY)		(5.00)	(-6.33)		(6.12)
LUKOIL OAO-ADR	Oil&Gas	0.78	-7.58	0.51	n/a
(LUKOY)		(6.46)	(-5.00)		(7.90)
MMC NORILSK ADR	Mining	0.69	-11.08	0.44	n/a
(NILSY)		(4.32)	(-5.58)		(15.34)
SURGUTNEFTEG-ADR	Oil&Gas	0.83	-9.75	0.45	n/a
(SGTZY)		(5.14)	(-4.85)		(5.96)
GAZPROM NEFT-ADR	Oil&Gas	0.94	-6.42	0.38	n/a
(GZPFY)		(5.67)	(-3.09)		(9.17)
MOBILE TELES-ADR	Telecommunications	0.60	-8.05	0.38	n/a
(MBT)		(4.18)	(-4.52)		(7.12)
TATNEFT-ADR	Oil&Gas	0.31	-14.46	0.28	n/a
(OAOFY)		(1.43)	(-5.39)		(7.26)
ROSTELECOM-ADR	Telecommunications	0.78	-10.48	0.31	n/a
(ROSYY)		(3.59)	(-3.89)		(10.82)
POLYUS G-SP ADR	Mining	0.23	-8.50	0.10	n/a
(OPYGY)		(0.96)	(-2.81)		(14.08)
SURGUTN-ADR PREF	Oil&Gas	0.58	-11.79	0.42	n/a
(SGTPY)		(3.64)	(-5.88)		(5.96)
MECHEL-SPON ADR	Iron/Steel	1.45	-18.72	0.50	n/a
(MTL)		(5.53)	(-5.70)		(4.46)

Notes: See Table 1.

Table A7 **South African ADRs vs. S&P 500 and CDS, January 1, 2010–June 21, 2013**

Company (Ticker)	Industry Group	S&P 500 and CDS Regressions			P/E ratio
		S&P500 (t-statistic)	5 Y CDS (t-statistic)	Adjusted R^2	Forward P/E (LTM P/E)
MTN GROUP-ADR	Telecommunications	0.51	-12.52	0.37	13.42
(MTNOY)		(3.73)	(-5.53)		(16.31)
SASOL LTD-SP ADR	Chemicals	1.07	-5.86	0.60	9.03
(SSL)		(10.67)	(-3.56)		(8.10)
NASPERS-N ADR	Media	0.81	-11.13	0.43	25.17
(NPSNY)		(5.75)	(-4.77)		(33.27)
KUMBA IRON-ADR	Iron/Steel	1.00	-13.96	0.47	9.57
(KIROY)		(6.11)	(-5.20)		(14.98)
ANGLO AMERIC-ADR	Mining	0.65	-14.61	0.37	30.11
(AGPPY)		(3.99)	(-5.41)		(n/a)
SHOPRITE-ADR	Food	0.30	-15.52	0.34	26.34
(SRHGY)		(2.07)	(-6.40)		(24.82)
ANGLOGOLD AS-ADR	Mining	0.48	-6.74	0.15	10.46
(AU)		(2.86)	(-2.41)		(10.45)
ABSA GROUP-ADR	Banks	0.10	-13.59	0.26	9.73
(AGRPY)		(.69)	(-5.97)		(13.36)
IMPALA PLAT-ADR	Mining	0.92	-12.66	0.43	26.35
(IMPUY)		(5.74)	(-4.79)		(19.74)
NEDBANK GROU-ADR	Banks	0.51	-10.57	0.37	9.40
(NDBKY)		(4.08)	(-5.13)		(11.42)
SANLAM LTD-ADR	Insurance	0.65	-9.63	0.45	14.22
(SLLDY)		(5.70)	(-5.13)		(14.98)
GOLD FIELDS-ADR	Mining	0.41	-10.24	0.19	11.94
(GFI)		(2.38)	(-3.61)		(27.16)
BIDVEST GRP-ADR	Holding	0.43	-6.87	0.17	15.16
(BDVSY)	Companies-Divers.	(2.85)	(-2.75)		(12.35)
TIGER BRANDS-ADR	Food	0.48	-11.82	0.40	16.58
(TBLMY)		(3.89)	(-5.83)		(16.17)
EXXARO RE-SP ADR	Coal	0.93	-8.88	0.31	9.88
(EXXAY)		(5.10)	(-2.95)		(12.06)
IMPERIAL HLD-ADR	Holding	0.28	-16.55	0.33	11.46
(IHLDY)	Companies-Divers.	(1.80)	(-6.44)		(10.98)
MASSMART HLDGS	Retail	0.53	-12.58	0.13	24.64
(MMRTY)		(1.94)	(-2.80)		(29.90)
HARMONY GOLD-ADR	Mining	0.57	-8.20	0.13	13.02
(HMY)		(2.65)	(-2.31)		(13.54)
AFRICAN BK -ADR	Diversified	0.56	-15.18	0.31	6.13
(AFRVY)	Finan Serv.	(3.12)	(-5.14)		(9.65)
PPC LTD-ADR	Building Materials	0.37	-10.77	0.24	13.11
(PPCYY)		(2.47)	(-4.30)		(17.90)

Notes: See Table 1.

Table A8 **South Korean ADRs vs. S&P 500 and CDS, January 1, 2010–June 21, 2013**

Company (Ticker)	Industry Group	S&P 500 and CDS Regressions			P/E ratio
		S&P500 (t-statistic)	5 Y CDS (t-statistic)	Adjusted R^2	Forward P/E (LTM P/E)
POSCO-ADR	Iron/Steel	1.21	-1.62	0.41	11.07
(PKX)		(11.19)	(-0.62)		(10.79)
KOREA ELEC P-ADR	Electric	0.78	-0.40	0.16	n/a
(KEP)		(5.85)	(-0.13)		(n/a)
SHINHAN FINA-ADR	Diversified	1.26	1.54	0.37	n/a
(SHG)	Finan Serv.	(10.37)	(0.53)		(37.61)
KB FINANCIAL-ADR	Diversified	1.38	3.32	0.44	n/a
(KB)	Finan Serv.	(11.91)	(1.20)		(22.65)
LG DISPLAY-ADR	Electronics	1.49	7.63	0.38	13.95
(LPL)		(10.42)	(2.22)		(388.13)
SK TELECOM-ADR	Telecommunications	0.61	-1.29	0.15	10.19
(SKM)		(5.75)	(-0.51)		(8.55)
KT CORP-ADR	Telecommunications	0.72	-1.57	0.16	n/a
(KT)		(5.96)	(-0.54)		(12.02)
WOORI FINANC-ADR	Diversified	1.66	6.77	0.40	n/a
(WF)	Finan Serv.	(10.82)	(1.84)		(25.71)
WEBZEN INC-ADR	Internet	-0.13	0.40	-0.01	n/a
(WZENY)		(-0.42)	(0.05)		(n/a)
GRAVITY CO-ADR	Internet	0.66	-3.06	0.05	n/a
(GRVY)		(3.26)	(-0.63)		(2.69)

Notes: See Table 1.

Table A9 **Spanish ADRs vs. S&P 500 and CDS, January 1, 2010–June 21, 2013**

Company (Ticker)	Industry Group	S&P 500 and CDS Regressions			P/E ratio
		S&P500 (t-statistic)	5 Y CDS (t-statistic)	Adjusted R^2	Forward P/E (LTM P/E)
INDITEX-ADR	Retail	0.87	-2.73	0.37	22.88
(IDEXY)		(7.20)	(-3.05)		(27.24)
BANCO SANTAN-ADR	Banks	0.99	-9.91	0.58	10.37
(SAN)		(6.81)	(-9.26)		(26.44)
TELEFONICA-ADR	Telecommunications	0.84	-6.97	0.59	9.22
(TEF)		(7.69)	(-8.60)		(11.71)
BANCO BILBAO-ADR	Banks	1.09	-10.61	0.61	9.71
(BBVA)		(7.28)	(-9.61)		(28.56)
IBERDROLA SA-ADR	Electric	0.99	-7.58	0.58	10.06
(IBDRY)		(7.93)	(-8.24)		(9.14)
REPSOL SA-ADR	Oil&Gas	1.22	-6.08	0.57	9.44
(REPYY)		(9.21)	(-6.21)		(9.83)
RED ELECTRIC-ADR	Electric	0.74	-2.12	0.25	10.69
(RDEIY)		(5.52)	(-2.13)		(10.30)
ENAGAS-ADR	Gas	0.69	-4.72	0.39	11.01
(ENGGY)		(5.72)	(-5.26)		(10.15)
BANKINTER-ADR	Banks	0.36	-1.60	0.00	13.35
(BKNIY)		(.86)	(-0.51)		(9.14)
ABENGOA SA-ADR	Engineering &	0.87	-2.53	0.02	10.18
(ABGOY)	Construction	(1.88)	(-0.74)		(10.39)
GAMESA CORP-ADR	Electrical	1.06	-4.04	0.06	34.90
(GCTAY)	Compo & Equip.	(2.41)	(-1.24)		N/A

Notes: See Table 1.

Table A10 **US Industry Beta vs. S&P 500, January 1, 2010–June 21, 2013**

	S&P500 Regressions	
Industry (Ticker)	**S&P500 (t-statistic)**	**Adjusted R^2**
Consumer Discretionary	1.06	0.90
(S5COND)	(40.65)	
Automobiles	1.52	0.57
(S5AUTO)	(15.42)	
Home Furnishings	1.32	0.57
(S5HOMF)	(15.53)	
Consumer Services	0.84	0.73
(S5HOTR)	(22.18)	
Media	1.12	0.84
(S5MEDA)	(31.30)	
Movies & Entertainment	1.19	0.79
(S5MOVI)	(26.09)	
Retailing	0.99	0.75
(S5RETL)	(23.51)	
Automotive Retail	0.66	0.32
(S5AUTR)	(9.78)	
Consumer Staples	0.53	0.64
(S5CONS)	(18.11)	
Food & Staples Retailing	0.58	0.57
(S5FDSR)	(15.62)	
Beverages	0.51	0.44
(S5BEVG)	(12.05)	
Food Products	0.50	0.52
(S5FDPR)	(14.26)	
Household & Personal Products	0.47	0.38
(S5HOUS)	(10.59)	
Energy	1.26	0.84
(S5ENRS)	(30.70)	
Oil & Gas Equipment & Services	1.64	0.67
(S5OILE)	(19.30)	
Coal & Consumable Fuels	1.93	0.50
(S5CCSF)	(13.41)	
Financials	1.26	0.86
(S5FINL)	(33.04)	
Banks	1.27	0.71
(S5BANK)	(20.92)	
Diversified Financials	1.42	0.76
(S5DIVF)	(23.91)	
Capital Markets	1.37	0.77
(S5CAPM)	(24.26)	
Insurance	1.08	0.85
(S5INSU)	(31.48)	
Consumer Finance	1.21	0.65
(S5CFIN)	(18.55)	
Health Care	0.70	0.75
(S5HLTH)	(23.19)	
Health Care Equipment & Supplies	0.84	0.72
(S5HCEQ)	(21.70)	
Biotechnology	0.67	0.37
(S5BIOT)	(10.74)	

continued

Table A10 **US Industry Beta vs. S&P 500, January 1, 2010–June 21, 2013 (continued)**

	S&P500 Regressions	
Industry	**S&P500**	**Adjusted**
(Ticker)	**(t-statistic)**	**R^2**
Pharmaceuticals	0.56	0.53
(S5PHAR)	(14.46)	
Industrials	1.18	0.94
(S5INDU)	(51.50)	
Aerospace & Defense	1.08	0.86
(S5AERO)	(33.90)	
Construction & Engineering	1.49	0.73
(S5CSTE)	(21.88)	
Commercial & Professional Services	0.91	0.79
(S5COMS)	(26.23)	
Transportation	1.08	0.80
(S5TRAN)	(26.64)	
Airlines	1.00	0.37
(S5AIRL)	(10.33)	
Information Technology	1.08	0.84
(S5INFT)	(30.76)	
Internet Software & Services	1.04	0.53
(S5INSSX)	(14.29)	
Technology Hardware & Equipment	1.14	0.68
(S5TECH)	(19.44)	
Computers & Peripherals	1.14	0.52
(S5CMPE)	(14.08)	
Materials	1.28	0.84
(S5MATR)	(30.36)	
Chemicals	1.17	0.83
(S5CHEM)	(29.29)	
Construction Materials	1.35	0.35
(S5CSTM)	(9.85)	
Metals & Mining	1.52	0.60
(S5METL)	(16.64)	
Steel	1.81	0.62
(S5STEL)	(17.17)	
Telecommunication Services	0.59	0.46
(S5TELS)	(12.45)	
Utilities	0.55	0.47
(S5UTIL)	(12.71)	
Electric Utilities	0.49	0.39
(S5ELUTX)	(10.79)	

Notes: See Table I.

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