ESTIMATING COST OF EQUITY: GLOBAL CAPM VERSUS INTERNATIONAL CAPM AROUND THE WORLD

Demissew Ejara[a]

Alain Krapl[b]

Thomas J. O'Brien[c*]

Santiago Ruiz de Vargas[d]

Abstract: For 30 countries, we empirically compare cost of equity estimates of two versions of the international CAPM: (1) the global CAPM, where the only risk factor is the global market index; and (2) an international CAPM with two risk factors, the global market index and a wealth-weighted foreign currency index. Although the model choice makes little difference for a few countries, for many countries the model choice makes a substantial difference.

Keywords: International CAPM; Global CAPM; Cost of Equity; Risk Premium; Currency Index

JEL Classification: G15

[a] Department of Finance, College of Business, University of New Heaven, 300 Boston Post Rd., West Haven, CT 06516; USA; DEjara@newhaven.edu

[b] Department of Economics & Finance, Haile / US Bank College of Business, Northern Kentucky University, Nunn Dr., Highland Heights, KY 41099; USA; krapla1@nku.edu

[c*] (Corresponding Author) Department of Finance, University of Connecticut, School of Business, 2100 Hillside Road, Storrs, CT 06269; USA; thomas.obrien@uconn.edu; 860 486 3040

[d] NOERR AG, Wirtschaftprüfungsgesellschaft Steuerberatungsgesellschaft, Brienner Str. 28; 80333 München; Germany; srv@noerr.com

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I. Introduction

In theory, compared to the traditional (domestic) Capital Asset Pricing Model (CAPM), the International CAPM (ICAPM) more likely reflects the characteristics of today's world. In contrast to the domestic CAPM, the ICAPM assumes integrated global financial markets and accounts for possible effects of unexpected changes in foreign exchange (FX) rates. Therefore, ICAPM should be superior to CAPM as a valuation tool.

Capturing FX exposure in the most general version of the ICAPM involves multiple foreign FX risk factors. However, for practitioners with the objective of estimating a company's cost of equity, there is little guidance on how to estimate the currency risk premia in the general ICAPM.

Hence, the practical application of the ICAPM typically involves one of two simplified approaches. The first is the use of the global CAPM (GCAPM) — the GCAPM differentiates from the CAPM in its use of the global market index — which omits the foreign currency risk factors entirely. The second is a two-factor ICAPM that uses a currency index (instead of a set of bilateral FX rates) in addition to the global market index. The latter is referred to as a currency-index version of the ICAPM and is the focal point of this study.

The ICAPM approach is frequently used in empirical research (e.g., Dolde et al., 2012; Koedijk et al., 2002; Koedijk, Van Dijk, 2004; Krapl, Giaccotto, 2015; Krapl, O'Brien, 2016), but the GCAPM is a simpler model for a practitioner to apply, as advocated by Stulz (1995a) and Stulz (1995b). This study investigates how much difference it makes in cost of equity estimates whether one uses the GCAPM or the currency-index ICAPM.

Using published trade-weighted foreign currency indexes, previous literature finds an average difference of around 35 basis points between GCAPM and ICAPM cost of equity estimates for U.S. equities (Krapl, O'Brien, 2016). This study reexamines this issue using a more theoretically-correct foreign currency index. Moreover, we explore cost of equity differences for stocks from 30 countries, representing 21 currency areas (given that 10 countries are in the Eurozone) and 95% of world's financial wealth.

Using data from January, 1999 until January, 2016, we find that for a few countries, including the United States, the GCAPM gives cost of equity estimates that are reasonably close approximations to those of the theoretically-superior currency-index ICAPM. However, for most countries, the difference between the GCAPM and currency-index version of the ICAPM cost of equity estimates, in local currency, is substantial.

II. Introduction to the International CAPM

The ICAPM was pioneered by Solnik (1974), Sercu (1980), Stulz (1981), and Adler, Dumas (1983). All versions of the ICAPM assume that financial markets are integrated across country boarders. In general, the ICAPM also assumes that (relative) purchasing power parity (PPP) is violated. Investors in different economies realize different real returns from a given asset when (relative) purchasing power parity does not hold. Thus, systematic exposure to exchange rate changes is a priced risk. Supporting the ICAPM as a cost of equity model is significant extent of international financial market integration and an overwhelming amount of empirical evidence against PPP.[1]

As explained in Adler, Dumas (1983), the most general ICAPM includes a risk premium for (1) the global market index of risky assets; (2) the inflation risk of the pricing currency's own economy; and (3) a risk premium for the uncertain foreign inflation rates of each of the other economies, *expressed in the pricing currency*, including components for the uncertain inflation in the foreign currency and the uncertain nominal exchange rate between the foreign currency and the pricing currency. A convenient and popular simplifying assumption is that each economy's inflation rate is nonstochastic when measured in its own currency. Adler, Dumas (1983) call this model the "Solnik (1974) - Sercu (1980) special case", where there is no inflation risk premium for the pricing currency, and the foreign exchange risk premia apply to *nominal* foreign exchange risks.

The fundamental risk-pricing relation of the Solnik-Sercu model, adapted from equation (10.9) Dumas (1994) is:

$$RP_i = q\, cov(R_i, R_G) + \sum_{C \neq H} q\,(1/q_C - 1)\, cov(R_i, x^{H/C})(W_C/W) \qquad (1)$$

where RP_i is asset i's required risk premium expressed in the pricing currency (currency H), equal to asset i's required rate of return, k_i, minus the nominal currency-H risk-free rate; R_i is asset i's return, consisting of the asset's local currency return and the change in the value of the asset's currency versus currency H; R_G is the return in currency H on the unhedged global

[1] For examples of the empirical rejection of PPP, see Abuaf, Jorion (1990), Engel, Hamilton (1990), Evans, Lewis (1995), Jiang, Bahmani-Oskooee, Chang (2015), Koedijk, Tims, Van Dijk (2004), Marsh, Passari, Sarno (2012), Lo, Morley (2015), Obstfeld, Rogoff (2000), Officer (2012), Rogoff (1996), Taylor (2002), Taylor, Taylor (2004), and Westerlund, Narayan (2015). Rogoff (1996) summarizes the empirical results up to that time, concluding that short-run deviations from PPP are large and volatile, and the volatility of PPP deviations is of the same order of magnitude as the volatility of nominal exchange rates.

market index; $x^{H/C}$ is return in currency H on a deposit in currency C; W_C is the wealth of the economy using currency C; q_C is the average degree of risk aversion of investors in the economy using currency C; W is total global wealth (in currency C); and q is the global (harmonic mean) degree of relative risk aversion (over all economies, including the economy of currency H): $1/q = [\sum_C (W_C / q_C)]/W$.

III. The Currency-Index ICAPM

In the ICAPM, the currency risk factors based bilateral FX rates have generally unobservable weights (Solnik, 1997), but may be aggregated into one currency portfolio, assuming investors have the same average degree of relative risk aversion across economies, $q_C = \Theta$ for all currencies (including H). This implies that q in the risk-pricing equation (1) also takes the value Θ, which is the representative investor's degree of relatively risk aversion, or alternatively, the global market price of risk. In this case, the weights in the currency portfolio are W_C/W (Ross, Walsh, 1983).[2]

To make the currency weights into foreign currency portfolio weights that sum to 1, let $w_C = W_C/(W - W_H)$, the percentage of economy C's wealth of the world wealth outside of economy H; then $W_C/W = (1 - w_H)w_C$. The resulting simplified risk-pricing model in only two factors is:

$$RP_i = E(R_i) - r_f = \Theta cov(R_i, R_G) + (1 - \Theta)(1 - w_H)cov(R_i, R_X) \qquad (2)$$

[2] Ross, Walsh (1983) called the equal average risk aversion assumption "silly", but the assumption seems innocuous, especially given the benefit in terms of model tractability. The assumption that all investors have the same expected return and covariance estimates for all assets ("homogenous expectations") is perhaps even more "silly", but has served the same purpose in asset pricing models since the introduction of the CAPM.

where r_f is the risk-free rate of economy H and R_X is the return in currency H on a wealth-weighted portfolio of all other currencies, $\sum_{C \neq H} w_C x^{H/C}$.[3]

In this "special case of the Solnik-Sercu special case", the simplified risk-pricing expression may be aggregated over (1) all risky assets in the global market, and (2) all currencies other than currency H. The results are the *ex-ante* factor risk premium expressions for: (1) the global market index, $RP_G = \Theta\sigma_G^2 + (1-\Theta)(1-w_H)cov(R_G, R_X)$; and (2) the foreign currency index, $RP_X = \Theta cov(R_X, R_G) + (1-\Theta)(1-w_H)\sigma_X^2$. These factor risk premium expressions are alternatively shown in equations (3a) and (3b):

$$RP_G = \Theta\sigma_G^2 + (1-\Theta)(1-w_H)\gamma_G\sigma_X^2 \quad (3a)$$

$$RP_X = \Theta\beta_X\sigma_G^2 + (1-\Theta)(1-w_H)\sigma_X^2 \quad (3b)$$

where Θ is global market price of risk; w_H is the world wealth weight for currency H's economy; $\gamma_G = cov(R_G, R_X)/\sigma_X^2$ is the global market index's traditional FX exposure to the foreign currency index; and $\beta_X = cov(R_X, R_G)/\sigma_G^2$, is the foreign currency index's traditional beta versus the global market index.

The composition of global market index is the same from the perspective of any pricing currency. The composition of the foreign currency index is different for each pricing currency perspective, because the index contains currencies that are foreign from the perspective of the pricing currency.[4] Each foreign currency in the currency index has a return equal to the

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3 The ICAPM is reviewed in Ross, Walsh (1983), Dumas (1994), Stulz (1995c), and Solnik (1997). Solnik (1997) points out that a single-factor ICAPM results by viewing asset returns hedged against exchange rate risk and a (partially) hedged global market index. The model here uses the more standard risk-return relationship expressed in terms of unhedged returns, (e.g., Solnik, McLeavey, 2009).

4 If the currency index also contains the pricing currency, the index composition is the same in every currency. However, it is somewhat confusing to think about the pricing currency's change against an index that also contains that currency, so we use an adjustment to restrict the currency index to contain only foreign currencies from the perspective of the pricing currency.

percentage change in the currency relative to the pricing currency, $x^{H/C}$, plus the risk-free rate of return in currency C.

The traditional expression for asset i's required risk premium in the currency-index ICAPM is in equation (4):

$$RP_i = \beta_i'[RP_G] + \gamma_i'[RP_X] \tag{4}$$

where β_i' and γ_i' are asset i's partial risk coefficients, which are the coefficients in a multivariate regression of asset i's return on (1) the global market index return, R_G, and (2) the foreign currency index return, R_X. The interpretation of β_i' is like the asset's CAPM beta, except for an adjustment for the global market index's statistical interaction with the foreign currency index; the interpretation of γ_i' is like the asset's traditional FX exposure to a foreign currency index return, except for an adjustment for currency index's statistical interaction with the global market index.[5]

An alternative, and equivalent, expression for asset i's required risk premium in the two-factor ICAPM is shown in equation (5):

$$RP_i = \beta_i[RP_G'] + \gamma_i[RP_X'] \tag{5}$$

where $RP_G' = \Theta\sigma_G^2$; $RP_X' = (1-\Theta)(1-w_H)\sigma_X^2$; and β_i and γ_i are asset i's univariate risk coefficients: $\beta_i = cov(R_i, R_G)/\sigma_G^2$, is the asset's CAPM beta, and $\gamma_i = cov(R_i, R_X)/\sigma_X^2$, is the asset's FX exposure to the foreign currency index return, as in Adler, Dumas (1984).

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5 $\beta_i' = [cov(R_i, R_G)\sigma_X^2 - cov(R_i, R_X)cov(R_G, R_X)]/[\sigma_G^2\sigma_X^2 - cov(R_G, R_X)^2]$ and
$\gamma_i' = [cov(R_i, R_X)\sigma_G^2 - cov(R_i, R_G)cov(R_G, R_X)]/[\sigma_G^2\sigma_X^2 - cov(R_G, R_X)^2]$.

IV. The Global CAPM (GCAPM)

The GCAPM is a single-factor variation that does not capture foreign currency risk. The GCAPM applied by Stulz (1995a) and Stulz (1995b) has the same structure as the domestic CAPM, but with the global market index replacing the domestic market index, as shown in equation (6):

$$RP_i = \beta_i[RP_G] \tag{6}$$

Although the GCAPM should be a better valuation tool than the domestic CAPM, especially for internationally trade assets, there is a body of empirical evidence that systematic exposure to exchange rate changes may be "priced" in financial markets, which supports the conceptual superiority of the ICAPM over the GCAPM.[6] Moreover, equations (3a), (3b), (4), and (5) may be applied from the perspective of any pricing currency. The rotation of the risk-return relationships between currencies preserves the no-arbitrage value of any internationally traded asset at spot exchange rates. The same does not hold for the GCAPM in equation (6) except in the unrealistic case where the average investor in every economy has logarithmic utility. Otherwise, Sercu (1980) and Ross, Walsh (1983) show that the GCAPM can technically hold in at most one currency; if the GCAPM holds in currency H, then the correct model for asset i's risk premium in currency C is a model with two risk factors: the global market index and the exchange rate between currencies H and C.

Nevertheless, the GCAPM has been applied by Jorion, Schwartz (1986) and Stulz (1995a) and Stulz (1995b). Because the GCAPM is simpler to use than a multifactor model, a

[6] See, for examples, Brown, Otsuki (1993), Ferson, Harvey (1993), Brown, Otsuki (1994), Ferson, Harvey (1994), Dumas, Solnik (1995), De Santis, Gérard (1998), He, Ng (1998), Doukas, Hall, Lang (1999), Harvey, Solnik, Zhou (2002), Francis, Hassan, Hunter (2008), Kolari, Moorman, Sorescu (2008), and Lee, Ng, Swaminathan (2009).

reasonable question is how close would a GCAPM risk premium estimate be to the ICAPM estimate. That is, would the GCAPM estimate be close enough to the ICAPM estimate to justify using the simpler GCAPM instead of the ICAPM? That question is an empirical one that this study investigates.

V. Empirical Comparison of GCAPM and ICAPM for Different Countries

For the GCAPM and ICAPM, we compare empirical local currency risk premium estimates for 30 country indexes and for a Eurozone index. The countries are shown in Table 2.

The statistical parameter estimates for equations (3a) and (3b) are calculated using monthly data from January 1999 until January 2016, and then annualized. The MSCI All Country World Index (ACWI) serves as the global market index. The month-end exchange rates for the 20 currencies versus the US dollar, from the U.S. Fed's daily exchange rate series, are used to find the monthly percentage exchange rate changes. The FX rate series are used to convert the market index returns from US dollars to other currencies.

The FX rate series are also used to construct the return on the wealth-weighted foreign currency indexes. The world wealth percentages for the economies of 21 currencies are interpolations of figures reported in the Credit Suisse Research Institute's *Global Wealth Databook* for 2000 and 2015. The interpolated percentages sum to 95% of world wealth. The world wealth weights used in the ICAPM applications are the 21 world wealth percentages normalized to sum to 100%. The foreign currency index weights for a given pricing currency are the world wealth weights of the 20 foreign currency economies normalized to sum to 100%.

Table 1 shows the world wealth weights and the statistical parameter estimates used in equations (3a) and (3b). Table 1 also shows *ex-ante* ICAPM factor risk premium estimates, for the global market index and the foreign currency indexes, from the perspective of each of the 21 currencies. For the ICAPM factor risk premium estimates, the global market price of risk, Θ, is assumed to be 2.50, which is a calibration that makes the factor risk premium estimates for the global market index and foreign currency indexes consistent with a U.S. market risk premium of 5.65%. This U.S. market risk premium estimate is within the range of estimates in modern surveys and empirical studies (e.g., Mayfield, 2004; Stulz, 1995a, b; Welch, Goyal, 2008). Prior studies also "anchored" parameter estimates to be consistent with a reasonable estimate of the U.S. market risk premium.

[Insert Table 1 approximately here]

The ICAPM global risk premium estimates for the different currency perspectives range from highs of 8.28% for South Africa, followed by 7.28% for Brazil and 7.14% for Japan, to lows of 3.29% for Australia and 3.80% for Mexico. These risk premium estimates pertain to the same market index from the perspective of different currencies, and thus are related to properties of the currencies. South Africa has the highest foreign currency index risk premium estimate (2.89%), followed by Brazil (2.77%), Japan (1.91%) and the United States (0.81%). Australia has the lowest (most negative) foreign currency index risk premium estimate (–1.23%), followed by Canada (–0.98%) and Mexico (–0.97%). The two factor risk premium estimates are clearly related. In fact, the correlation coefficient between the two for the 21 observations is 0.96.

For each of the 21 economies and 10 individual developed Eurozone countries, we interpret a domestic equity market index as asset *i* in equations (5) and (6). The domestic equity market index data are from MSCI, including the MSCI Euro Index (EUR) for the Eurozone.[7] Table 2 compares the ICAPM and GCAPM domestic equity market risk premium estimates in

[7] The MSCI Euro Index captures large cap representation across the 10 Developed Markets (DM) countries in the EMU. With 123 constituents, the index covers approximately 70% of the free float-adjusted market capitalization of the EMU.

local currency for the 1999-2016 data. Country Y's ICAPM equity market risk premium estimate is based on equation (5), using the estimates for the country equity index's global beta, β_Y, and FX exposure to the foreign currency index, γ_Y, as shown in Table 2. The other inputs used in equation (5) are shown in Table 1. Country Y's GCAPM market risk premium estimate is equal to the country equity index's global beta estimate times the local currency's "correct" (ICAPM) global market risk premium estimate, RP_G, per Table 1.

[Insert Table 2 approximately here]

The β_Y column in Table 2 shows the country beta estimates versus the global index from the perspective of the local currency. Finland has the highest country beta estimate (1.439), followed by Sweden (1.270), Germany (1.222), and China (1.187). Brazil has the lowest country beta estimate (0.255), followed by New Zealand (0.389), Australia (0.603), and Switzerland (0.668). The γ_Y column in Table 2 shows the country FX exposure estimates versus the foreign currency index from the perspective of the local currency. Hong Kong has the highest country FX exposure estimate (2.261), followed by China (2.194), South Africa (0.951), Japan (0.888), and the United States (0.887). Taiwan has the lowest (most negative) country FX exposure estimate (–2.132), followed by Singapore (–2.111), India (–1.529), and Thailand (–1.509).

The middle column in Table 2 shows the ICAPM estimates for the domestic equity market risk premium in local currency. South Africa has the highest domestic equity market risk premium estimate (8.89%), followed by Finland (7.84%), China (6.87%), Germany (6.84%), and Sweden (6.18%). New Zealand has the lowest domestic equity market risk premium estimate (2.43%), followed by Australia (3.12%), and Canada (3.96%). These estimates are driven by the factor risk premium estimates in the local currency and the risk coefficient estimates for the domestic equity index (β_Y and γ_Y).

For example, in Australian dollars the Australian equity market index has the standard risk coefficient estimates of $\beta_Y^{A\$}$ = 0.603 and $\gamma_Y^{A\$}$ = –0.595, per Table 2. For equation (5), the ICAPM factor risk premium estimates in Australian dollars are: (1) RP_G' = $\Theta\sigma_G^2$ = 2.50(0.119)^2 = 0.0354, or 3.54%; and (2) RP_X' = $(1-\Theta)(1-w_H)\sigma_X^2$ = (1 – 2.50)(1 – 0.02)(0.106)^2 = –0.0165, or –1.65%. Using equation (5), the ICAPM estimate of the Australian equity market risk premium, in Australian dollars, is 0.603[0.0354] – 0.595[–0.0165] = 0.0312, or 3.12%. On the other hand, if one uses the "correct" (ICAPM) global risk premium estimate in Australian dollars (3.29%), and the Australian domestic equity market index's global beta estimate, 0.603, the GCAPM estimate for the Australian local equity market risk premium is 0.603[0.0329] = 0.0198, or 1.98%, which is 114 basis points below the "correct" (ICAPM) estimate, 3.12%.

The rightmost column in Table 2 shows the difference between the ICAPM and GCAPM domestic equity market risk premium estimates in the local currency. The idea of this information is to gauge, for each country, how much error would be made on average in using the GCAPM if the "true" model is the ICAPM. For three countries (in addition to the United States), the GCAPM gives a very close approximation to the "correct" (ICAPM) estimate of the domestic equity market risk premium: Japan, China, and Hong Kong. Other countries for which the difference is under 30 basis points, and therefore where the GCAPM's estimates may be a reasonable approximation to the ICAPM's estimates, include Britain, Switzerland, Denmark, and Ireland.

On the other hand, there are many countries where the difference between the GCAPM and "correct" (ICAPM) domestic equity market risk premium estimates is more than 60 basis points, and the difference is more than 100 basis points for six countries: Australia, India, Korea, Brazil, Norway, and Thailand.

The difference between the GCAPM and ICAPM cost of equity estimates appears to tend to be high when the country index's beta is low and FX exposure is negative. Statistically, that is indeed the case. For the 21 economies, a simple OLS regression of the differences on the two risk coefficient estimates yields the following estimated equation: Difference = 0.0212 – $0.0162\beta_Y - 0.0021\gamma_Y$ (R-square = 0.42; *t Stats*: 4.10; –2.83; –1.82). For the Australia example, the estimated linear model predicts a difference of 0.0212 – 0.0162(0.603) – 0.0021(–0.595) = 0.0127, or 127 basis points.

VI. Conclusion

The GCAPM is easier to apply than ICAPM. Therefore, practitioners would use the GCAPM if they were assured that the GCAPM-based cost of equity estimates are reasonably close to the more complicated, but theoretically superior, ICAPM-based estimates. Whether this is the case must be determined empirically.

Using 1999-2016 data, and an improved methodology for constructing the ICAPM's foreign exchange index risk factor, this study reaffirms the findings reported in previous studies that the GCAPM yields cost of equity estimates that approximate the ICAPM's for the U.S. MSCI equity market index. For 29 other MSCI country indexes, the GCAPM gives local currency cost of equity estimates that are reasonable approximations to the ICAPM-based estimates for only a few countries.

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Table 1.
ICAPM Statistical Parameter Estimates and Factor Risk Premium Estimates

	w	σ_G	σ_X	γ_G	β_X	RP_G	RP_X
United States (dollar)	0.379	0.159	0.062	1.23	0.18	5.92%	0.81%
Eurozone (euro)	0.204	0.149	0.088	0.46	0.16	5.12%	-0.04%
Japan (yen)	0.130	0.188	0.095	1.36	0.35	7.24%	1.91%
China (yuan)	0.070	0.158	0.042	1.67	0.12	5.83%	0.48%
Britain (pound)	0.066	0.150	0.069	0.58	0.13	5.20%	0.02%
Canada (dollar)	0.026	0.123	0.079	-0.04	-0.02	3.81%	-0.98%
Australia (dollar)	0.020	0.119	0.106	0.15	0.12	3.29%	-1.23%
Taiwan (dollar)	0.015	0.141	0.041	0.07	0.01	4.93%	-0.22%
Switzerland (franc)	0.015	0.167	0.080	1.01	0.23	5.97%	0.67%
India (rupee)	0.013	0.138	0.066	0.20	0.04	4.62%	-0.43%
Korea (won)	0.012	0.129	0.097	0.23	0.13	3.81%	-0.86%
Brazil (real)	0.009	0.237	0.242	0.78	0.81	7.28%	2.77%
Mexico (peso)	0.009	0.126	0.092	0.05	0.03	3.80%	-0.97%
Sweden (krona)	0.008	0.133	0.085	0.22	0.09	4.18%	-0.67%
Hong Kong (dollar)	0.005	0.159	0.038	2.00	0.11	5.91%	0.50%
Norway (krone)	0.004	0.141	0.087	0.39	0.15	4.55%	-0.39%
Denmark (krone)	0.004	0.149	0.069	0.57	0.12	5.12%	-0.03%
New Zealand (dollar)	0.004	0.135	0.113	0.36	0.26	3.85%	-0.76%
Singapore (dollar)	0.004	0.139	0.036	-0.23	-0.02	4.87%	-0.26%
South Africa (rand)	0.003	0.224	0.167	1.01	0.57	8.28%	2.89%
Thailand (baht)	0.001	0.146	0.065	0.50	0.10	5.00%	-0.11%

Note: For each of 21 currency perspectives, Table 1 shows the estimated parameters for Equations (3a) and (3b): the economies' financial wealth weights, w; the annualized standard deviation of returns on the global market index and the foreign currency index, σ_G and σ_X; the global market index's traditional FX exposure to the foreign currency index, γ_G; and the foreign currency index's traditional beta versus the global market index, β_X. The rightmost two columns show the estimates (in local currency perspective) for the global market risk premium, RP_G, and foreign currency index risk premium, RP_X, for each of the 21 economies/currencies.

Table 2.
Differences Between ICAPM and GCAPM Cost of Equity Estimates for Domestic Equity Indexes (in Local Currency)

	$\boldsymbol{\beta_Y}$	$\boldsymbol{\gamma_Y}$	$\boldsymbol{RP_Y}$ **ICAPM**	$\boldsymbol{RP_Y}$ **GCAPM**	**Difference**
United States (dollar)	0.939	0.887	5.65%	5.56%	0.09%
Eurozone (euro)	1.062	-0.156	6.03%	5.44%	0.59%
Japan (yen)	0.723	0.888	5.34%	5.23%	0.11%
China (yuan)	1.187	2.194	6.87%	6.92%	-0.05%
Britain (pound)	0.830	0.112	4.56%	4.31%	0.25%
Canada (dollar)	0.848	-0.826	3.96%	3.23%	0.73%
Australia (dollar)	0.603	-0.595	3.12%	1.98%	1.14%
Taiwan (dollar)	0.924	-2.132	5.10%	4.55%	0.55%
Switzerland (franc)	0.668	0.398	4.25%	3.99%	0.26%
India (rupee)	0.800	-1.529	4.77%	3.70%	1.07%
Korea (won)	0.945	-0.889	5.16%	3.60%	1.56%
Brazil (real)	0.255	-0.186	5.22%	1.86%	3.36%
Mexico (peso)	0.964	-0.612	4.59%	3.66%	0.93%
Sweden (krona)	1.270	-0.527	6.18%	5.31%	0.87%
Hong Kong (dollar)	1.047	2.261	6.15%	6.19%	-0.04%
Norway (krone)	0.960	-0.884	5.80%	4.37%	1.43%
Denmark (krone)	0.923	0.177	4.98%	4.73%	0.25%
New Zealand (dollar)	0.389	-0.346	2.43%	1.50%	0.93%
Singapore (dollar)	1.021	-2.111	5.34%	4.98%	0.36%
South Africa (rand)	1.028	0.951	8.89%	8.52%	0.37%
Thailand (baht)	0.789	-1.509	5.13%	3.94%	1.19%
Germany (euro)	1.222	-0.079	6.84%	6.26%	0.58%
France (euro)	1.016	-0.144	5.76%	5.20%	0.56%
Italy (euro)	0.902	-0.367	5.33%	4.62%	0.71%
Netherlands (euro)	1.060	0.012	5.86%	5.43%	0.43%
Belgium (euro)	0.912	-0.180	5.22%	4.67%	0.55%
Ireland (euro)	0.993	0.150	5.36%	5.08%	0.28%
Spain (euro)	0.920	-0.415	5.48%	4.71%	0.77%
Austria (euro)	0.920	-0.657	5.70%	4.71%	0.99%
Finland (euro)	1.439	0.149	7.84%	7.37%	0.47%
Portugal (euro)	0.678	-0.385	4.11%	3.47%	0.64%

Note: For each of 30 countries plus the Eurozone, Table 2 shows the domestic equity market's traditional risk coefficient estimates, β_Y and γ_Y, and domestic equity market risk premium estimates, RP_Y, in local currency for both the ICAPM and GCAPM. The last column shows the difference between the ICAPM and GCAPM RP_Y estimates.