INTERNET APPENDIX

A New Partial-Segmentation Approach to Modeling International Stock Returns

This version: August 2016

Contents of Internet Appendix

1. A Note on Alexander, Eun, and Janakiramanan (1987)

2. Kan, Robotti, and Shanken (2013) Model Comparison Tests

3. Procedure for Constructing the Globally Equity Universe

4. Internet Appendix Tables:

- **1A - Summary Statistics of Global Equity Universe by Country**

- **1B - Summary Statistics of Globally Accessible Sample by Country**
  - Panel A reports statistics on globally accessible sample by country.
  - Panel B reports distribution of globally accessible cross-listed stocks on either of the target markets (in terms of number of stocks).
  - Panel C reports distribution of globally accessible cross-listed stocks from each home region (in terms of number of stocks).
  - Panel D reports the comparison between our globally accessible cross-listed stocks and the overseas listing sample in Sarkissian and Schill (hereafter SS, 2014) by host market.
  - Panel E reports the comparison between our globally accessible cross-listed stocks and the overseas listing sample in SS (2014) by home region.
  - Panel F reports the modified comparison between our globally accessible cross-listed stocks and the overseas listing sample in SS (2014) by host market.
  - Panel G reports the modified comparison between our globally accessible cross-listed stocks and the overseas listing sample in SS (2014) by home region.

- **1C - Summary Statistics of Purely Local Stocks by Country**

- **2A - Summary Statistics for Explanatory Factor Returns in the Perfect-integration Model and the Perfect-segmentation Model** (associated with Table 1 in the paper)
  - Panel A reports statistics on the returns distributions of factor portfolios in the global mandates.
  - Panel B reports statistics on the returns distributions of factor portfolios in the regional mandates.
  - Panel C reports return correlations of factor portfolios in the global mandates.
  - Panel D reports return correlations of factor portfolios in the regional mandates.

- **2B - Summary Statistics for Explanatory Factor Returns in the Partial-segmentation Model (Main CL Tier)** (associated with Table 1 in the paper)
  - Panel A reports statistics for explanatory factor returns of the Fama-French three-factor model.
  - Panel B reports statistics for explanatory factor returns of the Carhart four-factor model.
  - Panel C reports return correlations of factor portfolios of the Fama-French three-factor model.
  - Panel D reports return correlations of factor portfolios of the Carhart four-factor model.

- **3A - Summary Statistics for the 25 Size/B/M Excess Returns**

- **3B - Summary Statistics for the 25 Size/Momentum Excess Returns**

- **3C - Summary Statistics for the 25 Size/C/P Excess Returns**

- **4A - Intercepts from the Partial Segmentation Model Regressions to Explain Monthly Excess Returns on Portfolios from 5×5 Sorts on Size and B/M**
- **4B - Betas from the Partial Segmentation Model Regressions to Explain Monthly Excess Returns on Portfolios from 5×5 Sorts on Size and B/M**

- **4C - Summary Statistics for Regional Regression Tests Using Monthly Excess Returns on 25 Size/B/M (Size/Momentum) Portfolios and Industry Portfolios** (associated with Table 2 in the paper)
    - Panel A reports statistics for regional regression tests when the partial segmentation model consists of the local externality factor and the perfect segmentation model as the base model.
    - Panel B reports statistics for regional regression tests when the partial segmentation model consists of the global externality factor and the perfect segmentation model as the base model.

- **5A - Summary Statistics for Regional Regression Tests on a "Trivial" Partial Segmentation Model** (associated with Table 2 in the paper)
    - Panel A reports statistics for regional regression tests when the "trivial" partial segmentation model is compared with the perfect segmentation model.
    - Panel B reports statistics for regional regression tests when the "trivial" partial segmentation model is compared with our partial segmentation model.

- **6A - Summary Statistics for Global Regression Tests Using Monthly Excess Returns on 25 Size/B/M (Size/Momentum) Portfolios and Industry Portfolios** (associated with Table 3 in the paper)
    - Panel A reports statistics for global regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect integration model as the base model.
    - Panel B reports statistics for global regression tests when the partial segmentation model consists of the global externality factor and the perfect integration model as the base model.

- **7A - Summary Statistics for Regression Tests of the CAPM Model** (associated with Table 4 in the paper)
    - Panel A reports statistics for regional regression tests when the partial segmentation model consists of the CAPM-based local externality factor and the CAPM-based perfect segmentation model as the base model.
    - Panel B reports statistics for regional regression tests when the partial segmentation model consists of the CAPM-based global externality factor and the CAPM-based perfect segmentation model as the base model.

- Panel C reports statistics for global regression tests when the partial segmentation model consists of the CAPM-based local externality factor and the CAPM-based perfect integration model as the base model.
- Panel D reports statistics for global regression tests when the partial segmentation model consists of the CAPM-based local externality factor, the CAPM-based global externality factor, and the CAPM-based perfect integration model as the base model.
- Panel E reports statistics for global regression tests when the partial segmentation model consists of the CAPM-based global externality factor and the CAPM-based perfect integration model as the base model.

- **8A - Over-identification Tests Using Only Globally Accessible Stocks as Test Assets** (associated with Table 5 in the paper)
  - Panel A reports statistics for regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect integration model as the base model.
  - Panel B reports statistics for global regression tests when the partial segmentation model consists of the global externality factor and the perfect integration model as the base model.
  - Panel C reports statistics for regression tests using the most recent ten years of monthly returns when the partial segmentation model consists of the local externality factor and the perfect integration model as the base model.
  - Panel D reports statistics for global regression tests using monthly returns on 5 Size/B/M (Size/Momentum) Portfolios and Industry Portfolios when the partial segmentation model consists of the local externality factor and the perfect integration model as the base model

- **8B - Over-identification Tests Using All Stocks Since 2000 as Test Assets** (associated with Table 5 in the paper)

- **9A - Placebo Tests of Partial Segmentation Models Using Monthly Excess Returns on 25 Size/B/M Portfolios and Industry Portfolios** (associated with Table 6 in the paper)
  - Panel A reports statistics for regional regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect segmentation model as the base model.
  - Panel B reports statistics for regional regression tests when the partial segmentation model consists of the local externality factor and the perfect segmentation model as the base model.
  - Panel C for regression tests when the partial segmentation model consists of the global externality factor and the perfect segmentation model as the base model.
  - Panel D reports statistics for global regression tests when the partial segmentation model consists of the local externality factor and the perfect integration model as the base model.
  - Panel E reports statistics for global regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect integration model as the base model.
  - Panel F reports statistics for global regression tests when the partial segmentation model consists of the global externality factor and the perfect integration model as the base model.

- **10A - Regression Tests of the Partial Segmentation Models Using Monthly Excess Returns on 25 Size/B/M Portfolios and Industry Portfolios When Different CL Samples are Considered** (associated with Table 7 in the paper)
    - Panel A reports statistics for regional regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect segmentation model as the base model.
    - Panel B reports statistics for regional regression tests when the partial segmentation model consists of the local externality factor and the perfect segmentation model as the base model.
    - Panel C for regression tests when the partial segmentation model consists of the global externality factor and the perfect segmentation model as the base model.
    - Panel D reports statistics for global regression tests when the partial segmentation model consists of the local externality factor and the perfect integration model as the base model.
    - Panel E reports statistics for global regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect integration model as the base model.
    - Panel F reports statistics for global regression tests when the partial segmentation model consists of the global externality factor and the perfect integration model as the base model.

- **11A - Summary Statistics for Regression Tests of the Fama-French Three-Factor Model Using Individual Monthly Excess Returns**
    - Panel A reports statistics for regional regression tests of the Fama-French Three-Factor model using individual monthly excess returns.
    - Panel B reports statistics for global regression tests of the Fama-French Three-Factor model using individual monthly excess returns.

- **12A - Summary Statistics for Regression Tests of the Partial Segmentation Version of the Fama-French Three-Factor Model Using Monthly Excess Returns on 25 Size/B/M Portfolios and 10 Industry Portfolios When the Frankfurt Stock Exchange and OTCQX International are Dropped from the List of Target Exchanges** (associated with Tables 2 and 3 in the paper)
    - Panel A reports statistics for regional regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect segmentation model as the base model.
    - Panel B reports statistics for global regression tests when the partial segmentation model consists of the local externality factor and the perfect integration model as the base model.

- **13A - Summary Statistics for Regression Tests Using Monthly Excess Returns on Additional Alternative Test Asset Portfolios** (associated with Tables 2 and 3 in the paper)
    - Panel A reports statistics for regional regression tests using monthly excess returns on 20 Size/B/M (Size/Momentum) Portfolios and Industry Portfolios
    - Panel B reports statistics for global regression tests using monthly excess returns on 20 Size/B/M (Size/Momentum) Portfolios and Industry Portfolios
    - Panel C reports statistics for regional regression tests using monthly excess returns on 25 Size/B/M (Size/Momentum) portfolios and 33 industry portfolios

- Panel D reports statistics for global regression tests using monthly excess returns on 25 Size/B/M (Size/Momentum) portfolios and 33 industry portfolios
- Panel E reports statistics for global regression tests using monthly excess returns on 33 industry portfolios

- **14A - Summary Statistics for Regression Tests Using Monthly Excess Returns on 25 Size/B/M (Size/Momentum) Portfolios and 10 Industry Portfolios When Japan and Switzerland are added into the List of Target Exchanges** (associated with Table 2 in the paper)

- **15A - Summary Statistics for the Significance of the Two Externality Factors in the Partial Segmentation Version of the Fama-French Three-Factor Model Using Time-Series Regression Tests**
  - Panel A reports the rejection rates on the *D*-test for regional regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect segmentation model as the base model.
  - Panel B reports the rejection rates on the other χ^2 difference test for regional regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect segmentation model as the base model.
  - Panel C reports the rejection rates on the traditional *F* test for regional regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect segmentation model as the base model.

5. Internet Appendix Figure

- **IA - Global Equity Universe, reported by Total Market Capitalization**
- **IB - Global Equity Universe by Year, reported by Total Market Capitalization**
- **IC - Global Equity Universe, reported by Total Number of Stocks**
- **ID - Global Equity Universe by Year, reported by Total Number of Stocks**
- **IIA - Globally Accessible Sample, reported by Total Market Capitalization**
- **IIB - Globally Accessible Sample by Year, reported by Total Market Capitalization**
- **IIC - Globally Accessible Sample, reported by Total Number of Stocks**
- **IID - Globally Accessible Sample by Year, reported by Total Number of Stocks**

A Note on Alexander, Eun, and Janakiramanan (1987)

This appendix seeks to provide a supplementary discussion on Section II in the paper. It is clearly based on the theoretical work by Alexander, Eun, and Janakiramanan (1987). What is different is mainly the extension of their work to the multidimensional structure of the stochastic discount factor (SDF).

1 The Fundamental Value Equation

Regardless of the approach chosen, each asset pricing model boils down to the same financial concept: the price of an asset, p_i, equals its expected discounted payoff (Cochrane, 2001). This can be more formally expressed in the following Euler equation for security *i*:

$$p_i = E(mx_i).$$

where *m* is the SDF and x_i is the payoff. As an expected return, it can be defined as,

$$E(R_i - r) = -\frac{Cov(m, R_i)}{E(m)}. \tag{A1}$$

where *r* is the riskless rate. A linear factor pricing model suggests

$$m = a - \sum_{k=1}^{K} b_k f_k.$$

1) if $k = 1$, suppose that $m = a - b_1 f_1 = a - b_1 R_m$, then

$$E(R_i - r) = \frac{Cov(R_m, R_i)}{Var(R_m)} E(R_m - r) = \beta E(R_m - r).$$

Assuming that investors have the absolute risk-aversion coefficient *A*, the consumption-based approach leads to

$$E(R_i - r) = AM * Cov(R_m, R_i)$$

where *M* stands for the market value.

2) if $k > 1$, taking logs removes the denominator of equation (1)—the mean of the SDF—and yields

$$-Cov(m, R_i) = \sum_{k=1}^{K} b_k \sigma_{ki} = \sum_{k=1}^{K} (b_k \sigma_k^2) * (\frac{\sigma_{ki}}{\sigma_k^2}) = \sum_{k=1}^{K} \lambda_k \beta_k.$$

In the international capital market framework, we consider three different settings: perfect integration, perfect segmentation, and partial segmentation.

2 Perfect Integration

For the sake of illustration, we have two countries: domestic country and foreign country by the following assumptions:

2a) each country has perfectly competitive capital markets;
2b) both countries have neither transaction costs nor taxes;
2c) both foreign and domestic investors have homogeneous expectations;

2d) short sales with use of full proceeds are permitted in both countries;
2e) domestic and foreign security returns are joint-normally distributed;
2f) both countries maintain a fixed exchange rate;
2g) a riskless security is available in each country with the same rate of return; and,
2h) D (F) stands for the domestic (foreign) market value, and A^D (A^F) stands for the absolute risk-aversion coefficient for the domestic (foreign) country.

In an efficient and perfectly integrated international capital market, there is only one set of risk factors that describes expected returns in both the domestic and foreign countries. The perfectly integrated model describes the following equilibrium asset-pricing relationships for security *0* which is *globally accessible* to both domestic and foreign investors:

1) if $k=1$,

$$\begin{aligned}\overline{R_0}-r &= (A^W W)Cov(\widetilde{R}_0,\widetilde{R}_W) \\ &= (A^W D)Cov(\widetilde{R}_0,\widetilde{R}_D)+(A^W F)Cov(\widetilde{R}_0,\widetilde{R}_F)\end{aligned} \tag{A2}$$

in which

$$W = D+F$$

$$\frac{1}{A^W}=\frac{1}{A^D}+\frac{1}{A^F}.$$

This corresponds to equation (22) in Alexander, Eun, and Janakiramanan (1987);

2) if $k>1$,

$$\overline{R_0}-r=\sum_{k=1}^{K}\lambda_{kW}\beta_{kW}.$$

Following Griffin (2002), we allow domestic and foreign factors to have different impacts on stock returns. It follows that the perfectly integrated model becomes (without loss of generality, we consider the value weighting case):

$$\overline{R_0}-r=\frac{D}{D+F}\sum_{k=1}^{K}\lambda_{kD}\beta_{kD}+\frac{F}{D+F}\sum_{k=1}^{K}\lambda_{kF}\beta_{kF} \tag{A3}$$

where $\frac{D}{D+F}$ is the fraction of the total market value of the two countries in the sample attributable to the domestic market, and $\frac{F}{D+F}$ is the fraction of the total market value of the two countries in the sample attributable to the foreign market.

3 Perfect Segmentation

Next, we consider the other special case where domestic securities are only accessible to domestic investors, and foreign securities are only accessible to foreign investors. The perfectly segmented model gives the asset pricing relationships for domestic security *i* (foreign security *j*) as follows:

1) if $k=1$,

$$\overline{R_i}-r=(A^D D)Cov(\widetilde{R}_i,\widetilde{R}_D) \tag{A4}$$

$$\overline{R_j} - r = (A^F F) Cov(\widetilde{R}_j, \widetilde{R}_F) \tag{A5}$$

they correspond to equations (25) and (26) in Alexander, Eun, andJanakiramanan (1987);

2) if $k > 1$,

Given that the capital markets are perfectly segmented, foreign factors are irrelevant for domestic security *i*. Accordingly, equation (A3) becomes one in which only domestic components drive domestic stock returns:

$$\overline{R_i} - r = \frac{D}{D+F} \sum_{k=1}^{K} \lambda_{kD} \beta_{kD}.$$

Without qualitative changes in the relation between stock returns and the underlying risk factors, it can be rewritten as

$$\overline{R_i} - r = \sum_{k=1}^{K} \lambda_{kD} \beta_{kD}. \tag{A6}$$

Similarly, domestic factors are irrelevant for foreign security *j*, and equation (A3) becomes one in which only foreign components drive foreign stock returns:

$$\overline{R_j} - r = \sum_{k=1}^{K} \lambda_{kF} \beta_{kF}. \tag{A7}$$

4 Partial Segmentation

Next, we consider a relatively general setting in Alexander, Eun, and Janakiramanan (1987).

Specifically, globally accessible security *0* and purely domestic security *i* are domiciled in the domestic country. Purely domestic security *i* is only eligible for trading by domestic investors; whereas there is no such restrictions on globally accessible security *0*, *i.e.*, security *0* is accessible to both domestic and foreign investors. Foreign security *j* is domiciled in the foreign country, and is only eligible for trading by foreign investors. However, foreign investors can access both globally accessible security *0* and foreign security *j*. The capital markets, with the exception of the globally accessible security *0*, are otherwise completely segmented. This market structure is termed "partial segmentation."

4.1 One-factor structure of the SDF

We begin with the case of the single factor SDF, followed by the case of the multifactor SDF in Section 4.2. Here the capital asset pricing model (CAPM) model is considered as the case example for the single factor SDF, *i.e.*, *k*=1.

4.1.1 Globally accessible stock

Before stock *0* is globally accessible, it is priced as if the capital markets are perfectly segmented,

$$\overline{R_0} - r = (A^D D) Cov(\widetilde{R}_0, \widetilde{R}_D). \tag{A8}$$

This is the same as equation (A4), the perfectly segmented model for domestic securities.

After stock *0* is globally accessible, it is held by all investors, both domestic and foreign, and therefore, it is priced as if the markets are perfectly integrated,

$$\overline{R_0} - r = (A^W D)Cov(\widetilde{R}_0, \widetilde{R}_D) + (A^W F)Cov(\widetilde{R}_0, \widetilde{R}_F). \quad \text{(A9)}$$

This is the same as equation (A2), the perfectly integrated model.

The change in the cost of capital before and after stock *g* becomes globally accessible is

$$Dif = -(A^D - A^W)DCov(\widetilde{R}_0, \widetilde{R}_D) + (A^W F)Cov(\widetilde{R}_0, \widetilde{R}_F) \quad \text{(A10)}$$

This corresponds to equation (31) in Alexander, Eun, and Janakiramanan (1987). Foerster and Karolyi (1999) find that, when a stock starts listing on an overseas stock exchange, its exposure to domestic market risk is significantly reduced, which is consistent with the prediction from the first term on the right-hand side (RHS) of equation (A10), $-(A^D - A^W)DCov(\widetilde{R}_0, \widetilde{R}_D)$, with a negative sign. At the same time, the global market risk for the pricing of the cross-listed stock increases slightly. This is consistent with the prediction from the second term on the RHS of equation (A10), $+(A^W F)Cov(\widetilde{R}_0, \widetilde{R}_F)$, with a positive sign. Foerster and Karolyi (1999) and Errunza and Miller (2000) find a net reduction in the cost of equity capital. Equation (A10) does not indicate that the expected return will definitely decrease after the cross-listing. However, noting that $A^D - A^W = A^D A^D / (A^D + A^F)$ and that $A^W = A^F A^D / (A^D + A^F)$, it can be seen that the cost of equity capital will be lower if

$$\frac{A^F FCov(\widetilde{R}_0, \widetilde{R}_F)}{A^D DCov(\widetilde{R}_0, \widetilde{R}_D)} < 1$$

as in Alexander, Eun, and Janakiramanan (1987), assuming that $\left(A^F F / A^D D\right)$ is equal to unity, it is more likely that we will see a net decrease in the cost of equity capital because, generally speaking, stocks are known to be more positively correlated within a country than across countries.

4.1.2 Pure domestic stock

Given the partial segmentation market structure, the domestic country and the foreign country are indirectly integrated *via* the existence of the globally accessible stock. The event of introducing stock *0* to foreign investors has produced *the externality effect* of indirectly integrating the domestic market for domestic securities with the foreign market for foreign securities. The externality effect accounts for the change in the pricing before and after global accessibility, which is represented by the second and third terms on the RHS of the following equation:

$$\overline{R_i} - r = (A^D D)Cov(\widetilde{R}_i, \widetilde{R}_D) \quad \text{(A11a)}$$

$$-[(A^D - A^W)D]Cov^*(\widetilde{R}_i, \widetilde{R}_D) \quad \text{(A11b)}$$

$$+(A^W F)Cov^*(\widetilde{R}_i, \widetilde{R}_F). \quad \text{(A11c)}$$

The first term on the RHS, (A11a), is the same as equation (A4) for the expected return in the perfectly segmented setting. It is also equivalent to what we have seen earlier in the case of globally accessible stocks before they are eligible for trading by foreign investors, as shown in equation (A8). The second term, (A11b), is the *indirect* covariance with the domestic market portfolio by means of the globally accessible stock, $Cov^*(\widetilde{R}_i, \widetilde{R}_D) = \sigma_i \sigma_D \rho_{i,0} \rho_{0,D}$. The third term, (A11c), is the *indirect* covariance with the foreign market portfolio through, again, the globally accessible stock, $Cov^*(\widetilde{R}_i, \widetilde{R}_F) = \sigma_i \sigma_F \rho_{i,0} \rho_{0,F}$. Equation (A11) corresponds to equation (20) in Alexander, Eun, and Janakiramanan (1987).

We begin with two extreme cases, and then provide more intuition for the terms (A11b) and (A11c).

- Two Extreme Cases:

Case (1): when the purely domestic stock *i* is perfectly correlated with the globally accessible stock *0*, we have $\rho_{i,0} = 1$, $\rho_{0,D} = \rho_{i,D}$ and $\rho_{0,F} = \rho_{i,F}$. Both of the indirect co-variances in (A11b) and (A11c) are equal to direct co-variances, that is,

$$Cov^*(\widetilde{R}_i, \widetilde{R}_D) = \sigma_i \sigma_D \rho_{i,0} \rho_{0,D} = \sigma_i \sigma_D \rho_{i,D} = Cov(\widetilde{R}_i, \widetilde{R}_D)$$
$$Cov^*(\widetilde{R}_i, \widetilde{R}_F) = \sigma_i \sigma_F \rho_{i,0} \rho_{0,F} = \sigma_i \sigma_F \rho_{i,F} = Cov(\widetilde{R}_i, \widetilde{R}_F).$$

Accordingly, Equation (A11) becomes

$$\overline{R_i} - r = (A^D D) Cov(\widetilde{R}_i, \widetilde{R}_D) \qquad \text{(A11a')}$$
$$-[(A^D - A^W) D] Cov(\widetilde{R}_i, \widetilde{R}_D) \qquad \text{(A11b')}$$
$$+(A^W F) Cov(\widetilde{R}_i, \widetilde{R}_F). \qquad \text{(A11c')}$$

By adding the first term (A11a') to the second term (A11b'), we obtain $(A^W D) Cov(\widetilde{R}_i, \widetilde{R}_D)$. As a result, the purely domestic stock will be priced as if it is globally accessible:

$$\overline{R_i} - r = (A^W D) Cov(\widetilde{R}_i, \widetilde{R}_D) + (A^W F) Cov(\widetilde{R}_i, \widetilde{R}_F) \qquad \text{as in (A9).}$$

This is also the same as equation (A2) for the expected return in the perfectly integrated capital markets. In this case, the externality effect reaches its maximum magnitude since the correlation is perfectly positive. The purely domestic stock is a perfect substitute for the globally accessible stock. Without loss of generality, we study the case that the correlation is perfectly positive. The analysis also goes through for a perfectly negative correlation.

Case (2): when the purely domestic stock *i* is uncorrelated with the globally accessible stock *0*, we have $\rho_{i,0} = 0$. Subsequently, the second term (A11b) and the third term (A11c) drop out of the equation, and the purely domestic stock is priced as if the domestic market is completely segmented

$$\overline{R_i} - r = (A^D D) Cov(\widetilde{R}_i, \widetilde{R}_D) \qquad \text{as in (A11a).}$$

This is also the same as equation (A4) for the expected return of the purely domestic stock in the perfectly segmented setting, as well as equation (A8) for globally accessible stocks before they are eligible for trading by foreign investors. In this case, the globally accessible stock creates no externality effect on the purely domestic stock, and the purely domestic stock is priced solely with reference to domestic market risk.

- A General Case ($0 < \rho_{i,0} < 1$):

In the case in which the purely domestic stock *i* is neither perfectly correlated nor perfectly uncorrelated with the globally accessible stock *0*, the globally accessible stock will produce two externality effects on the expected return of the purely domestic stock. The magnitudes of these externality effects depend on $\rho_{i,0}$, *i.e.*, on the correlation between the purely domestic stock *i* and the globally accessible stock *0*.

First, the globally accessible stock is exposed to foreign market risk since it can be held by foreign investors. Accordingly, there is a spillover effect from the globally accessible stock to purely domestic stocks in the domestic market so that purely domestic stocks also command a risk premium that is proportional to the foreign market risk. More importantly, the risk exposure of the purely domestic stock to foreign market risk is introduced, as shown in $Cov^*(\widetilde{R}_i, \widetilde{R}_F) = \sigma_i \sigma_F \rho_{i,o} \rho_{o,F}$ of equation (A11), under the condition that the domestic stock co-varies with the globally accessible stock. Consequently, the required rate of return increases to the extent that the investors are willing to bear such an indirect foreign risk. We call the amount of change in the expected return due to foreign risk *the global externality effect*, just as in (11c), $+(A^W F)Cov^*(\widetilde{R}_i, \widetilde{R}_F)$. The change will likely be positive. The more correlated the purely domestic stock is with the globally accessible stock (i.e., $\rho_{i,0}$ is greater), the greater the global externality effect, and, in turn, the higher the exposure of the purely domestic stock to foreign market risk; the less correlated it is with the globally accessible stock (i.e., $\rho_{i,0}$ is smaller), the lower the exposure of the purely domestic stock to foreign market risk.

Second, for purely domestic stock *i*, its domestic covariance risk is also alerted by the event of stock *0* becoming globally accessible. Before this occurs, the domestic market is perfectly segmented, and only domestic investors bear the risk. After stock *0* becomes globally accessible, all investors, both domestic and foreign, share this risk. Subsequently, its co-variation with the domestic market portfolio changes in a way that the existence of the globally accessible stock has produced another channel to diversify the domestic market risk, as shown in $Cov^*(\widetilde{R}_i, \widetilde{R}_D) = \sigma_i \sigma_D \rho_{i,0} \rho_{0,D}$ of equation (A11). We call the amount of change in the expected return due to the domestic risk *the local externality effect*. It is an abatement of the domestic market risk premium, which is represented by the term (11b), $-[(A^D - A^W)D]Cov^*(\widetilde{R}_i, \widetilde{R}_D)$. The change is expected to be negative because it helps abate the domestic market risk. The more correlated the purely domestic stock is with the globally accessible stock (i.e., $\rho_{i,0}$ is greater), the more domestic market risk can be dissipated, and the larger the reduction it creates; the less correlated it is with the globally accessible stock (i.e., $\rho_{i,0}$ is smaller), the smaller the resulting adjustment, and the higher the exposure of the purely domestic stock to domestic market risk.

Hereafter, for a given domestic security *i* (or foreign stock *j*), we use the word "*local*" to characterize the externality effect associated with risks arising from the home market of the security, and the word "*global*" for the externality effect related to risks from countries outside the home market of the security.

4.1.3 Pure foreign stock

We now shift our view to the foreign country, *i.e.*, the home market for foreign security *j* and the host of globally accessible stock *0* in the overseas market. In this case, the foreign market is the "home" market of foreign security *j*, whereas the domestic market is the "overseas" market for purely domestic security *i*, and, more importantly, the home market of the globally accessible stock *0* which is hosted by the foreign market. When the foreign market is perfectly segmented, foreign security *j* will be priced solely with reference to its home (the foreign market) covariance risk. More formally, as shown in equation (A5),

$$\overline{R_j} - r = (A^F F) Cov(\widetilde{R}_j, \widetilde{R}_F) \quad \text{(A5)}$$

the asset pricing relationship between the expected return of foreign security *j* with its own home market (*i.e.*, the foreign market) risk depends on the value of the aggregate risk-aversion coefficient A^F, the market value *F*, and the covariance with the foreign market portfolio $Cov(\widetilde{R}_j, \widetilde{R}_F)$.

Making stock *0* globally accessible in the foreign capital market has produced the externality effect of indirectly integrating the foreign security market with the domestic security market. The externality effect can be represented by the second and third terms on the RHS of equation (12):

$$\overline{R_j} - r = (A^W F) Cov(\widetilde{R}_j, \widetilde{R}_F) + (A^W D) Cov(\widetilde{R}_j, \widetilde{R}_D) \quad \text{(A12a)}$$

$$+ [(A^F - A^W) F][Cov(\widetilde{R}_j, \widetilde{R}_F) - Cov^*(\widetilde{R}_j, \widetilde{R}_F)] \quad \text{(A12b)}$$

$$- (A^W D)[Cov(\widetilde{R}_j, \widetilde{R}_D) - Cov^*(\widetilde{R}_j, \widetilde{R}_D)] \quad \text{(A12c)}$$

The first term on the RHS, (A12a), is the same as equation (A2) for the expected return in the perfectly segmented model. It is also equivalent to what we have seen earlier in the case of the globally accessible stock once it is eligible for trading by foreign investors, as shown in equation (A9). The second term, (A12b), is the difference between the direct covariance with its home market (*i.e.*, the foreign market) portfolio and its indirect co-variance with its home market portfolio by means of the globally accessible stock, $Cov^*(\widetilde{R}_j, \widetilde{R}_F) = \sigma_j \sigma_F \rho_{j,0} \rho_{0,F}$. The third term, (A12c), is the difference between the direct covariance with the overseas market (*i.e.*, the domestic market) portfolio and its indirect covariance with the overseas market portfolio, again, by means of the globally accessible stock, $Cov^*(\widetilde{R}_j, \widetilde{R}_D) = \sigma_j \sigma_D \rho_{j,0} \rho_{0,D}$.The equation (A9) corresponds to equation (21) in Alexander, Eun, and Janakiramanan (1987).

Before turning to the intuition on the two externality effects, as in (A12b) and (A12c), we need to first introduce two extremes.

- Two Extreme Cases:

Case (1): when the purely foreign stock is perfectly correlated with the globally accessible stock, we have $\rho_{j,0} = 1$, $\rho_{0,F} = \rho_{j,F}$ and $\rho_{0,F} = \rho_{j,F}$. Both of the indirect co-variances in (A12b) and (A12c) become direct co-variances:

$$Cov^*(\widetilde{R}_j, \widetilde{R}_D) = \sigma_j \sigma_D \rho_{j,0} \rho_{0,D} = \sigma_j \sigma_D \rho_{j,D} = Cov(\widetilde{R}_j, \widetilde{R}_D)$$

$$Cov^*(\widetilde{R}_j, \widetilde{R}_F) = \sigma_j \sigma_F \rho_{j,0} \rho_{0,F} = \sigma_j \sigma_F \rho_{j,F} = Cov(\widetilde{R}_j, \widetilde{R}_F).$$

Accordingly, both the terms (A12b) and (A12c) drop out of the equation, and only the term (A12a) remains. The foreign stock *j* will then be priced as if it is globally accessible:

$$\overline{R_j} - r = (A^W D) Cov(\widetilde{R}_j, \widetilde{R}_D) + (A^W F) Cov(\widetilde{R}_j, \widetilde{R}_F) \quad \text{as in (A12a).}$$

This is the same as equation (A2) for the expected return in the perfectly integrated capital markets, just as what we see for the globally accessible stock after it is eligible for trading by foreign investors as shown in equation (A9). In this case, the magnitude of the externality effect reaches its maximum since the correlation is perfectly positive. The foreign stock is a perfect substitute for the globally

accessible stock despite the fact that it is ineligible for trading by domestic investors from the oversea country.

Case (2): when the foreign stock is uncorrelated with the globally accessible stock, we have $\rho_{j,0} = 0$, which leads to both of the indirect co-variances in (A12b) and (A12c) equaling to zero. As a result, equation (A12) becomes

$$\overline{R_j} - r = (A^W D)Cov(\widetilde{R}_j, \widetilde{R}_D) + (A^W F)Cov(\widetilde{R}_j, \widetilde{R}_F) \quad \text{(A12a')}$$

$$+ [(A^F - A^W)F]Cov(\widetilde{R}_j, \widetilde{R}_F) \quad \text{(A12b')}$$

$$- (A^W D)Cov(\widetilde{R}_j, \widetilde{R}_D). \quad \text{(A12c')}$$

On the RHS, the third term (A12c') cancels out the first half of the term (A12a'). By then adding the second half of the term (A12a') to the second term (A12b'), we have the following equation:

$$\overline{R_j} - r = (A^F F)Cov(\widetilde{R}_j, \widetilde{R}_F) \quad \text{as in (A5).}$$

This means that the purely foreign stock is priced as if the foreign market is completely segmented, as shown in equation (A5).

- A General Case ($0 < \rho_{j,0} < 1$):

In the case in which the purely foreign stock is neither perfectly correlated nor perfectly uncorrelated with the globally accessible stock, the globally accessible stock will produce two different externality effects on the pricing of the foreign stock *j*. The magnitudes of these externality effects depend on the extent to which the purely foreign stock *j* is correlated with the globally accessible stock *0*, *i.e.*, $\rho_{j,0}$.

First, the perfectly integrated model, as shown in the term (A12a), underplays the role of the covariance with the home market (*i.e.*, the foreign market) portfolios in the sense that the term (A12a) treats its reference to the home covariance risk the same as that of the globally accessible stock *0*. As shown as the first half of (A12a), the exposure of the purely foreign stock to its home market risk depends on the aggregate risk-aversion coefficient A^W, identical to that of the globally accessible stock.

Similar to the previous discussion on purely domestic security *i*, it is expected that the risk-return tradeoff for purely foreign security *j* will change when stock *0* becomes globally accessible. Despite this, its home (the foreign country in this case) covariance premium will not adjust to the same level as that of the globally accessible stock *0*. This is because, in general, the purely foreign stock is not perfectly correlated with the globally accessible stock and cannot act as a perfect substitute. It needs an add-in adjustment, *i.e.*, a change in its home covariance premium that equals to the term (A12b), $+[(A^F - A^W)D][Cov(\widetilde{R}_j, \widetilde{R}_F) - Cov^*(\widetilde{R}_j, \widetilde{R}_F)]$. We call this the *"local" externality effect* of the host market (*i.e.*, the foreign market). The greater the correlation between the purely foreign stock *j* and the globally accessible stock *0* (i.e., $\rho_{j,0}$ is greater), the more similar its home covariance premium becomes to that of the globally accessible stock, and the smaller the adjustment required. The smaller the correlation (i.e., $\rho_{j,0}$ is smaller), the more the security will be priced with reference to its own home covariance risk (the foreign covariance risk in this case), and the larger the adjustment required.

Second, the perfectly integrated model overplays the role of the covariance with the overseas market (*i.e.*, the domestic market) portfolio in the sense that the term (A12a) treats its reference to the

overseas covariance risk the same as that of the globally accessible stock *0*. As shown as the second half of the term (A12a), the exposure of the purely foreign stock to the overseas market risk depends on the aggregate risk-aversion coefficient A^W, which is identical to that of the globally accessible stock.

Although the foreign market is the host market of the globally accessible stock, foreign security *j* is not accessible to domestic investors. When globally accessible stock *0* becomes available in the foreign market, the risk is introduced by the stock return's covariance with the overseas market portfolio's return. Such a covariance risk is conditional on the extent to which the foreign stock co-varies with the globally accessible stock, and not with other domestic securities from the overseas market. As a result, it requires a reduction on the overall overseas market (*i.e.*, the domestic market) covariance risk premium. We call the amount of change in the cost of capital *the "global" externality effect* of the overseas market (*i.e.*, the domestic market), which is represented by the term (A12c), $-(A^W D)[Cov(\widetilde{R}_j, \widetilde{R}_D) - Cov^*(\widetilde{R}_j, \widetilde{R}_D)]$ .This is expected to have a negative sign because of the imperfect correlation between the foreign stock *j* and globally accessible stock *0*. The more correlated the foreign stock is with the globally accessible stock (i.e., $\rho_{j,0}$ is greater), the closer its adjusted overseas covariance premium to the covariance premium of the globally accessible stock with the domestic market risk, and the smaller reduction it assures. The less correlated it is with the globally accessible stock (i.e., $\rho_{j,0}$ is smaller), the lower the foreign security's exposure is to the overseas covariance risk, and the larger the reduction required relative to the perfectly integrated model.

4.2 Multi-factor structure of the SDF

In order to obtain additional insights, we extend the international asset pricing model to a case with more than one risk factor for the SDF. Given the multifactor structure of the SDF, we first sketch the asset pricing relationship for globally accessible stock *0*, and then consider purely domestic stock *I* and purely foreign stock *j*.

4.2.1 Globally accessible stock

Before stock *0* is globally accessible, it is priced as if the capital markets are perfectly segmented,

$$\overline{R_0} - r = \sum_{k=1}^{K} \lambda_{kD} \beta_{kD}. \tag{A13}$$

This is the same as equation (A6), the perfectly segmented model of domestic securities. It is equivalent to equation (A4) in the case of the single factor SDF.

After stock *0* is globally accessible, it is held by both domestic and foreign investors; therefore, it will be priced as if the markets are perfectly integrated.

$$\overline{R_0} - r = \sum_{k=1}^{K} \lambda_{kW} \beta_{kW} = \frac{D}{D+F} \sum_{k=1}^{K} \lambda_{kD} \beta_{kD} + \frac{F}{D+F} \sum_{k=1}^{K} \lambda_{kF} \beta_{kF}. \tag{A14}$$

This is the same as equation (A3), the perfectly integrated model for the multifactor SDF case. It is analogous to equation (A2) for the case of the single factor SDF.

The change in the cost of capital before and after stock *0* is globally accessible is

$$Dif = -\frac{F}{D+F}\sum_{k=1}^{K}\lambda_{kD}\beta_{kD} + \frac{F}{D+F}\sum_{k=1}^{K}\lambda_{kF}\beta_{kF}.$$

It is analogous to equation (A10) for the single factor of the SDF. Assuming $\lambda_{kD}\beta_{kD} > 0$ and $\lambda_{kF}\beta_{kF} > 0$ for all *k*, the change will be negative (i.e., the cost of capital for the globally accessible stock will decrease), a likely situation, as, generally speaking, securities are known to be less positively correlated between countries than within a country. It implies that, for any given *k*, the amount of risk exposure β_{kD} to domestic risk factor f_{kD} can be expected, in general, to be higher than that of risk exposure β_{kF} to foreign risk factor f_{kD}. Accordingly, the required return on a domestic security can be expected to be lower if it is globally accessible when $\lambda_{kD} \approx \lambda_{kF}$.

4.2.2 Pure domestic stock

Before stock *0* is globally accessible, the domestic market is perfectly segmented. Accordingly, we can assume the following return generating model for domestic stock *i*, as shown in equation (A6):

$$\overline{R_i} - r = \sum_{k=1}^{K}\lambda_{kD}\beta_{kD}. \qquad \text{as in (A6).}$$

The event of stock *0* becoming globally accessible has produced the externality effect of indirectly integrating the domestic market for purely domestic securities with the foreign market for purely foreign securities. Therefore, the risk-return tradeoff for domestic stock *i* takes the following simplified form:

$$\overline{R_i} - r = \sum_{k=1}^{K}\lambda_{kD}\beta_{kD} \qquad \text{(A15a)}$$

$$-\frac{F}{D+F}\sum_{k=1}^{K}\lambda_{kD}\beta^{*}_{kD} \qquad \text{(A15b)}$$

$$+\frac{F}{D+F}\sum_{k=1}^{K}\lambda_{kF}\beta^{*}_{kF}. \qquad \text{(A15c)}$$

The first term on the RHS, (A15a), is the same as equation (A6) for the expected return in the perfectly segmented model. It is also equivalent to what we have seen earlier in the case of the globally accessible stocks before they are accessible to foreign investors, as shown in equation (A13). In addition, the second term (A15b) is the *indirect* risk exposure to domestic risk factors by means of the globally accessible stock, $\beta^{*}_{kD} = \frac{1}{\sigma^2_{kD}}\sigma_i\sigma_{kD}\rho_{i,0}\rho_{0,kD}$ for all *k*. The third term (A15c) is the *indirect* risk exposure to foreign risk factors through, again, the globally accessible stock, $\beta^{*}_{kF} = \frac{1}{\sigma^2_{kF}}\sigma_i\sigma_{kF}\rho_{i,0}\rho_{0,kF}$ for all *k*. Equation (A15) is analogous to equation (A11) for the case of the single factor SDF. We begin with two extreme cases, and then provide more intuition for the terms (A15b) and (A15c).

- Two Extreme Cases:

Case (1): when purely domestic stock *i* is perfectly correlated with globally accessible stock *0*, we have $\rho_{i,0} = 1$, and $\rho_{0,kD} = \rho_{i,kD}$, $\rho_{0,kF} = \rho_{i,kF}$ for all *k*. Hence, all the indirect risk exposures in (A15b) and (A15c) become direct risk exposures. Accordingly, we can write equation (A15) as

$$\overline{R_i} - r = \sum_{k=1}^{K} \lambda_{kD}\beta_{kD} \qquad \text{(A15a')}$$

$$-\frac{F}{D+F}\sum_{k=1}^{K} \lambda_{kD}\beta_{kD} \qquad \text{(A15b')}$$

$$+\frac{F}{D+F}\sum_{k=1}^{K} \lambda_{kF}\beta_{kF}. \qquad \text{(A15c')}$$

By adding the first term (A15a') to the second term (A15b'), we obtain $\frac{D}{D+F}\sum_{k=1}^{K} \lambda_{kD}\beta_{kD}$. As a result, the purely domestic stock will be just priced as if it is globally accessible as shown in equation (A14):

$$\overline{R_i} - r = \sum_{k=1}^{K} \lambda_{kW}\beta_{kW} = \frac{D}{D+F}\sum_{k=1}^{K} \lambda_{kD}\beta_{kD} + \frac{F}{D+F}\sum_{k=1}^{K} \lambda_{kF}\beta_{kF} \qquad \text{as in (A14).}$$

This is also the same as equation (A3) for the expected return in the perfectly integrated model. In this case, the intensity of the externality effect reaches its maximum since the correlation is perfectly positive. The purely domestic stock is a perfect substitute for the globally accessible stock.

Case (2): when purely domestic stock *i* is not correlated with globally accessible stock *0*, we have $\rho_{i,0} = 0$. Hence, both (A15b) and (A15c) become zero, and the purely domestic stock will be priced as if the domestic market is completely segmented:

$$\overline{R_i} - r = \sum_{k=1}^{K} \lambda_{kD}\beta_{kD} \qquad \text{as in (A15a).}$$

It is the same as equation (A6) for the expected return of the purely domestic stock in the perfectly segmented setting, as well as equation (A13) for the globally accessible stock before it is eligible for trading by foreign investors. In this case, the globally accessible stock creates no externality effect on the purely domestic stock, and the purely domestic stock is priced solely with reference to its domestic risks.

- A General Case ($0 < \rho_{i,0} < 1$):

In this case, globally accessible stock *0* will produce two different externality effects on the expected return of purely domestic stock *i*. The magnitudes of these externality effects depend on $\rho_{i,0}$, i.e., on the correlation between purely domestic stock *i* and globally accessible stock *0*.

First, the globally accessible stock is exposed to foreign risk factors since it can held by foreign investors. There is a spillover effect from the globally accessible stock to purely domestic stocks in the domestic market. Accordingly, pure domestic stocks also command a risk premium proportional to the amount of systematic risks in the foreign market. More importantly, risk exposure of the purely

domestic stock to foreign risk factors has been introduced, as shown in $\beta^*_{kF} = \frac{1}{\sigma^2_{kF}} \sigma_i \sigma_{kF} \rho_{i,0} \rho_{0,kF}$ of equation (A15), if and only if purely domestic stock *i* co-varies with globally accessible stock *0*. Hence, the required rate of return increases to the extent that the investors are willing to bear such an indirect foreign risk. We call the amount of change in the expected return *the global externality effect*, just as in (A15c), $+\frac{F}{D+F}\sum_{k=1}^{K}\lambda_{kF}\beta^*_{kF}$. This is the equivalent of the term (A11c) in the case of the single factor SDF. The change will likely be positive. The more correlated the purely domestic stock is with the globally accessible stock (*i.e.*, $\rho_{i,0}$ is larger), the larger the global externality effect, and in turn, the higher the exposure of the purely domestic stock to foreign risk factors; the less correlated it is with the globally accessible stock (*i.e.*, $\rho_{i,0}$ is smaller), the lower the exposure of the purely domestic stock to foreign risk factors.

Second, for purely domestic stock *i*, its domestic covariance risks are also alerted by the introduction of globally accessible stock *0*. When the domestic market is perfectly segmented, domestic investors bear the risk. After stock *0* becomes globally accessible, all investors, both domestic and foreign, share this risk. Subsequently, its required rate of return in response to domestic risk changes in such a way that the existence of the globally accessible stock has produced an additional way to diversify the domestic risks, as shown in $\beta^*_{kF} = \frac{1}{\sigma^2_{kF}} \sigma_i \sigma_{kF} \rho_{i,0} \rho_{0,kF}$ of equation (A15). We call the amount of change in the expected return *the local externality effect*. It is an abatement of domestic risk premiums, which is represented by the term (A15b), $-\frac{F}{D+F}\sum_{k=1}^{K}\lambda_{kD}\beta^*_{kD}$. This is equivalent to the term (A11b) in the single factor model. The change is expected to be negative because it helps correlate with the global market risk and abates the local market risk. The more correlated the purely domestic stock is with the globally accessible stock (*i.e.*, $\rho_{i,0}$ is greater), the more domestic risks dissipate, and the larger the reduction created; the less correlated it is with the globally accessible stock (*i.e.*, $\rho_{i,0}$ is smaller), the smaller the adjustment created, and the higher the exposure of the purely domestic stock to domestic risk factors.

4.2.3 Pure foreign stock

We now conduct the analysis in the foreign market, *i.e.*, the home market for foreign security *j* and the host of globally accessible stock *0* in the overseas market. Noting that, in this case, the foreign market is the "home" market of foreign security *j*, whereas the domestic market is the "overseas" market for purely domestic security *i*, and more importantly, the home market of the globally accessible stock *0* which the foreign market is hosting. When the foreign market is completely segmented, the foreign security *j* will be priced solely with reference to its home (the foreign market) risk factors. More formally, as shown in equation (A7),

$$\overline{R_j} - r = \sum_{k=1}^{K}\lambda_{kF}\beta_{kF} \qquad \text{as in (A7)}$$

the asset pricing relationship between the expected return of foreign security *j* with its own home (*i.e.*, the foreign market) risks depends on the prices of the underlying risk λ_{kF} and the risk exposures of the foreign security to the risk β_{kF}.

Stock *0* being globally accessible to foreign investors has produced the externality effect of indirectly integrating the foreign market for foreign securities with the domestic security market. The externality effects are represented by the second and third terms on the RHS of equation (A16):

$$\overline{R_j} - r = \frac{F}{D+F}\sum_{k=1}^{K}\lambda_{kF}\beta_{kF} + \frac{D}{D+F}\sum_{k=1}^{K}\lambda_{kD}\beta_{kD} \tag{A16a}$$

$$+\frac{D}{D+F}[\sum_{k=1}^{K}\lambda_{kF}\beta_{kF} - \sum_{k=1}^{K}\lambda_{kF}\beta_{kF}^{*}] \tag{A16b}$$

$$-\frac{D}{D+F}[\sum_{k=1}^{K}\lambda_{kD}\beta_{kD} - \sum_{k=1}^{K}\lambda_{kD}\beta_{kD}^{*}]. \tag{A16c}$$

The first term on the RHS, (A16a), is the same as equation (A3) for the expected return in the perfectly integrated model. It is also equivalent to what we have seen earlier in the case of the globally accessible stock after becoming eligible for trading by foreign investors, as shown in equation (A14). The second term, (A16b), reflects the difference between the direct risk exposure to its home (*i.e.*, the foreign market) risks and its indirect risk exposures to its home risks by means of the globally accessible stock, $\beta_{kF}^{*} = \frac{1}{\sigma_{kF}^{2}}\sigma_j\sigma_{kF}\rho_{j,0}\rho_{0,kF}$. The third term, (A16c), is the difference between the direct risk exposure to the overseas (*i.e.*, the domestic market) risks and its indirect risk exposure to the overseas risks, again, by means of the globally accessible stock, $\beta_{kD}^{*} = \frac{1}{\sigma_{kD}^{2}}\sigma_j\sigma_{kD}\rho_{j,0}\rho_{0,kD}$. Equation (A16) is analogous to equation (A12) for the case of the single factor SDF. We offer further intuition on what the terms (A16b) and (A16c) describe when we talk about the general case; however, we begin with two extreme cases.

- Two Extreme Cases:

Case (1): when the purely foreign stock is perfectly correlated with the globally accessible stock, we have $\rho_{j,0} = 1$, $\rho_{0,kD} = \rho_{j,kD}$, and $\rho_{0,kF} = \rho_{j,kF}$ for all *k*. Both of the indirect co-variances in the terms (A16b) and (A16c) become direct co-variances, and, accordingly, the indirect risk exposures become direct risk exposures, that is, $\beta_{kF}^{*} = \beta_{kF}$, and $\beta_{kD}^{*} = \beta_{kD}$ for all *k*. As a consequence, both of the term (A16b) and (A16c) drop out of the equation, and only the term (A16a) remains. The foreign stock will then be priced as if it is globally accessible:

$$\overline{R_j} - r = \sum_{k=1}^{K}\lambda_{k,W}\beta_{k,W} = \frac{D}{D+F}\sum_{k=1}^{K}\lambda_{k,D}\beta_{k,D} + \frac{F}{D+F}\sum_{k=1}^{K}\lambda_{k,F}\beta_{k,F} \qquad \text{as in (16a).}$$

This is the same as equation (A3) for the expected return in the perfectly integrated capital markets, just as what we see for the globally accessible stock after becoming eligible for trading by foreign investors, as shown in equation (A14). This is equivalent to equations (A9) and (A2) in the

single factor model. The externality effect reaches its maximum magnitude in this case since the correlation is perfectly positive. The foreign stock is a perfect substitute for the globally accessible stock despite not being eligible for trading by domestic investors from the oversea country.

Case (2): when the purely foreign stock is uncorrelated with the globally accessible stock, we have $\rho_{j,0} = 0$. It leads both of the indirect risk exposures in (A16b) and (A16c) to equal zero, that is, $\sum_{k=1}^{K} \lambda_{kF} \beta_{kF}^{*} = 0$, $\sum_{k=1}^{K} \lambda_{kD} \beta_{kD}^{*} = 0$. Subsequently, we can rewrite equation (A16):

$$\overline{R_j} - r = \frac{D}{D+F} \sum_{k=1}^{K} \lambda_{kD} \beta_{kD} + \frac{F}{D+F} \sum_{k=1}^{K} \lambda_{kF} \beta_{kF} \qquad \text{(A16a')}$$

$$+ \frac{D}{D+F} \sum_{k=1}^{K} \lambda_{kF} \beta_{kF} \qquad \text{(A16b')}$$

$$- \frac{D}{D+F} \sum_{k=1}^{K} \lambda_{kD} \beta_{kD}. \qquad \text{(A16c')}$$

On the RHS of the equation above, the third term (A16c') cancels out the second half of the term (A16a'). Next, by adding the first half of the term (A16a') to the second term (A16b'), we have the following equation:

$$\overline{R_j} - r = \sum_{k=1}^{K} \lambda_{kF} \beta_{kF} \qquad \text{as in (A7).}$$

This implies that the purely foreign stock is priced as if the foreign market is completely segmented as shown in equation (A7). This is equivalent to equations (A11a), (A8), and (A4) in the single factor model.

- A General Case ($0 < \rho_{j,0} < 1$):

In this case, the globally accessible stock will produce two different externality effects on the expected return of the foreign stock. The intensity of the externality effects depends on the extent to which the purely foreign stock *j* is correlated with the globally accessible stock *0*, *i.e.*, $\rho_{j,0}$.

First, the perfectly integrated model, as shown in the term (A16a), underplays the role of the home (the foreign market in this case) risk factors in the sense that the perfectly integrated model treats its reference to its home risks the same as that of globally accessible stock *0*.

Similar to the previous discussion in the single factor SDF case, it is expected that the risk-return tradeoff for the purely foreign security *j* will change when stock *0* becomes globally accessible. Despite this, its home (*i.e.*, the foreign market) risk premiums will not adjust to the same level as that of the globally accessible stock *0*. This is because, in general, the purely foreign stock is not perfectly correlated with the globally accessible stock and cannot act as a perfect substitute. It needs an add-in adjustment, i.e., a change in its home risk premium that equals $+\frac{D}{D+F}[\sum_{k=1}^{K} \lambda_{kF} \beta_{kF} - \sum_{k=1}^{K} \lambda_{kF} \beta_{kF}^{*}]$, as shown in the second term (A16b). We then call this the *"local" externality effect* of the host market (*i.e.*, the foreign market). The greater the correlation between the purely foreign stock *j* and the globally accessible stock *0* (*i.e.*, $\rho_{j,0}$ is greater), the more its exposure to the home (the foreign market

here) risk factors converge with that of the globally accessible stock, and the smaller the adjustment required. The smaller the correlation (*i.e.*, $\rho_{j,0}$ is smaller), the more the security will be priced with reference to its own home risks, and the higher exposure the pure foreign stock to its home risk factors.

Second, the perfectly integrated model overplays the role of the overseas (*i.e.*, the domestic market) risk factors in the sense that the term (A16a) treats its reference to the overseas risk factors the same as those of globally accessible stock *0*.

Although the foreign market is the host market of globally accessible stock *0*, foreign security *j* is not accessible to domestic investors. When globally accessible stock *0* becomes available in the foreign market, risks are then introduced by the stock return's covariance with the overseas factor-mimicking portfolios' returns. Such overseas risk premiums are conditional on the extent to which the foreign stock co-varies with the globally accessible stock, and not with other domestic securities from the overseas market. As a result, it requires a reduction on the direct overseas (*i.e.*, the domestic market) risk premiums. We then call the amount of change in the expected return *the "global" externality effect* of the overseas market (*i.e.*, the domestic market), which equals $-\frac{D}{D+F}[\sum_{k=1}^{K}\lambda_{kD}\beta_{kD}-\sum_{k=1}^{K}\lambda_{kD}\beta_{kD}^{*}]$, as shown in the term (A16c). This is expected to be negative because of the imperfect correlation between the foreign stock *j* and globally accessible stock *0*. The greater the correlation between the foreign stock *j* and the globally accessible stock *0* (*i.e.*, $\rho_{j,0}$ is larger), the closer its overseas risk premiums become to those of the globally accessible stock, and the smaller the reduction it assures. The less correlated it is with the globally accessible stock (*i.e.*, $\rho_{j,0}$ is smaller), the less exposure the foreign security will have to overseas risk factors (domestic risk factors here), and the larger reduction adjustment required relative to the perfectly integrated model.

5 Empirical Implementation

Now let us consider how the partial segmented model can be implemented in the empirical analysis. We sketch below the specific procedure for the case of the multifactor SDF.

5.1 Regional mandate

We consider the domestic market as one example for the regional mandate. Given equation (A15) for purely domestic stock *i* and equation (A14) for globally accessible stock *0*, we have the following asset pricing model,

$$\overline{R_i}-r=\frac{D}{D+F}\sum_{k=1}^{K}\lambda_{kD}\beta_{kD} \tag{A17a}$$

$$+\frac{F}{D+F}[\sum_{k=1}^{K}\lambda_{kD}\beta_{kD}-\sum_{k=1}^{K}\lambda_{kD}\beta_{kD}^{*}] \tag{A17b}$$

$$+\frac{F}{D+F}\sum_{k=1}^{K}\lambda_{kF}\beta_{kF}^{*}. \tag{A17c}$$

Equation (A17) characterizes the risk-return tradeoff for stocks in the domestic market. More specifically, for the globally accessible stock *g*, the first term (A17a) is the same as the first term of equation (A14). For the second term of equation (A14), $+\frac{F}{D+F}\sum_{k=1}^{K}\lambda_{kF}\beta_{kF}$, it corresponds to the third term (A17c) on the RHS of equation (A17), since $\beta_{kF}^{*}=\frac{1}{\sigma_{kF}^{2}}\sigma_{0}\sigma_{kF}\rho_{0,0}\rho_{0,kF}=\frac{\sigma_{0,kF}}{\sigma_{kF}^{2}}=\beta_{kF}$. In addition, the second term (A17b) drops out of the equation above because $\beta_{kD}^{*}=\frac{1}{\sigma_{kD}^{2}}\sigma_{0}\sigma_{kD}\rho_{0,0}\rho_{0,kD}=\frac{\sigma_{0,kD}}{\sigma_{kD}^{2}}=\beta_{kD}$. As a consequence, equation (A17) boils down to equation (A14) when globally accessible stock *0* is considered.

For purely domestic stock *i*, recall equation (A15) mentioned before,

$$\overline{R_i}-r=\sum_{k=1}^{K}\lambda_{kD}\beta_{kD} \tag{A15a}$$

$$-\frac{F}{D+F}\sum_{k=1}^{K}\lambda_{kD}\beta_{kD}^{*} \tag{A15b}$$

$$+\frac{F}{D+F}\sum_{k=1}^{K}\lambda_{kF}\beta_{kF}^{*}. \tag{A15c}$$

It is clear that the third term (A17c) on the RHS of equation (A17) is identical to the term (A15c) of equation (A15). The second term (A15b) is included as the second half of the second term (A17b). Adding the first term (A17a) with the first half of the term (A17b) equals $\sum_{k=1}^{K}\lambda_{kD}\beta_{kD}$, which is the same as the term (A15a). Subsequently, equation (A17) is identical to equation (A15) for the purely domestic stocks.

As discussed above, the magnitudes of the two externality effects depend on $\rho_{i,0}$, i.e., on the correlation between the purely domestic stock *i* and the globally accessible stock *0*. To capture the externality effects, we consider the following approach (as an illustration, consider the Fama–French three factor model):

(1) To capture the local externality effect, as shown in the term (A17b), we run time-series regressions of a characteristics-balanced spread portfolio of globally inaccessible stocks within the region (i.e., purely domestic stocks mentioned earlier) on the three factors (the MKT, SMB, and HML) built on globally accessible stocks within the region, and then the residual is used as the proxy for the local externality effect.

(2) To capture the global externality effect, as shown in the term (A17c), we run time-series regressions of the characteristics-balanced spread portfolio of globally accessible stocks outside the region on the three factors built on the globally accessible stocks within the region, the projection is used as the proxy for the global externality effect.

5.2 Global mandate

We consider the foreign market as one example for the global mandate. Recall equation (A16) for foreign stock *j*,

$$\overline{R_j} - r = \frac{D}{D+F}\sum_{k=1}^{K}\lambda_{k,D}\beta_{k,D} + \frac{F}{D+F}\sum_{k=1}^{K}\lambda_{k,F}\beta_{k,F} \quad \text{as in (A16a)}$$

$$+\frac{D}{D+F}[\sum_{k=1}^{K}\lambda_{k,F}\beta_{k,F} - \sum_{k=1}^{K}\lambda_{k,F}\beta^{*}_{k,F}] \quad \text{as in (A16b)}$$

$$-\frac{D}{D+F}[\sum_{k=1}^{K}\lambda_{k,D}\beta_{k,D} - \sum_{k=1}^{K}\lambda_{k,D}\beta^{*}_{k,D}] \quad \text{as in (A16c).}$$

Equation (A16) also characterizes the risk-return tradeoff for globally accessible stock *0*. Recall equation (A14),

$$\overline{R_j} - r = \sum_{k=1}^{K}\lambda_{kW}\beta_{kW} = \frac{D}{D+F}\sum_{k=1}^{K}\lambda_{kD}\beta_{kD} + \frac{F}{D+F}\sum_{k=1}^{K}\lambda_{kF}\beta_{kF}. \quad \text{(A14)}$$

On the RHS, the first term (A16a) is the same as equation (A14). For the globally accessible stock *0*, the second term (A16b) equals zero because $\beta^{*}_{kF} = \frac{1}{\sigma^2_{kF}}\sigma_0\sigma_{kF}\rho_{0,0}\rho_{0,kF} = \frac{\sigma_{0,kF}}{\sigma^2_{kF}} = \beta_{kF}$. Likewise, the term (16c) becomes zero because $\beta^{*}_{kD} = \frac{1}{\sigma^2_{kD}}\sigma_0\sigma_{kD}\rho_{0,0}\rho_{0,kD} = \frac{\sigma_{0,kD}}{\sigma^2_{kD}} = \beta_{kD}$. Hence, equation (A16) is the same as equation (A14) for the globally accessible stock.

We consider the following approach to capture the two externality effects embodied in the pricing model:

(1) To capture the local externality effect, as shown in the term of (A16b), we run time-series regressions of a characteristics-balanced spread portfolio on globally inaccessible stocks (i.e., purely foreign stocks mentioned earlier) within a given global mandate on the three factors built on globally accessible stocks within the mandate, the residual is used as the proxy.

(2) To capture the global externality effect by the overseas market, we run time-series regressions of a characteristics-balanced spread portfolio on globally accessible stocks outside the global mandate on the three factors built on the globally accessible stocks within the mandate, the residual is used as the proxy.

5.3 A characteristics-balanced spread portfolio

If k=1, the MKT is one example for the characteristics-balanced spread portfolio. If k>1, the characteristics-balanced spread portfolio is a single factor portfolio that captures all the dimensions of the SDF. That is to say, for instance the Fama-French 3-factor model, we incorporate MKT, SMB, and HML into the characteristics-balanced spread portfolio at an all-in-one manner. Such a spread portfolio is expected to have all its betas (the MKT beta, the SMB beta, and the HML beta) of close to 1 in absolute value.

The basic idea is that, as in Fama and French (1993), (1998), (2012), we perform sorts on size and B/M, and construct a portfolio long small and value stocks and short large and growth stocks. Take the purely local sample as one example, we allocate the purely local stocks to two size groups – small stocks and big stocks. Within each size group, we allocate stocks two three groups – value stocks (V), neutral stocks (N), and growth stocks (G). Therefore, we have the 2×3 value-weighted portfolios formed on size and B/M.

	Value	**Neutral**	**Growth**
Small	SV	SN	SG
Big	BV	BN	BG

To capture SMB and HML, we construct a spread portfolio that longs small and value stocks and shorts large and growth stocks, *i.e.*, *SV – BG*. Such a corner spread is expected to have large betas with respect to (*w.r.t.*) SMB and HML but very small beta *w.r.t.* MKT. Next step is to take into account MKT. We then consider an adjusted corner spread which longs the corner spread portfolio of *SV – BG* and shorts the MKT portfolio.

The adjusted corner spread acts as a factor-mimicking portfolio for the style and market risk premia. It goes long the assets that have high exposures on the style premia (size and value) and that have low MKT betas (*i.e.*, the long leg is an active style investment). Meanwhile, it goes short the assets that have low exposure on the style premia and that have the market beta of 1 (*i.e.*, the short leg is a truly passive strategy). Such a style-*vs*-market-risk factor is analogous to the active return in the field of fund performance evaluation. When some asset has a positive beta *w.r.t.* the style-*vs*-market-risk factor, this means that the test asset tilts toward active style investing; when some test asset has a negative beta *w.r.t.* the style-*vs*-market-risk factor, this implies that the portfolio tilts toward passive investment.

The construction of the adjusted corner spread is in the spirit of the studies on the CAPM with restricted borrowing. It has been acknowledged that the MKT beta does not provide a complete description of the structure of security returns. In particular, high-beta assets tend to have negative alpha's, and that low-beta stocks tend to have positive alpha's (Black, Jensen, and Scholes (1972), Baker, Bradley, and Wurgler (2010)). Black (1972), (1993) and Black et al. (1972) considered relaxing the assumption of the existence of riskless borrowing and lending opportunities and first proposed the low beta strategies. The constrained-borrowing CAPM turns out to have a better fit (Gibbons (1982), Kandel (1984), Shanken (1985)). Frazzini and Pedersen (2014) further extends Black's (1972) insight by considering a broader set of constraints and introduce a "betting-against-beta" factor that goes long low-beta assets and short-sells high-beta assets. In all, the adjusted corner spread is constructed in the similar way with these adjusted factors in the study of the CAPM with restricted borrowing.

In addition to the adjusted corner spread, we consider an alternative characteristics-balanced spread portfolio, that is, the corner spread of *SV – BG* itself. We find that the correlation of the corner spread with the MKT are mostly negative in our sample, as shown in the table below.[1] We

[1]Previous studies have similar findings on these negative correlations. For example, Fama and French (1995) and Chan, Karceski, and Lakonishok (1998) find that investment style that key on the fundamental factors B/M and SIZE are fairly defensive, in the sense that

acknowledge that the simplified characteristics-balanced spread portfolio is a noisy measure as its MKT beta is likely closer to 0 rather than to 1 in absolute value.

Global Mandates	Correlation	*Regional Mandates*	Correlation
Global	-0.22	North America	-0.02
Developed	-0.31	Europe	-0.12
Global excl. NA	-0.29	Asia Pacific	0.22
Developed excl. NA	-0.38	Japan	-0.08
		Emerging Markets	0.01

Empirical results are very similar when the adjusted spread portfolio is considered and when the simplified spread portfolio is considered. To conserve space, we report the results for the first proxy in the paper.

their returns are notably higher in down-markets than in up-markets. This findings is further confirmed by recent studies (Frazzini and Pedersen (2014), Novy-Marx (2014)). For example, Novy-Marx (2014) shows that small cap and value tilts to the low beta portfolios.

Kan, Robotti, and Shanken (2013) Model Comparison Tests

Kan, Robotti, and Shanken (2013) develop a test of model comparison based on the sample cross-sectional regression (CSR) R^2, taking into account the impact of model misspecification on the variability of the CSR estimates. They derive the asymptotic distribution of the difference between the sample R^2s of two beta pricing models under the null hypothesis that the population values are the same is derived. They show that the distribution depends on whether the two models are nested or non-nested and whether the models are correctly specified.

More specifically, they consider two competing beta pricing models. Let f_1, f_2, and f_3 be three sets of distinct factors, where f_i is of dimension $K_i \times 1$, i=1,2,3. Assume that model A uses f_1 and f_2, while model B uses f_1 and f_3 as factors. Therefore, model A requires that the expected returns on the test assets, μ_R, be linear in the betas or covariances with respect to f_1 and f_2 , that is,

$$\mu_R = 1_N \lambda_{A,0} + \mathrm{COV}(R, f_1')\lambda_{A,1} + \mathrm{COV}(R, f_2')\lambda_{A,2} = C_A \lambda_A$$

where $C_A = [1_N, \mathrm{COV}(R, f_1'), \mathrm{COV}(R, f_2')]$ and $\lambda_A = [\lambda_{A,0}, \lambda_{A,1}', \lambda_{A,2}']'$. Model B requires that the expected returns be linear in the betas or covariances with respect to f_1 and f_3 , that is,

$$\mu_R = 1_N \lambda_{B,0} + \mathrm{COV}(R, f_1')\lambda_{B,1} + \mathrm{COV}(R, f_2')\lambda_{B,3} = C_B \lambda_B$$

where $C_B = [1_N, \mathrm{COV}(R, f_1'), \mathrm{COV}(R, f_3')]$ and $\lambda_B = [\lambda_{B,0}, \lambda_{B,1}', \lambda_{B,3}']'$.

A. Nested Models

Without loss of generality, K_3=0 is assumed so that model A nests model B. They show that when the models are misspecified, R^2_A=R^2_B if and only if $\lambda_{A,2} = 0_{K_2}$. There are two equivalent ways to test whether the models have the same R^2. One can simply perform a Wald test of $H_0: \lambda_{A,2} = 0_{K_2}$ based on the CSR estimate and its misspecification-robust covariance matrix. Alternatively, in keeping with the common practice of comparing cross-sectional R^2s, one can use the asymptotic distribution of $\hat{R}_A^2 = \hat{R}_B^2$ to perform the weighted chi-squared test H_0: R^2_A=R^2_B. Results on both of the tests are consistent in the empirical applications.

In this paper, the partial-segmentation models nest the purely global model in the global mandates and the purely local model in the regional mandates, respectively. Therefore, we conduct both tests to investigate the statistical significance of the differences between the sample cross-sectional R^2s for this pair of nested model. In the empirical evidence, we report the Wald test in the tables; results for the weighted chi-squared test are consistent with those shown in the tables.

B. Non-Nested Models

Under H_0: R^2_A=R^2_B, there are three possible asymptotic distribution for $\hat{R}_A^2 - \hat{R}_B^2$, depending on why the two models have the same cross-sectional R^2s. One possibility is that the factors that are not common to the two non-nested models are irrelevant for explaining expected returns. In other words, the models have the same stochastic discounted factors and therefore the same pricing errors as well as identical population R^2s. Alternatively, the two models may produce different pricing errors but still have the same overall goodness of fit. It is then theoretically possible for two models to both be correctly specified (that is, R^2_A=R^2_B=*1*) even though their factors differ. Another possibility, a more general case, is that one model might do a good job of pricing some assets that the other prices poorly

and vise versa, such that the aggregation of pricing errors is the same across the two models ($0<R^2_A=R^2_B<1$).

Given the three distinct cases described above, testing $H_0: R^2_A=R^2_B$ for non-nested models entails a sequential test. Another approach is to simply perform the normal test of $H_0: 0<R^2_A= R^2_B<1$. Kan et al. (2013) conduct both the sequential test and the normal test when comparing non-nested models, and focus mainly on the normal test because, as they point out, the test is more powerful insofar as the simplifying assumptions are valid.

When comparing the partial-segmentation model and the "trivial" not theory-driven counterpart model in this paper, we follow Kan et al. (2013), conduct both of the tests, and report mainly on the normal tests.

C. Two Forms of Beta Pricing Models

Two forms of beta pricing models are studied in this paper and reported in the tables: Let f be a K-vector of factors, R be a vector of returns on N test assets, and β be the $N\times K$ matrix of multiple regression betas of the N assets with respect to the K factors. The proposed K-factor beta pricing model specifies that asset expected returns are linear in β, that is,

$$\mu_R = X\gamma$$

where $X = [1_N, \beta]$, and γ is a vector consisting of the zero-beta rate and risk premia on the K factors. In the tables reported in the paper, $\hat{\gamma}_{EX\_L}$ denotes the estimated risk premium of the local externality factor, and $\hat{\gamma}_{EX\_G}$ denotes the estimated risk premium of the global externality factor. An alternative specification is considered in terms of the $N\times K$ matrix of V_{Rf} of covariances between returns and the factors, thus

$$\mu_R = C\lambda$$

where $C = [1_N, V_{Rf}]$, and λ is a vector consisting of the zero-beta rate and price of the covariance risk on the K factors. In the tables reported in the paper, $\hat{\lambda}_{EX\_L}$ denotes the risk premium of the local externality factor, and $\hat{\lambda}_{EX\_G}$ denotes the risk premium of the global externality factor.

Procedure for Constructing the Globally Equity Universe

We require each firm's home country to be clearly identified in the database. Financial firms are excluded from the study due to their different characteristics. We also exclude depositary receipts (DRs), real estate investment trusts (REITs), preferred stocks, and other stocks with special features.[2] For most countries, we restrict the sample to stocks from major exchanges, which we define as the exchanges on which the majority of stocks in that country are listed. However, multiple exchanges are included in samples for China (Shanghai Stock Exchange and Shenzhen Stock Exchange), Japan (Osaka Stock Exchange, Tokyo Stock Exchange, and JASDAQ), Russia (MICEX and Russian Trading System), South Korea (Korea Stock Exchange and KOSDAQ), Canada (Toronto Stock Exchange and TSX Ventures Exchange), and the United States(NYSE, AMEX and NASDAQ). To limit the effect of survivorship bias, we include dead stocks in the sample.

To reduce errors in Datastream, we follow several screening procedures for monthly returns as suggested by Ince and Porter (2006) and Hou et al. (2011). First, any return above 300% that is reversed within one month is set to missing. Specifically, if R_t or R_{t-1} is greater than 300%, and if $(1+R_t) \times (1+R_{t-1}) - 1 \leq 50\%$, then both R_t and R_{t-1} are set to missing. Second, in order to exclude remaining outliers in returns that cannot be identified as stock splits or mergers, we treat as missing the monthly returns that fall out of the 0.1% and 99.9% percentile ranges in each country. Third, included firms are required to have at least 12 monthly returns during the sample period.

Additionally, we require the availability of the following financial variables for at least one firm-year observation: market value of equity ("Size" hereafter), B/M, and cash flow to price ("C/P" hereafter). To make sure that the accounting ratios are known before the returns, we match the financial statement data for fiscal year-end in year $t-1$ with monthly returns from July of year t to June of year $t+1$. We take the inverse of the price-to-book ratio (item WC09304) and the price-to-cash flow ratio (item WC09604) to calculate the ratios of B/M and C/P, respectively. We do not use negative B/M (or C/P) stocks when calculating the breakpoints for B/M (or C/P) or when forming the size/B/M (or size/C/P) portfolios.

Figure 1 exhibits the distribution of our global equity universe across regions over the period from 1990 to 2010, reported by total market capitalization. On average, North America, Europe, Japan, Asia Pacific, and the Emerging Markets account for 43.13%, 25.50%, 13.44%, 4.45%, and 13.49% of global market capitalization. However, by the total number of stocks (not shown, but available), North America only constitutes one-quarter of the sample population, higher than Europe (23.08%), Japan (11.50%), and Asia Pacific (10.47%), but lower than the Emerging Markets (29.72%). Proportionally more large-cap stocks are concentrated in North America, especially the United States. In contrast, proportionally more of the stocks from Asia Pacific and Emerging Markets are small cap stocks. In addition, among the countries in Europe, the average size of stocks in the Netherlands, Spain, and Switzerland are larger than those in Greece, Sweden, and the United Kingdom. Hong Kong accounts for 40.62% of all market capitalization in Asia Pacific but only constitutes 24.96% of the sample population in the region. Most of the stocks in Emerging Markets are from Asia, either by count or by total market capitalization. The average size of stocks varies substantially across emerging market countries, with greater values for Mexico, Brazil, Russia, and China.

Figure 1 also shows the sample over time and breaks it down by regions. The counts steadily increase from around 10,000 in 1990 to a peak of almost 28,000 in 2008. Most notably, the count in

[2] We drop stocks with name including "REIT", "REAL EST", "GDR", "PF", "PREF", or "PRF" as these terms may represent REITs, GDRs, or preferred stocks. We drop stocks with name including "ADS", "CERTIFICATES", "RESPT", "Rights", "Paid in", "UNIT", and a host of others due to various special features. Additional country-specific screening rules are applied.

Emerging Markets has jumped from less than 2,000 in 1990 to nearly 9,500 in 2009. In contrast to these counts, global market capitalization has less steady growth (not shown, but available). It rises from US$7 trillion in 1990 to a peak of US$26 trillion in 2000. It falls after 2000 before reaching another peak of almost US$40 trillion in 2007. In the most recent two years during the sample period, it rises again to US$34 trillion.

Internet Appendix Tables

Internet Appendix Table 1A. Summary Statistics of Global Equity Universe by Country

Country	Beginning Date	Total Number of Stocks	Size (U.S. $ mills.)	Book-to-Market (B/M)	Cash flow-to-Price (C/P)	Momentum (Mom, %)
North America		9,438				
United States	1989/11	6,494	256.70	0.47	0.09	6.60
Canada	1989/11	2,944	9.86	0.61	0.07	0.61
Europe		8,630				
Austria	1989/11	240	185.30	0.62	0.15	3.13
Belgium	1989/11	178	106.47	0.64	0.14	4.93
Denmark	1989/11	205	66.88	0.73	0.12	5.69
Finland	1989/11	157	133.66	0.83	0.14	10.81
France	1989/11	1,170	71.55	0.59	0.12	3.44
Germany	1989/11	1,109	78.98	0.51	0.10	-0.41
Greece	1989/11	332	45.31	0.64	0.09	12.45
Ireland	1989/11	78	184.90	0.57	0.10	7.71
Italy	1989/11	351	184.86	0.75	0.13	-0.92
Netherland	1989/11	203	228.09	0.55	0.14	7.10
Norway	1989/11	347	103.29	0.69	0.11	6.77
Portugal	1989/11	100	76.45	0.85	0.12	0.99
Spain	1989/11	169	430.65	0.68	0.12	6.57
Sweden	1989/11	571	50.14	0.61	0.10	5.55
Switzerland	1989/11	265	195.75	0.70	0.13	8.13
UK	1989/11	3,155	54.25	0.51	0.09	2.51
Asia Pacific		3,914				
Hong Kong	1989/11	977	70.57	0.91	0.09	3.89
Australia	1989/11	2,012	19.54	0.61	0.05	2.28
New Zealand	1989/11	170	49.80	0.71	0.11	10.79
Singapore	1989/11	755	71.72	0.77	0.10	6.07
Japan	1989/11	4,301	174.90	0.82	0.08	-2.19
Emerging Markets		11,116				
Israel	1989/11	326	21.18	0.71	0.12	6.43
Turkey	1989/11	241	57.24	0.56	0.15	12.13
Pakistan	1989/11	129	34.79	0.77	0.19	9.53
South Africa	1989/11	567	57.83	0.61	0.13	8.02
Czech Republic	1993/08	76	0.98	1.34	0.23	5.34
Poland	1992/01	348	30.50	0.74	0.10	40.97
Hungary	1991/02	45	37.57	0.86	0.14	4.21
Russia	1994/07	292	104.54	2.30	0.23	37.17
China	1991/02	1,550	247.05	0.62	0.08	26.48
India	1989/11	1,455	37.50	0.71	0.12	11.86
Indonesia	1990/05	312	40.90	0.76	0.12	5.42
Malaysia	1989/11	993	58.70	0.79	0.09	5.84
Philippines	1989/11	158	30.97	0.94	0.10	1.20
South Korea	1989/11	1,757	41.55	1.22	0.21	3.48
Taiwan	1989/11	1,344	156.80	0.64	0.08	-0.16
Thailand	1989/11	483	36.72	0.86	0.16	1.59
Argentina	1989/11	84	69.24	1.10	0.17	16.30
Brazil	1993/01	404	97.29	1.54	0.20	32.76

Internet Appendix Table 1A, continued

Country	Beginning date	Total number of Stocks	Size (U.S. $ mills.)	Book-to-Market (B/M)	Cash flow-to-Price (C/P)	Momentum (Mom)
Chile	1990/12	179	115.76	0.77	0.12	11.31
Colombia	1992/02	85	58.78	1.51	0.15	6.99
Mexico	1989/11	150	327.45	0.80	0.13	10.86
Peru	1991/02	111	10.59	1.10	0.15	11.93
Venezuela	1990/02	27	46.54	2.29	0.23	10.50
Total All		37,399				

Table 1A reports summary statistics of our sample stocks for each country over the 198911-201112. We exclude financial firms and to be included in the analysis, each stocks has to have at least 12 monthly returns, is listed in its country's major exchange(s), and has sufficient information to calculate at least one of the characteristics including market value of equity (Size), book-to-market (B/M), cash flow-to-price (C/P). We also apply several screening procedures for Datastream data errors in monthly returns as suggested by Ince and Porter (2003) and others, as detailed in the text. The beginning date for each country is as shown. The total numbers of unique stocks are reported for each country. Mom is the time series average of the median lagged cumulative returns from *t-11* to *t-1* (skipping the most recent month). Also reported are the time-series average of annual medians for size, B/M, and C/P. Here the detailed sample selection criteria are described in the Internet Appendix Note.

Internet Appendix Table 1B. Summary Statistics of Globally Accessible Sample by Country

Panel A. Statistics on Globally Accessible Sample by Country.

Country	Beginning date	Total number of Stocks	Size (U.S. $ mills.)	Book-to-Market (B/M)	Cash flow-to-Price (C/P)	Momentum (Mom, %)
North America		2,583				
United States	1989/11	951	1,111.76	0.35	0.07	7.48
Canada	1989/11	1,632	10.21	0.57	0.04	-0.05
Europe		1,354				
Austria	1989/11	63	389.16	0.61	0.16	5.56
Belgium	1989/11	101	185.98	0.68	0.12	5.58
Denmark	1989/11	19	855.88	0.47	0.11	9.52
Finland	1989/11	30	691.56	0.88	0.14	10.47
France	1989/11	130	1,877.10	0.54	0.11	6.51
Germany	1989/11	112	1,936.80	0.47	0.13	6.60
Greece	1989/11	8	917.28	0.44	0.12	22.97
Ireland	1989/11	79	111.75	0.57	0.09	5.58
Italy	1989/11	59	1,182.32	0.72	0.14	1.47
Netherland	1989/11	71	1,334.35	0.41	0.12	9.41
Norway	1989/11	58	553.78	0.67	0.12	11.24
Portugal	1992/02	15	704.02	0.74	0.13	8.04
Spain	1989/11	38	1,357.15	0.70	0.14	8.46
Sweden	1989/11	66	514.33	0.49	0.09	9.39
Switzerland	1989/11	129	411.13	0.59	0.11	8.85
UK	1989/11	376	1,163.33	0.39	0.08	7.30
Asia Pacific		785				
Hong Kong	1989/11	218	147.20	0.69	0.09	6.54
Australia	1989/11	471	20.11	0.53	0.03	3.68
New Zealand	1989/11	20	347.30	0.67	0.10	8.66
Singapore	1989/11	76	834.94	0.66	0.11	8.19
Japan	1989/11	197	4,179.16	0.56	0.09	1.82
Emerging Markets		828				
Israel	1989/11	79	77.21	0.61	0.08	11.48
Turkey	1989/11	6	549.89	0.55	0.11	12.65
Pakistan	2004/03	1	7,043.70	0.24	0.12	22.99
South Africa	1989/11	60	982.46	0.54	0.12	10.57
Czech	1993/12	18	10.20	1.43	0.25	9.70
Poland	1992/06	13	430.19	0.69	0.12	133.52
Hungary	1991/02	23	102.61	0.85	0.15	10.40
Russia	1995/10	58	1,668.34	1.90	0.21	36.25
China	1992/12	166	335.22	1.11	0.14	5.35
India	1990/02	33	996.18	0.49	0.11	21.58
Indonesia	1990/05	29	468.28	0.57	0.15	14.27
Malaysia	1989/11	93	259.80	0.80	0.09	8.96
Philippines	1989/11	10	496.22	0.66	0.12	2.11
Korea	1989/11	23	3,643.53	0.89	0.29	11.97
Taiwan	1989/11	22	2,125.01	0.49	0.10	12.78
Thailand	1989/11	36	574.83	0.55	0.14	15.79
Argentina	1989/11	19	537.03	2.41	0.21	29.81
Brazil	1994/08	48	1,303.13	1.95	-0.13	19.17

Internet Appendix Table 1B, continued

Country	Beginning date	Total number of Stocks	Size (U.S. $ mills.)	Book-to-Market (B/M)	Cash flow-to-Price (C/P)	Momentum (Mom)
Chile	1990/12	18	137.76	0.85	0.13	16.26
Colombia	1997/06	3	1,174.47	1.31	0.20	26.68
Mexico	1989/11	55	637.62	0.74	0.13	14.66
Peru	1991/02	6	384.79	0.76	0.19	27.93
Venezuela	1990/02	9	131.69	1.93	0.23	13.96
Total All		5,747				

Panel A of Table 1B reports summary statistics of globally accessible sample for each country over the 198911-201112. We exclude financial firms and to be included in the analysis, each stocks has to have at least 12 monthly returns, is listed in its country's major exchange(s), and has sufficient information to calculate at least one of the characteristics including market value of equity (Size), book-to-market (B/M), cash flow-to-price (C/P). We also apply several screening procedures for Datastream data errors in monthly returns as suggested by Ince and Porter (2003) and others, as detailed in the text. The beginning date for each country is as shown. The total numbers of unique stocks are reported for each country. Mom is the time series average of the median lagged cumulative returns from *t-11* to *t-1* (skipping the most recent month). Also reported are the time-series average of annual medians for size, B/M, and C/P. Here the globally accessible sample uses the Main CL Tier and the sample selection criteria are described in the Appendix A.

Internet Appendix Table 1B, continued

Panel B. Distribution of Globally Accessible Cross-Listed Stocks on Either of the Target Markets (in terms of number of stocks).

	United States	United Kingdom	Europe	Germany	Luxembourg	Singapore	Hong Kong
1990	183	256	140	274	0	83	5
1991	196	261	138	288	0	86	6
1992	234	266	139	299	1	82	6
1993	321	273	139	299	2	79	11
1994	397	282	137	312	3	79	18
1995	679	290	428	325	3	79	23
1996	781	317	439	503	4	81	26
1997	872	362	463	770	17	82	40
1998	949	399	455	986	17	83	41
1999	1,025	441	438	1,264	25	86	43
2000	1,127	506	356	1,794	28	11	56
2001	1,224	516	473	2,034	27	13	60
2002	1,421	485	545	2,077	26	13	79
2003	1,591	382	545	2,173	24	13	93
2004	1,817	367	567	2,486	22	15	105
2005	1,887	336	579	2,694	22	17	114
2006	1,918	335	614	2,953	20	19	129
2007	1,884	334	640	3,161	20	19	136
2008	2,068	321	622	3,305	19	18	140
2009	2,215	297	419	3,261	18	17	145
2010	2,302	275	292	3200	17	17	150

Internet Appendix Table 1B, continued

Panel C. Distribution of Globally Accessible Cross-Listed Stocks from Each Home Region (in terms of number of stocks).

	North America	Europe	Asia Pacific	Japan	Emerging Markets
1990	104	102	15	21	116
1991	126	145	20	32	118
1992	141	163	22	32	124
1993	152	183	27	35	146
1994	168	209	29	39	189
1995	187	327	43	90	234
1996	214	366	56	92	266
1997	245	409	61	94	313
1998	262	403	61	47	303
1999	559	540	110	95	384
2000	834	671	178	125	360
2001	999	752	225	139	405
2002	1,086	763	243	146	433
2003	1,352	761	288	146	464
2004	1,596	779	360	153	497
2005	1,676	809	441	155	530
2006	1,791	843	525	153	560
2007	1,860	903	582	157	566
2008	1,921	936	636	164	575
2009	1,945	922	646	165	576
2010	1,967	869	628	158	560

Internet Appendix Table 1B, continued

Panel D. Comparison between Our Globally Accessible Cross-Listed stocks and the Overseas Listing Sample in Sarkissian and Schill (hereafter SS, 2014) by Host Market.

	1990s			2000s		
	SS Sample*	Our Sample	*Diff.*	SS Sample	Our Sample	*Diff.*
The United States	703	564	*139*	365	1,569	*(1,204)*
The United Kingdom	184	315	*(131)*	71	418	*(347)*
Europe	111	292	*(181)*	43	526	*(483)*
Germany	129	532	*(403)*	13	2,316	*(2,303)*
Luxembourg	133	7	*126*	118	24	*94*
Singapore	28	82	*(54)*	7	14	*(7)*
Hong Kong	2	22	*(20)*	0	91	*(91)*

*: SS sample stands for the overseas listing sample in SS (2014).

Panel E. Comparison between Our Globally Accessible Cross-Listed Stocks and the Overseas Listing Sample in SS (2014) by Home Region.

	1990s			2000s		
	SS Sample*	Our Sample	*Diff.*	SS Sample	Our Sample	*Diff.*
North America	359	216	*143*	205	1,333	*(1,128)*
Europe	485	285	*200*	223	768	*(545)*
Asia Pacific	158	44	*114*	51	323	*(272)*
Japan	71	58	*13*	18	145	*(127)*
Emerging Markets	443	219	*224*	268	464	*(196)*

*: SS sample stands for the overseas listing sample in SS (2014).

Internet Appendix Table 1B, continued

Panel F. Modified Comparison between Our Globally Accessible Cross-Listed Stocks and the Overseas Listing Sample in SS (2014) by Host Market.

	1990s			2000s		
	SS Sample*	Our Sample#	*Diff.*	SS Sample	Our Sample	*Diff.*
The United States	703	1,028	*(325)*[1]	365	1,186	*(821)*[1]
The United Kingdom	184	295	*(111)*[2]	71	82	*(11)*[2]
Europe	111	429	*(318)*[3]	43	403	*(360)*[3]
Germany	129	1,566	*(1,437)*[4]	13	1,802	*(1,789)*[4]
Luxembourg	133	31	*102*[5]	118	5	*113*[5]
Singapore	28	14	*14*	7	9	*(2)*
Hong Kong	2	56	*(54)*[6]	0	86	*(86)*[6]

*: SS sample stands for the overseas listing sample in SS (2014).

#: For any cross-listed stock in our sample, it is counted as one observation for the first month of its valid RI record on the foreign listing exchange from Datastream.

1: There are a couple of reasons why our sample has a larger count. For example, SS (2014) focuses on foreign listing traded only on countries' main exchanges while we consider not only NYSE/AMEX, NASDAQ but also Non NASDAQ OTC, New York, NASDAQ/NMS, NYSE Arca for the market of the United States.

2: There are a couple of reasons why our sample has a larger count. For example, SS (2014) focuses on foreign listing traded only on countries' main exchanges while we consider not only the London Stock Exchange but also London OTC Exchange, London Plus Market, and SEAQ International for the market of the United Kingdom.

3: There are a couple of reasons why our sample has a larger count. For example, SS (2014) focuses on foreign listing traded only on countries' main exchanges while the Europe in our study includes Euronext at Amsterdam, Brussels, Lisbon, Paris, and EASDAQ.

4: There are a couple of reasons why our sample has a larger count. For example, SS (2014) focuses on foreign listing traded only on countries' main exchanges while we consider not only the Frankfurt Stock Exchange but also XETRA for the market of the Germany. More importantly, there are a large amount of "unregulated" cross-listed stocks alongside the "regulated" cross-listed stocks, in which trading takes place without the sponsorship of the company. We consider these "unregulated" cross-listed stocks, which are probably omitted in the sample of Sarkissian and Schill (JFQA forthcoming, "Cross-listing waves").

5: There are a couple of reasons why our sample has a larger count. For example, we impose additional "viability" constraints on how actively the secondarily cross-listed shares are traded. Therefore, a large set of cross-listed stocks trading on Luxembourg are removed from our main sample because they fail to met with the "viability" constraints.

6: There are a couple of reasons why our sample has a larger count. For example, we include the H share companies from China into our main globally accessible cross-listed sample.

Internet Appendix Table 1B, continued

Panel G. Modified Comparison between Our Globally Accessible Cross-Listed Stocks and the Overseas Listing Sample in SS (2014) by Home Region.

	1990s			2000s		
	SS Sample*	Our Sample#	*Diff.*	SS Sample	Our Sample	*Diff.*
North America	359	794	*(435)*	205	1,320	*(1,115)*
Europe	485	669	*(184)*	223	430	*(207)*
Asia Pacific	158	171	*(13)*	51	465	*(414)*
Japan	71	117	*(46)*	18	39	*(21)*
Emerging Markets	443	369	*74*	268	280	*(12)*

*: SS sample stands for the overseas listing sample in SS (2014).

#: For any cross-listed stock in our sample, it is counted as one observation for the first month of its valid RI record on the foreign listing exchange from Datastream.

Internet Appendix Table 1C. Summary Statistics of Purely Local Stocks by Country

Country	Beginning date	Total number of Stocks	Size (U.S. $ mills.)	Book-to-Market (B/M)	Cash flow-to-Price (C/P)	Momentum (Mom, %)
North America		7,013				
United States	1989/11	5,628	224.54	0.50	0.10	6.38
Canada	1989/11	1,385	10.39	0.64	0.09	0.84
Europe		7,396				
Austria	1989/11	177	131.57	0.62	0.15	1.71
Belgium	1989/11	91	73.66	0.61	0.14	4.58
Denmark	1989/11	187	54.91	0.75	0.12	5.25
Finland	1989/11	130	93.94	0.83	0.14	10.47
France	1989/11	1,041	50.31	0.61	0.12	2.91
Germany	1989/11	1,004	64.72	0.52	0.10	-1.21
Greece	1989/11	325	46.64	0.65	0.09	12.60
Ireland	1989/11	20	58.69	0.97	0.10	6.73
Italy	1989/11	301	140.46	0.76	0.13	-1.53
Netherland	1989/11	138	84.64	0.63	0.14	6.32
Norway	1989/11	290	72.17	0.71	0.11	5.42
Portugal	1992/02	85	46.83	0.87	0.12	-0.12
Spain	1989/11	133	344.24	0.67	0.12	5.96
Sweden	1989/11	508	38.04	0.63	0.10	4.84
Switzerland	1989/11	151	108.56	0.78	0.14	7.54
UK	1989/11	2,815	43.24	0.54	0.09	1.65
Asia Pacific		3,133				
Hong Kong	1989/11	774	58.70	1.00	0.10	2.89
Australia	1989/11	1,523	16.41	0.63	0.06	4.16
New Zealand	1989/11	153	43.11	0.73	0.11	10.69
Singapore	1989/11	683	63.79	0.78	0.09	5.99
Japan	1989/11	4,109	152.03	0.84	0.08	-2.41
Emerging Markets		10,487				
Israel	1989/11	283	19.26	0.74	0.12	6.54
Turkey	1989/11	235	54.89	0.57	0.15	12.38
Pakistan	1989/11	128	35.38	0.77	0.19	9.47
South Africa	1989/11	510	42.88	0.64	0.14	7.91
Czech	1993/08	59	0.62	1.35	0.23	3.88
Poland	1992/01	335	28.97	0.75	0.10	43.48
Hungary	1991/07	22	6.23	1.08	0.12	-3.63
Russia	1994/07	243	70.98	4.33	0.54	38.01
China	1991/02	1,504	244.20	0.55	0.07	26.70
India	1989/11	1,426	36.16	0.77	0.12	11.48
Indonesia	1990/05	286	33.94	0.80	0.12	4.64
Malaysia	1989/11	901	43.86	0.78	0.09	6.56
Philippines	1989/11	150	28.57	0.91	0.10	1.09
Korea	1989/11	1,739	39.70	1.23	0.20	3.42
Taiwan	1989/11	1,323	162.16	0.65	0.08	-0.38
Thailand	1989/11	448	32.14	0.90	0.17	0.97
Argentina	1989/11	66	49.55	1.09	0.14	12.68
Brazil	1993/01	362	62.41	1.49	0.22	32.34

Internet Appendix Table 1C, continued

Country	Beginning date	Total number of Stocks	Size (U.S. $ mills.)	Book-to-Market (B/M)	Cash flow-to-Price (C/P)	Momentum (Mom)
Chile	1990/12	161	118.15	0.76	0.12	10.96
Colombia	1992/02	82	49.86	1.55	0.15	6.14
Mexico	1989/11	99	189.46	0.87	0.13	8.71
Peru	1991/02	106	8.93	1.15	0.16	11.15
Venezuela	1990/02	19	27.39	2.75	0.25	13.22
Total All		32,138				

Table 1C reports summary statistics of purely local stocks for each country over the 198911-201112. We exclude financial firms and to be included in the analysis, each stocks has to have at least 12 monthly returns, is listed in its country's major exchange(s), and has sufficient information to calculate at least one of the characteristics including market value of equity (Size), book-to-market (B/M), cash flow-to-price (C/P). We also apply several screening procedures for Datastream data errors in monthly returns as suggested by Ince and Porter (2003) and others, as detailed in the text. The beginning date for each country is as shown. The total numbers of unique stocks are reported for each country. Mom is the time series average of the median lagged cumulative returns from *t-11* to *t-1* (skipping the most recent month). Also reported are the time-series average of annual medians for size, B/M, and C/P. Here the globally accessible sample uses the Main CL Tier and the purely local stocks refers to those stocks that are not defined as globally accessible stocks in each region. The sample selection criteria are described in the Appendix A.

Internet Appendix Table 2A. Summary Statistics for Explanatory Factor Returns in the Perfect-integration Model and the Perfect-segmentation Model

Panel A. Returns Distributions of Factor Portfolios in the Global Mandates

Attributes	Market	Size(on B/M)	Size(on C/P)	Size(on Mom)	B/M	C/P	Mom
Global							
Mean	0.46	0.11	0.20	0.26	0.49	0.58	0.52
Std Dev	4.47	2.38	2.25	2.29	2.53	2.60	4.37
t-Mean	1.59	0.74	1.41	1.75	3.02	3.46	1.84
Developed Markets Only							
Mean	0.47	0.07	0.14	0.17	0.47	0.52	0.39
Std Dev	4.46	2.30	2.08	2.17	2.54	2.68	4.73
t-Mean	1.63	0.46	1.08	1.21	2.86	3.05	1.29
Global excl. North America							
Mean	0.33	-0.01	0.12	0.25	0.61	0.68	0.60
Std Dev	4.79	2.48	2.49	2.50	2.54	2.30	4.13
t-Mean	1.06	-0.07	0.73	1.57	3.75	4.58	2.26
Developed Markets Only excl. North America							
Mean	0.32	-0.09	0.00	-0.04	0.57	0.57	0.39
Std Dev	4.85	2.41	2.37	2.40	2.32	1.97	4.27
t-Mean	1.04	-0.58	0.01	-0.24	3.85	4.53	1.43

Internet Appendix Table 2A, continued

Panel B. Returns Distributions of Factor Portfolios in the Regional Mandates

Attributes	Market	Size(on B/M)	Size(on C/P)	Size(on Mom)	B/M	C/P	Mom
North America							
Mean	0.68	0.36	0.39	0.55	0.31	0.46	0.40
Std Dev	4.58	3.63	2.98	2.86	3.63	4.31	5.99
t-Mean	2.32	1.67	2.05	2.99	1.32	1.67	1.03
Europe							
Mean	0.58	-0.14	-0.04	-0.04	0.64	0.68	0.82
Std Dev	4.91	2.45	2.39	2.40	2.62	2.35	4.58
t-Mean	1.83	-0.90	-0.24	-0.26	3.80	4.48	2.79
Japan							
Mean	-0.04	-0.16	-0.06	-0.11	0.51	0.39	-0.44
Std Dev	6.07	3.98	3.91	3.52	2.67	2.44	5.38
t-Mean	-0.10	-0.61	-0.24	-0.47	2.95	2.47	-1.28
Asia Pacific							
Mean	0.74	-0.07	-0.02	0.02	0.76	0.77	1.07
Std Dev	5.87	3.37	3.26	3.06	3.14	2.93	5.14
t-Mean	1.97	-0.34	-0.08	0.11	3.77	4.11	3.24
Emerging Markets							
Mean	0.32	0.32	0.62	0.85	0.77	0.88	1.05
Std Dev	6.33	3.25	3.40	3.80	4.03	4.78	7.38
t-Mean	0.79	1.52	2.82	3.50	2.95	2.88	2.22

Internet Appendix Table 2A, continued

Panel C. Return Correlations of Factor Portfolios in the Global Mandates

Attributes	Market	Size(on B/M)	Size(on C/P)	Size(on Mom)	B/M	C/P	Mom
Global							
Market	1.00						
Size (on B/M)	0.12	1.00					
Size (on C/P)	0.02	0.95	1.00				
Size (on Mom)	-0.04	0.87	0.93	1.00			
B/M	-0.23	-0.15	0.10	0.17	1.00		
C/P	-0.18	-0.13	0.09	0.15	0.89	1.00	
Mom	-0.20	0.14	0.06	-0.04	-0.16	-0.08	1.00
Developed Markets Only							
Market	1.00						
Size (on B/M)	0.18	1.00					
Size (on C/P)	0.05	0.94	1.00				
Size (on Mom)	0.09	0.90	0.95	1.00			
B/M	-0.31	-0.16	0.13	0.12	1.00		
C/P	-0.28	-0.17	0.09	0.10	0.91	1.00	
Mom	-0.22	0.15	0.06	-0.06	-0.16	-0.09	1.00
Global excl. North America							
Market	1.00						
Size (on B/M)	-0.05	1.00					
Size (on C/P)	-0.12	0.96	1.00				
Size (on Mom)	-0.19	0.88	0.92	1.00			
B/M	-0.20	-0.13	0.10	0.13	1.00		
C/P	-0.06	-0.15	0.01	0.03	0.77	1.00	
Mom	-0.20	-0.04	-0.09	-0.11	-0.06	0.07	1.00
Developed Markets Only excl. North America							
Market	1.00						
Size (on B/M)	-0.06	1.00					
Size (on C/P)	-0.17	0.96	1.00				
Size (on Mom)	-0.12	0.93	0.95	1.00			
B/M	-0.30	-0.06	0.18	0.14	1.00		
C/P	-0.16	-0.06	0.11	0.11	0.78	1.00	
Mom	-0.23	-0.05	-0.09	-0.13	-0.07	0.07	1.00

Internet Appendix Table 2A, continued

Panel D. Return Correlations of Factor Portfolios in the Regional Mandates

Attributes	Market	Size(on B/M)	Size(on C/P)	Size(on Mom)	B/M	C/P	Mom
North America							
Market	1.00						
Size (on B/M)	0.39	1.00					
Size (on C/P)	0.33	0.96	1.00				
Size (on Mom)	0.33	0.88	0.92	1.00			
B/M	-0.35	-0.35	-0.13	-0.04	1.00		
C/P	-0.38	-0.44	-0.25	-0.15	0.95	1.00	
Mom	-0.20	0.21	0.12	0.02	-0.17	-0.17	1.00
Europe							
Market	1.00						
Size (on B/M)	0.02	1.00					
Size (on C/P)	0.00	0.98	1.00				
Size (on Mom)	-0.05	0.95	0.96	1.00			
B/M	-0.07	-0.01	0.14	0.13	1.00		
C/P	-0.09	-0.01	0.09	0.10	0.87	1.00	
Mom	-0.24	-0.05	-0.09	-0.08	-0.09	0.05	1.00
Japan							
Market	1.00						
Size (on B/M)	0.15	1.00					
Size (on C/P)	0.06	0.97	1.00				
Size (on Mom)	0.00	0.89	0.91	1.00			
B/M	-0.44	-0.14	0.07	0.09	1.00		
C/P	-0.32	-0.33	-0.17	-0.12	0.66	1.00	
Mom	-0.14	-0.27	-0.29	-0.13	0.07	0.08	1.00

Internet Appendix Table 2A, continued

Panel D. Return Correlations of Factor Portfolios in the Regional Mandates (continued)

Attributes	Market	Size(on B/M)	Size(on C/P)	Size(on Mom)	B/M	C/P	Mom
Asian Pacific							
Market	1.00						
Size (on B/M)	0.23	1.00					
Size (on B/M)	0.16	0.93	1.00				
Size (on B/M)	0.05	0.85	0.83	1.00			
B/M	-0.06	0.11	0.37	0.26	1.00		
C/P	-0.22	0.00	0.04	0.09	0.34	1.00	
Mom	-0.13	0.04	-0.06	0.11	-0.08	0.03	1.00
Emerging Markets							
Market	1.00						
Size (on B/M)	0.07	1.00					
Size (on B/M)	0.07	0.92	1.00				
Size (on B/M)	-0.09	0.47	0.53	1.00			
B/M	0.04	-0.16	0.10	0.17	1.00		
C/P	0.04	-0.01	0.06	0.14	0.61	1.00	
Mom	0.00	-0.06	-0.04	-0.17	0.07	0.09	1.00

Internet Appendix Table 2A, continued

Table 2A shows the summary statistics for explanatory factor returns. It includes five sets of regional portfolios for North America, Europe, Japan, Asian Pacific (excluding Japan) and Emerging Markets. Four sets of global portfolios are also reported, including Global portfolios that combine all the five regions, Developed Markets portfolios that combine the first four regions, Global portfolios excluding North America, Developed Markets portfolios excluding North America. As in Fama and French (2012), we form portfolios at the end of June of each year *t* by sorting stocks in a region into two market cap and three book-to-market (B/M) or cash flow-to-price (C/P) groups. Big stocks are those in the top 90% of market cap for the region, and small stocks are those in the bottom 10% (Fama and French, 2012). The B/M or C/P breakpoints for the five regions are the 30^{th} and 70^{th} percentiles of B/M for the big stocks of a region. The global portfolios use regional B/M or C/P breakpoints to allocate the stocks of each region to the global portfolios. The independent 2×3 sorts on size and B/M (or C/P) produce six value-weighted portfolios, SG, SN, SV, BG, BN and BV, where S and B indicate small or big and G, N, and V indicate growth, neutral and value. The factor mimicking portfolios (FMPs) based on size is the equal-weighted average of the returns on the three small stock portfolios for the region minus the equal-weighted average of the returns on the three big stock portfolios. The FMPs based on B/M (or C/P) are calculated as the equal-weight average of value-growth returns for small and big stocks, SV-SG and BV-BG. The 2×3 sorts on size and lagged momentum are similar, but the size-momentum portfolios are formed monthly. For portfolios formed at the end of month *t*, the lagged momentum return is a stock's cumulative return for *t-11* to *t-1*. The independent 2×3 sorts on size and momentum produce six value-weight portfolios, SL, SN, SW, BL, BN and BW, where S and B indicate small and big, and L, N, and W indicate losers, neutral, and winners. The FMPs based on momentum is constructed as the equal-weight average of WML_S=SW-SL and WML_B=BW-BL. All returns are in U.S. dollars. Market is the return on a value-weight market portfolio for the mandate minus the U.S. one month Treasury bill yield. Mean and Std Dev are the mean and standard deviation of the return, and t-Mean is the ratio of Mean to its standard error.

Internet Appendix Table 2B. Summary Statistics for Explanatory Factor Returns in the Partial-segmentation Model (Main CL Tier)

Panel A. Explanatory Factor Returns of the Fama-French Three-factor Model

	Base Factor Portfolios				Externality Factor Portfolios *(Orthogonalized)*	
Attribute	Market	Size	B/M	C/P	Local	Global
Panel A.1. Return Distributions of Factor Portfolios in the Regional Experiments						
North America						
Mean	0.68	0.36	0.31	0.46	1.04	-0.04
Std Dev	4.58	3.34	3.63	4.31	3.17	0.78
t-Mean	2.32	1.67	1.32	1.67	5.11	-0.87
Europe						
Mean	0.58	-0.14	0.64	0.68	0.38	0.05
Std Dev	4.91	2.45	2.62	2.35	3.13	0.93
t-Mean	1.83	-0.90	3.80	4.48	1.91	0.90
Asia Pacific						
Mean	0.74	-0.07	0.76	0.77	0.66	0.45
Std Dev	5.87	3.37	3.14	2.93	4.91	3.23
t-Mean	1.96	-0.34	3.77	4.11	2.09	2.16
Japan						
Mean	-0.04	-0.16	0.51	0.39	0.43	0.90
Std Dev	6.07	3.98	2.67	2.44	3.12	4.84
t-Mean	-0.10	-0.61	2.95	2.47	2.13	2.90
Emerging Markets						
Mean	0.32	0.32	0.77	0.88	1.03	0.15
Std Dev	6.33	3.25	4.03	4.78	5.55	0.77
t-Mean	0.79	1.52	2.95	2.88	2.88	3.10
Panel A.2. Return Distributions of Factor Portfolios in the Global Experiments						
Global						
Mean	0.46	0.11	0.49	0.58	1.05	n.a.
Std Dev	4.47	2.38	2.53	2.60	2.94	n.a.
t-Mean	1.59	0.74	3.02	3.46	5.56	n.a.
Developed Markets Only						
Mean	0.47	0.07	0.47	0.52	1.07	1.03
Std Dev	4.46	2.30	2.54	2.68	2.96	6.47
t-Mean	1.63	0.46	2.86	3.05	5.63	2.47
Global excl. North America						
Mean	0.33	-0.01	0.61	0.68	0.77	-0.62
Std Dev	4.79	2.48	2.54	2.30	3.44	4.48
t-Mean	1.06	-0.07	3.75	4.58	3.49	-2.15
Developed Markets Only excl. North America						
Mean	0.32	-0.09	0.57	0.57	0.79	-0.46
Std Dev	4.85	2.41	2.32	1.97	3.42	4.42
t-Mean	1.04	-0.58	3.85	4.53	3.58	-1.63

Internet Appendix Table 2B, continued

Panel B. Explanatory Factor Returns of the Carhart Four-factor Model

	Base Factor Portfolio	Externality Factor Portfolio			
		Orthogonalized		*Raw*	
Attribute	Mom	Local	Global	Local	Global
Panel B.1. Return Distributions of Factor Portfolios in the Regional Experiments					
North America					
Mean	0.40	0.93	0.22	1.02	0.48
Std Dev	5.99	3.39	1.04	3.42	3.10
t-Mean	1.03	4.27	3.24	4.65	2.39
Europe					
Mean	0.82	1.12	-0.13	1.40	0.63
Std Dev	4.58	3.43	1.64	3.51	3.95
t-Mean	2.79	5.09	-1.19	6.20	2.49
Asia Pacific					
Mean	1.07	0.51	0.02	0.87	0.61
Std Dev	5.14	5.19	1.56	5.55	3.07
t-Mean	3.24	1.52	0.16	2.44	3.07
Japan					
Mean	-0.44	0.17	0.16	0.09	-0.03
Std Dev	5.38	4.02	1.23	4.37	2.53
t-Mean	-1.28	0.66	2.07	0.31	-0.16
Emerging Markets					
Mean	1.05	1.18	0.29	1.77	0.53
Std Dev	7.38	7.61	1.89	8.91	2.45
t-Mean	2.22	2.40	2.38	3.09	3.33
Panel B.2. Return Distributions of Factor Portfolios in the Global Experiments					
Global					
Mean	0.52	0.60	n.a.	0.81	n.a.
Std Dev	4.37	2.84	n.a.	2.94	n.a.
t-Mean	1.84	3.30	n.a.	4.30	n.a.
Developed Markets Only					
Mean	0.39	0.52	0.98	0.68	1.43
Std Dev	4.73	2.52	7.37	2.56	7.61
t-Mean	1.29	3.22	2.07	4.12	2.92
Global excl. North America					
Mean	0.60	0.68	0.17	0.83	0.39
Std Dev	4.13	3.74	4.69	3.91	5.26
t-Mean	2.26	2.82	0.56	3.30	1.15
Developed Markets Only excl. North America					
Mean	0.39	0.54	0.29	0.65	0.45
Std Dev	4.27	3.59	5.37	3.63	5.85
t-Mean	1.43	2.35	0.83	2.81	1.19

Internet Appendix Table 2B, continued

Panel C. Return Correlations of Factor Portfolios of the Fama-French Three-factor Model

	Base Factor Portfolios			Externality Factor Portfolios		Base Factor Portfolios			Externality Factor Portfolios	
				Orthogonalized					*Raw*	
Attribute	Market	Size	B/M	Local	Global	Market	Size	B/M	Local	Global
Panel C.1 Return Correlations of Factor Portfolios in the Regional Experiments										
					North America					
Market	1.00					1.00				
Size	0.39	1.00				0.39	1.00			
B/M	-0.35	-0.35	1.00			-0.35	-0.35	1.00		
Local	-0.05	-0.04	-0.03	1.00		-0.10	0.04	0.17	1.00	
Global	0.01	0.01	0.00	-0.50	1.00	-0.07	0.16	0.77	-0.04	1.00
					Europe					
Market	1.00					1.00				
Size	0.02	1.00				0.02	1.00			
B/M	-0.07	-0.01	1.00			-0.07	-0.01	1.00		
Local	-0.01	0.01	-0.03	1.00		-0.08	0.09	0.26	1.00	
Global	-0.01	0.00	-0.01	-0.49	1.00	0.17	0.63	0.57	-0.03	1.00
					Asia Pacific					
Market	1.00					1.00				
Size	0.23	1.00				0.23	1.00			
B/M	-0.06	0.11	1.00			-0.06	0.11	1.00		
Local	-0.02	0.00	-0.03	1.00		-0.07	0.28	0.29	1.00	
Global	-0.02	0.00	-0.03	-0.06	1.00	0.30	0.27	0.26	0.05	1.00
					Japan					
Market	1.00					1.00				
Size	0.15	1.00				0.15	1.00			
B/M	-0.44	-0.14	1.00			-0.44	-0.14	1.00		
Local	0.00	0.01	-0.03	1.00		-0.07	0.08	0.42	1.00	
Global	0.00	0.01	-0.04	0.15	1.00	0.14	0.17	0.00	0.17	1.00

Internet Appendix Table 2B, continued

Panel C. Return Correlations of Factor Portfolios of the Fama-French Three-factor Model, continued

	Base Factor Portfolios			Externality Factor Portfolios *Orthogonalized*		Base Factor Portfolios			Externality Factor Portfolios *Raw*	
Attribute	Market	Size	B/M	Local	Global	Market	Size	B/M	Local	Global
					Emerging Markets					
Market	1.00					1.00				
Size	0.07	1.00				0.07	1.00			
B/M	0.04	-0.16	1.00			0.04	-0.16	1.00		
Local	-0.01	-0.02	-0.04	1.00		-0.36	0.00	0.39	1.00	
Global	-0.01	-0.02	-0.04	0.20	1.00	0.73	0.06	0.28	-0.05	1.00
Panel C.2 Return Distributions of Factor Portfolios in the Global Experiments										
					Global					
Market	1.00					1.00				
Size	0.12	1.00				0.12	1.00			
B/M	-0.23	-0.15	1.00			-0.23	-0.15	1.00		
Local	-0.04	-0.02	-0.07	1.00		-0.13	-0.11	0.17	1.00	
Global	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
					Developed Markets Only					
Market	1.00					1.00				
Size	0.12	1.00				0.12	1.00			
B/M	-0.23	-0.15	1.00			-0.23	-0.15	1.00		
Local	-0.04	-0.02	-0.07	1.00		-0.11	0.04	0.07	1.00	
Global	-0.02	-0.01	-0.03	-0.01	1.00	-0.06	-0.06	0.09	-0.01	1.00
					Global excl. North America					
Market	1.00					1.00				
Size	0.12	1.00				0.12	1.00			
B/M	-0.23	-0.15	1.00			-0.23	-0.15	1.00		
Local	-0.02	-0.01	-0.04	1.00		-0.04	-0.32	0.19	1.00	
Global	0.01	0.01	0.03	-0.18	1.00	-0.14	0.33	0.32	-0.20	1.00

Internet Appendix Table 2B, continued

Panel C. Return Correlations of Factor Portfolios of the Fama-French Three-factor Model, continued

	Base Factor Portfolios			Externality Factor Portfolios *Orthogonalized*		Base Factor Portfolios			Externality Factor Portfolios *Raw*	
Attribute	Market	Size	B/M	Local	Global	Market	Size	B/M	Local	Global
Developed Markets Only excl. North America										
Market	1.00					1.00				
Size	0.12	1.00				0.12	1.00			
B/M	-0.23	-0.15	1.00			-0.23	-0.15	1.00		
Local	-0.02	-0.01	-0.04	1.00		-0.04	-0.17	0.09	1.00	
Global	0.01	0.00	0.02	-0.07	1.00	-0.15	0.38	0.30	-0.10	1.00

Internet Appendix Table 2B, continued

Panel D. Return Correlations of Factor Portfolios of the Carhart Four-factor Model

	Base Factor Portfolios				Externality Factor Portfolios *Orthogonalized*		Base Factor Portfolios				Externality Factor Portfolios *Raw*	
Attribute	Market	Size	B/M	Mom	Local	Global	Market	Size	B/M	Mom	Local	Global
Panel D.1 Return Correlations of Factor Portfolios in the Regional Experiments												
						North America						
Market	1.00						1.00					
Size	0.39	1.00					0.39	1.00				
B/M	-0.35	-0.35	1.00				-0.35	-0.35	1.00			
Mom	-0.20	0.21	-0.17	1.00			-0.20	0.21	-0.17	1.00		
Local	-0.04	-0.03	-0.02	-0.02	1.00		-0.08	0.06	0.03	0.11	1.00	
Global	-0.03	-0.02	-0.02	-0.01	-0.47	1.00	-0.16	0.32	-0.15	0.93	-0.05	1.00
						Europe						
Market	1.00						1.00					
Size	0.02	1.00					0.02	1.00				
B/M	-0.07	-0.01	1.00				-0.07	-0.01	1.00			
Mom	-0.24	-0.05	-0.09	1.00			-0.24	-0.05	-0.09	1.00		
Local	-0.04	0.02	-0.08	-0.06	1.00		-0.09	0.13	0.04	0.18	1.00	
Global	0.01	0.00	0.02	0.01	-0.57	1.00	0.09	0.16	-0.09	0.84	-0.06	1.00
						Asia Pacific						
Market	1.00						1.00					
Size	0.23	1.00					0.23	1.00				
B/M	-0.06	0.11	1.00				-0.06	0.11	1.00			
Mom	-0.13	0.04	-0.08	1.00			-0.13	0.04	-0.08	1.00		
Local	-0.01	0.00	-0.02	-0.02	1.00		-0.06	0.19	0.02	0.30	1.00	
Global	0.00	0.00	0.00	0.00	-0.56	1.00	0.15	0.08	-0.16	0.82	-0.03	1.00

Internet Appendix Table 2B, continued

Panel D. Return Correlations of Factor Portfolios of the Carhart Four-factor Model, continued

	Base Factor Portfolios				Externality Factor Portfolios *Orthogonalized*		Base Factor Portfolios				Externality Factor Portfolios *Raw*	
Attribute	Market	Size	B/M	Mom	Local	Global	Market	Size	B/M	Mom	Local	Global
						Japan						
Market	1.00						1.00					
Size	0.39	1.00					0.15	1.00				
B/M	-0.35	-0.35	1.00				-0.44	-0.14	1.00			
Mom	-0.20	0.21	-0.17	1.00			-0.14	-0.27	0.07	1.00		
Local	-0.04	-0.03	-0.02	-0.02	1.00		-0.04	0.09	0.09	0.34	1.00	
Global	-0.03	-0.02	-0.02	-0.01	-0.47	1.00	0.08	-0.19	-0.04	0.85	0.00	1.00
						Emerging Markets						
Market	1.00						1.00					
Size	0.02	1.00					0.07	1.00				
B/M	-0.07	-0.01	1.00				0.04	-0.16	1.00			
Mom	-0.24	-0.05	-0.09	1.00			0.00	-0.06	0.07	1.00		
Local	-0.04	0.02	-0.08	-0.06	1.00		-0.31	-0.11	0.14	0.40	1.00	
Global	0.01	0.00	0.02	0.01	-0.57	1.00	0.16	-0.01	-0.01	0.61	-0.04	1.00

Panel D.2 Return Distributions of Factor Portfolios in the Global Experiments

						Global						
Market	1.00						1.00					
Size	0.12	1.00					0.12	1.00				
B/M	-0.23	-0.15	1.00				-0.23	-0.15	1.00			
Mom	-0.20	0.14	-0.16	1.00			-0.20	0.14	-0.16	1.00		
Local	-0.02	-0.01	-0.04	-0.03	1.00		-0.11	-0.10	0.16	0.17	1.00	
Global	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Internet Appendix Table 2B, continued

Panel D. Return Correlations of Factor Portfolios of the Carhart Four-factor Model, continued

	Base Factor Portfolios				Externality Factor Portfolios *Orthogonalized*		Base Factor Portfolios				Externality Factor Portfolios *Raw*	
Attribute	Market	Size	B/M	Mom	Local	Global	Market	Size	B/M	Mom	Local	Global
					Developed Markets Only							
Market	1.00						1.00					
Size	0.12	1.00					0.12	1.00				
B/M	-0.23	-0.15	1.00				-0.23	-0.15	1.00			
Mom	-0.20	0.14	-0.16	1.00			-0.20	0.14	-0.16	1.00		
Local	-0.02	-0.01	-0.04	-0.02	1.00		-0.09	-0.04	0.13	0.13	1.00	
Global	-0.01	-0.01	-0.03	-0.02	-0.02	1.00	-0.06	-0.15	0.16	0.10	0.03	1.00
					Global excl. North America							
Market	1.00						1.00					
Size	0.12	1.00					0.12	1.00				
B/M	-0.23	-0.15	1.00				-0.23	-0.15	1.00			
Mom	-0.20	0.14	-0.16	1.00			-0.20	0.14	-0.16	1.00		
Local	-0.02	-0.01	-0.04	-0.02	1.00		-0.05	-0.25	0.07	0.10	1.00	
Global	0.00	0.00	-0.01	0.00	-0.15	1.00	-0.10	0.41	0.01	0.21	-0.21	1.00
					Developed Markets Only excl. North America							
Market	1.00						1.00					
Size	0.12	1.00					0.12	1.00				
B/M	-0.23	-0.15	1.00				-0.23	-0.15	1.00			
Mom	-0.20	0.14	-0.16	1.00			-0.20	0.14	-0.16	1.00		
Local	-0.02	-0.01	-0.03	-0.02	1.00		-0.01	-0.11	0.01	0.09	1.00	
Global	-0.01	0.00	-0.01	-0.01	-0.10	1.00	-0.09	0.35	-0.05	0.20	-0.12	1.00

Internet Appendix Table 2B, continued

Table 2B shows the summary statistics for explanatory returns of the partial segmentation model. It includes five regional portfolios for North America, Europe, Japan, Asia Pacific (excluding Japan) and Emerging Markets. Four sets of global portfolios are also reported, including Global portfolios that combine all the five regions, Developed Markets portfolios that combine the first four regions, Global portfolios excluding North America, Developed Markets portfolios excluding North America. For each scenario, it shows two sets of explanatory returns. One set is based on the sample of equity universe for a given region or global mandate. They are called "Base Factor Portfolios" in the table, and the base factor portfolios in the regional experiments are used as the explanatory returns in the perfect segmentation model. The other set ("Externality Factor Portfolios" in the table) is used as the externality factors in our partial segmentation model. It include two samples, the subset of purely local stocks within a given region or global mandate ("Local"in the table, referred as the local externality factor in the model), and the subset of globally accessible stocks outside the region or global mandate ("Global" in the table, referred as the global externality factor in the model). Please see Appendix B and the Internet Appendix Note for details on the construction of these factor portfolios. As a final step, all externality factor portfolios are orthogonalized to the base factors in the partial segmentation model. We report both raw data and orthogonalized data for the externality factors. Here the Main CL Tier stands for the globally accessible sample.

All returns are in U.S. dollars. Market is the return on a value-weighted market portfolio globally or for the region minus the U.S. one month Treasury bill yield. Mean and Std Dev are the mean and standard deviation of the return, and t-Mean is the ratio of Mean to its standard error.

Internet Appendix Table 3A. Summary Statistics for the 25 Size/B/M Excess Returns

	Mean					Standard Deviation				
	Low	2	3	4	High	Low	2	3	4	High
Global										
Small	0.06	0.55	1.36	0.93	1.25	6.55	5.95	8.42	5.06	4.91
2	0.09	0.59	0.64	0.76	0.94	6.02	5.51	5.03	4.89	4.97
3	0.15	0.37	0.56	0.62	0.83	5.75	5.37	5.18	4.84	5.06
4	0.40	0.47	0.59	0.60	0.81	6.05	5.02	5.00	4.74	5.08
Big	0.28	0.49	0.46	0.62	0.54	4.87	4.44	4.43	4.38	4.73
Developed Markets Only										
Small	0.05	0.58	0.88	0.84	1.10	6.66	5.72	5.88	5.08	4.65
2	0.11	0.42	0.58	0.70	0.80	6.50	5.61	5.02	4.70	4.87
3	0.14	0.37	0.46	0.58	0.75	6.16	5.50	5.32	4.74	5.00
4	0.42	0.36	0.59	0.59	0.74	6.29	4.97	4.81	4.80	5.09
Big	0.26	0.49	0.42	0.63	0.51	4.86	4.38	4.44	4.28	4.74
Global excl. North America (NA)										
Small	-0.15	0.30	0.66	0.66	1.00	6.77	5.71	5.32	5.00	5.16
2	-0.11	0.36	0.88	0.63	0.74	6.03	5.58	8.01	5.08	5.26
3	-0.05	0.25	0.34	0.51	0.75	5.73	5.57	5.25	5.19	5.40
4	0.12	0.32	0.40	0.47	0.70	5.70	5.34	5.27	5.22	5.60
Big	0.02	0.30	0.43	0.54	0.65	5.32	4.98	4.89	4.91	5.27
Developed Markets Only excl. North America (NA)										
Small	-0.15	0.23	0.43	0.54	0.76	6.84	5.46	5.25	4.86	4.87
2	-0.31	0.19	0.31	0.47	0.47	6.18	6.08	5.03	4.90	5.08
3	-0.12	0.12	0.28	0.50	0.53	6.04	5.49	5.35	5.11	5.41
4	0.02	0.20	0.33	0.37	0.60	6.10	5.21	5.21	5.27	5.58
Big	-0.04	0.29	0.37	0.55	0.64	5.30	4.96	4.96	4.87	5.39
North America										
Small	0.89	1.14	1.45	1.32	1.64	8.90	7.34	7.68	6.56	6.00
2	0.61	0.94	1.03	1.00	1.20	8.37	7.22	6.51	5.48	5.75
3	0.96	0.67	0.85	0.92	1.11	8.42	6.51	5.75	4.93	5.31
4	0.89	0.75	0.93	0.77	0.99	7.71	5.75	5.29	5.06	5.20
Big	0.54	0.67	0.53	0.79	0.55	5.21	4.61	4.42	4.23	4.72
Europe										
Small	-0.20	0.07	0.51	0.50	0.87	6.59	5.62	5.40	5.16	5.14
2	0.14	0.28	0.40	0.72	0.96	6.47	5.62	5.55	5.32	5.66
3	0.19	0.38	0.41	0.72	0.90	6.46	5.71	5.37	5.51	5.92
4	0.35	0.39	0.66	0.68	0.75	6.06	5.19	5.28	5.47	5.81
Big	0.26	0.52	0.58	0.84	0.86	5.34	4.79	5.29	5.17	5.63
Asia Pacific										
Small	0.68	0.93	1.30	1.45	2.11	11.34	9.80	8.78	8.11	8.78
2	0.17	0.93	0.60	1.03	1.12	8.23	8.21	8.06	7.41	7.93
3	-0.15	0.32	0.77	1.03	0.94	7.97	6.84	7.25	7.11	7.32
4	0.99	1.08	0.79	0.94	0.92	7.14	8.28	6.41	6.13	7.38
Big	0.54	1.02	0.56	0.77	1.24	6.39	6.31	6.54	5.77	7.94

Internet Appendix Table 3A, continued

	Mean					Standard Deviation				
	Low	2	3	4	High	Low	2	3	4	High
Japan										
Small	-0.46	-0.05	-0.06	0.18	0.09	10.07	7.89	7.57	7.20	6.98
2	-0.55	-0.13	-0.15	-0.05	-0.02	8.90	8.19	7.50	7.10	6.97
3	-0.47	-0.21	-0.14	-0.08	0.03	8.39	8.19	7.19	7.03	7.05
4	-0.51	-0.12	-0.09	-0.03	0.19	7.82	7.11	6.68	6.63	6.77
Big	-0.48	-0.06	0.12	0.21	0.39	6.90	6.32	5.78	5.66	6.33
Emerging Markets										
Small	0.13	0.55	1.45	1.04	1.72	10.09	7.66	8.50	7.27	7.55
2	0.36	0.92	0.73	1.02	1.31	7.77	7.42	7.30	6.82	7.55
3	0.26	0.86	0.56	1.00	1.41	7.32	7.33	7.43	6.92	7.14
4	0.19	0.46	0.56	0.74	1.22	6.78	6.77	6.61	6.50	7.39
Big	0.37	0.40	0.63	0.57	0.91	6.42	6.72	6.32	6.89	7.17

Table 3A shows the summary statistics for the 25 size/B/M excess returns. At the end of June of each year we construct 25 size/B/M portfolios for each region. The size breakpoints are the 3rd, 7th, 13th, and 25th percentiles of aggregate market cap for a region. The B/M quintile breakpoints use the big stocks (top 90% of market cap) of a region. Regional quintile B/M breakpoints are used to allocate the stocks of these regions to the global test asset portfolios. The intersections of the 5×5 independent size and B/M sorts for a region produce 25 value-weighted size/B/M portfolios.

Internet Appendix Table 3B. Summary Statistics for the 25 Size/Momentum Excess Returns

	Mean					Standard Deviation				
	Low	2	3	4	High	Low	2	3	4	High
Global										
Small	0.59	0.66	0.94	1.74	1.70	6.68	4.54	4.17	8.18	5.63
2	0.31	0.37	0.63	0.83	1.12	6.77	4.74	4.37	4.44	5.37
3	0.46	0.43	0.45	0.65	0.93	7.07	4.93	4.43	4.53	5.37
4	0.51	0.44	0.46	0.54	0.79	7.11	5.04	4.50	4.43	5.50
Big	0.42	0.43	0.49	0.50	0.75	6.40	4.65	4.18	4.27	5.63
Developed Markets Only										
Small	0.50	0.42	0.60	0.94	1.60	6.81	4.63	4.13	4.30	5.71
2	0.41	0.36	0.50	0.67	1.01	7.24	4.92	4.53	4.47	5.66
3	0.50	0.45	0.46	0.49	0.83	7.43	5.24	4.61	4.46	5.82
4	0.54	0.41	0.38	0.51	0.81	7.38	5.27	4.46	4.36	5.54
Big	0.54	0.39	0.50	0.46	0.72	6.37	4.63	4.15	4.19	5.60
Global excl. North America (NA)										
Small	0.44	0.62	0.83	1.19	1.46	6.64	4.66	4.26	4.60	5.73
2	0.03	0.30	0.70	1.22	1.01	6.83	5.01	4.57	7.61	5.43
3	0.05	0.17	0.31	0.52	0.68	6.75	5.05	4.69	4.80	5.25
4	0.24	0.28	0.33	0.39	0.62	6.84	5.18	4.74	4.68	5.52
Big	0.26	0.32	0.45	0.48	0.49	6.61	5.18	4.63	4.79	5.71
Developed Markets Only excl. North America (NA)										
Small	0.11	0.20	0.37	0.71	1.23	6.70	4.79	4.32	4.40	5.68
2	-0.08	0.10	0.19	0.34	0.74	7.11	5.21	4.65	4.49	5.39
3	0.07	0.17	0.28	0.36	0.54	7.21	5.40	4.92	4.85	5.52
4	0.27	0.19	0.21	0.26	0.57	6.97	5.60	5.07	4.78	5.50
Big	0.46	0.29	0.49	0.41	0.34	6.57	5.16	4.63	4.70	5.68
North America										
Small	1.20	0.95	1.22	1.54	2.24	8.45	5.60	5.40	5.65	7.92
2	1.09	0.90	1.02	1.08	1.57	8.77	5.73	5.25	5.32	7.51
3	1.01	0.82	0.77	0.93	1.34	8.64	5.65	4.99	5.09	7.12
4	0.74	0.76	0.76	0.88	1.33	8.44	5.39	4.66	4.43	6.81
Big	0.76	0.53	0.57	0.52	1.25	7.14	4.82	4.30	4.34	6.32
Europe										
Small	-0.31	0.20	0.52	0.97	1.71	6.77	4.87	4.64	4.70	5.74
2	-0.04	0.33	0.65	0.73	1.45	7.34	5.43	5.05	5.03	5.72
3	0.17	0.37	0.46	0.69	1.14	7.43	5.67	5.19	5.13	5.83
4	0.45	0.48	0.50	0.78	1.16	7.55	5.81	5.29	5.00	5.55
Big	0.60	0.57	0.76	0.56	0.84	7.23	5.48	4.67	4.85	5.80
Asia Pacific										
Small	0.96	0.52	0.87	1.71	2.16	8.70	6.31	6.08	6.43	8.98
2	-0.15	0.28	0.67	1.04	1.69	8.96	6.51	5.87	6.18	8.21
3	-0.19	0.06	0.45	1.14	1.60	8.30	6.35	5.73	6.11	8.01
4	0.64	0.52	0.72	0.96	1.31	8.27	5.87	5.48	5.51	7.60
Big	0.56	0.60	0.95	1.03	1.12	7.80	6.67	5.81	6.02	7.29

Internet Appendix Table 3B, continued

	Mean					Standard Deviation				
	Low	2	3	4	High	Low	2	3	4	High
Japan										
Small	0.50	0.15	-0.14	-0.19	-0.51	8.71	6.95	6.55	6.58	8.06
2	0.12	0.05	-0.04	-0.21	-0.54	8.94	7.30	6.65	6.68	7.86
3	0.09	-0.01	-0.07	-0.29	-0.43	8.60	7.25	6.60	6.55	7.50
4	0.12	-0.05	-0.15	-0.19	-0.01	8.67	7.29	6.52	6.29	7.21
Big	0.56	0.06	-0.13	-0.04	-0.05	8.19	6.78	6.04	5.98	7.37
Emerging Markets										
Small	1.38	1.21	1.54	1.80	2.02	8.66	6.11	5.75	6.55	7.71
2	0.83	1.20	1.27	3.10	1.69	9.39	6.15	6.06	23.08	8.43
3	0.58	0.61	1.32	1.43	1.65	8.93	6.18	5.96	6.63	7.94
4	0.21	0.48	0.60	1.00	1.18	8.35	6.29	5.77	6.31	7.61
Big	0.13	0.43	0.33	0.67	1.61	9.15	6.12	6.05	6.74	13.82

Table 3B shows the summary statistics for the 25 size/momentum excess returns. As in Fama and French (2012), at the end of month *t* we construct 25 size-momentum portfolios for each region. The size breakpoints are the 3rd, 7th, 13th, and 25th percentiles of aggregate market cap for a region. The lagged momentum return is a stock's cumulative monthly return for *t-11* to *t-1*. The intersections of the 5×5 independent size and momentum sorts for a region produce 25 value-weighted size/momentum portfolios.

Internet Appendix Table 3C. Summary Statistics for the 25 Size/C/P Excess Returns

	Mean					Standard Deviation				
	Low	2	3	4	High	Low	2	3	4	High
Global										
Small	0.50	0.59	0.77	1.04	1.64	6.29	4.94	5.32	4.54	6.21
2	0.24	0.56	0.66	0.87	1.17	5.55	4.82	4.59	4.73	5.12
3	0.18	0.48	0.57	0.75	1.07	5.65	4.93	4.76	4.66	5.12
4	0.36	0.47	0.64	0.73	1.00	6.14	4.95	4.61	4.70	4.94
Big	0.33	0.49	0.46	0.60	0.67	5.12	4.29	4.28	4.32	4.55
Developed Markets Only										
Small	0.24	0.56	0.74	0.98	1.20	6.21	4.79	4.46	4.31	4.62
2	0.28	0.52	0.60	0.73	1.04	5.83	4.77	4.51	4.59	5.03
3	0.19	0.44	0.55	0.67	0.96	6.21	4.94	4.78	4.55	5.02
4	0.37	0.45	0.65	0.71	0.88	6.34	4.92	4.48	4.78	4.69
Big	0.34	0.49	0.44	0.60	0.61	5.13	4.28	4.22	4.30	4.47
Global excl. North America (NA)										
Small	0.31	0.45	0.56	0.77	1.23	5.84	5.25	5.64	4.61	5.12
2	0.02	0.38	0.52	0.77	1.22	5.69	5.11	4.88	5.08	7.54
3	-0.09	0.26	0.36	0.67	0.96	5.52	5.11	4.93	4.83	5.44
4	0.03	0.27	0.45	0.59	0.87	5.66	5.13	4.98	5.08	5.36
Big	0.08	0.35	0.40	0.47	0.62	5.25	4.71	4.88	4.88	5.15
Developed Markets Only excl. North America (NA)										
Small	-0.05	0.27	0.48	0.76	0.85	5.73	5.02	4.68	4.46	4.79
2	-0.28	0.26	0.31	0.50	0.69	5.56	4.72	4.71	4.82	5.06
3	-0.05	0.24	0.34	0.53	0.69	5.70	4.97	4.99	4.92	5.34
4	-0.05	0.20	0.45	0.49	0.70	5.86	5.31	4.91	5.13	5.11
Big	0.10	0.36	0.38	0.46	0.52	5.29	4.73	4.84	4.89	5.05
North America										
Small	1.11	1.05	1.33	1.26	1.78	8.33	6.20	5.76	5.55	5.93
2	0.82	1.01	1.06	1.03	1.40	8.27	6.44	5.58	5.45	5.78
3	0.81	0.74	0.95	1.02	1.27	8.48	5.97	5.19	4.73	5.49
4	0.73	0.95	0.73	0.98	1.02	8.15	5.63	5.01	5.20	5.08
Big	0.53	0.61	0.55	0.73	0.82	5.80	4.43	4.41	4.31	4.76
Europe										
Small	-0.06	0.26	0.63	0.84	0.95	6.14	5.61	5.11	4.87	5.09
2	-0.03	0.55	0.62	0.78	1.08	6.24	5.55	5.23	5.16	5.82
3	0.11	0.47	0.58	0.69	0.87	6.42	5.53	5.21	5.47	5.90
4	0.29	0.42	0.67	0.76	0.87	6.28	5.50	5.19	5.46	5.58
Big	0.30	0.58	0.62	0.64	0.95	5.29	4.82	5.12	5.15	5.45
Asia Pacific										
Small	1.32	1.35	1.54	1.36	2.07	9.87	9.16	8.57	7.86	8.13
2	0.44	1.22	0.67	0.79	1.34	8.42	8.52	6.57	6.67	7.78
3	-0.25	0.92	0.36	0.94	1.18	7.79	6.53	6.61	6.84	7.28
4	0.76	0.75	0.83	1.03	1.25	7.68	6.13	6.42	6.28	6.86
Big	0.51	0.90	0.82	1.01	1.08	7.37	6.55	5.45	6.59	6.25

Internet Appendix Table 3C, continued

	Mean					Standard Deviation				
	Low	2	3	4	High	Low	2	3	4	High
Japan										
Small	-0.27	0.01	0.08	0.05	0.07	8.47	7.71	7.09	6.96	6.78
2	-0.33	-0.23	-0.11	0.03	0.00	8.21	6.84	7.27	7.19	7.11
3	-0.47	-0.14	-0.13	-0.02	0.02	7.95	7.12	6.99	7.01	7.04
4	-0.52	-0.16	0.01	0.02	0.15	7.52	6.85	6.54	6.79	6.73
Big	-0.22	-0.12	-0.14	0.16	0.12	7.14	6.45	6.29	6.13	5.94
Emerging Markets										
Small	0.98	0.35	0.90	1.01	2.10	8.69	7.47	8.25	7.00	7.63
2	1.06	0.52	0.87	0.83	1.72	8.81	7.82	6.69	6.79	7.32
3	0.73	0.48	0.61	1.19	1.46	8.77	7.66	7.05	6.77	7.26
4	0.16	0.21	0.60	1.04	1.37	7.60	6.84	6.30	6.30	7.38
Big	0.04	0.29	0.44	0.51	1.09	6.58	6.39	6.50	6.58	7.24

Table 3C shows the summary statistics for the 25 size/C/P excess returns. As in Fama and French (2012), at the end of June of each year we construct 25 size/C/P portfolios for each region. The size breakpoints are the 3rd, 7th, 13th, and 25th percentiles of aggregate market cap for a region. The C/P quintile breakpoints use the big stocks (top 90% of market cap) of a region. Regional quintile C/P breakpoints are used to allocate the stocks of these regions to the global test asset portfolios. The intersections of the 5×5 independent size and C/P sorts for a region produce 25 value-weighted size/ C/P portfolios.

Internet Appendix Table 4A. Intercepts from the Partial Segmentation Model Regressions to Explain Monthly Excess Returns on Portfolios from 5×5 Sorts on Size and B/M

	Intercepts					*t*-stat				
	Low	2	3	4	High	Low	2	3	4	High
North America										
Small	-0.44	-0.01	0.06	-0.03	0.25	-2.29	-0.04	0.36	-0.30	2.61
2	-0.06	-0.03	0.06	0.04	0.04	-0.46	-0.24	0.58	0.41	0.52
3	0.19	0.01	0.00	0.11	0.17	1.16	0.04	-0.01	0.89	1.79
4	0.30	0.12	0.12	-0.10	0.02	1.87	0.94	1.10	-1.08	0.21
Big	0.16	0.01	-0.16	0.12	-0.08	2.03	0.14	-1.57	1.15	-0.58
Europe										
Small	-0.19	-0.12	0.20	-0.08	0.16	-1.36	-1.08	1.92	-0.85	2.19
2	0.03	-0.02	-0.17	0.00	0.07	0.26	-0.20	-1.90	-0.01	0.93
3	0.10	0.02	-0.25	-0.08	-0.08	0.77	0.22	-2.28	-0.78	-0.72
4	0.20	-0.24	0.00	-0.19	-0.25	1.58	-2.22	-0.01	-1.72	-2.04
Big	0.00	0.03	-0.10	-0.03	-0.02	0.05	0.33	-1.15	-0.31	-0.18
Asian Pacific										
Small	-0.16	-0.20	0.40	0.39	0.68	-0.30	-0.57	1.41	1.77	3.17
2	-0.13	0.29	-0.38	0.16	-0.15	-0.56	1.16	-1.37	0.77	-0.84
3	-0.53	-0.18	0.03	0.20	-0.13	-2.15	-0.91	0.18	1.01	-0.76
4	0.48	0.50	0.30	0.29	-0.19	2.33	1.41	1.63	1.64	-0.99
Big	0.05	0.18	-0.32	-0.20	-0.35	0.32	1.13	-1.90	-1.27	-1.86
Japan										
Small	-0.06	0.06	0.03	0.24	-0.04	-0.29	0.40	0.20	2.03	-0.38
2	0.02	0.13	0.00	-0.01	-0.16	0.14	1.00	0.03	-0.12	-2.02
3	0.10	0.05	-0.01	-0.03	-0.08	0.71	0.28	-0.09	-0.26	-0.74
4	0.03	0.11	-0.01	-0.04	0.07	0.26	0.95	-0.09	-0.38	0.61
Big	-0.12	-0.05	-0.01	0.02	0.19	-1.05	-0.45	-0.08	0.16	1.21
Emerging Markets										
Small	-0.96	-0.54	0.37	-0.06	0.16	-2.23	-1.74	0.89	-0.20	0.72
2	-0.09	0.21	-0.14	0.00	-0.14	-0.27	0.81	-0.51	0.02	-0.64
3	-0.14	0.27	-0.17	0.08	0.21	-0.50	0.98	-0.59	0.31	0.86
4	-0.15	0.04	-0.02	-0.12	0.02	-0.63	0.15	-0.10	-0.51	0.07
Big	-0.08	-0.18	0.01	-0.27	-0.17	-0.40	-0.90	0.06	-1.06	-0.75
Global										
Small	-0.42	-0.08	0.42	0.04	0.15	-2.69	-0.63	1.02	0.44	1.75
2	-0.11	0.27	0.12	0.08	0.06	-1.04	2.36	1.35	1.05	0.70
3	0.01	0.04	0.11	0.08	0.07	0.10	0.54	1.24	1.01	0.83
4	0.17	0.13	0.14	0.05	0.16	1.65	1.64	1.85	0.70	1.97
Big	0.00	0.05	-0.05	0.03	-0.11	0.00	0.82	-0.72	0.42	-1.29
Developed Markets Only										
Small	-0.37	-0.07	0.09	0.01	0.15	-1.98	-0.48	0.54	0.05	1.35
2	-0.07	-0.02	0.02	0.06	0.05	-0.43	-0.13	0.19	0.61	0.40
3	0.05	0.11	0.05	0.06	0.10	0.34	0.93	0.43	0.65	0.88
4	0.36	0.08	0.19	0.09	0.09	2.33	0.76	1.96	1.01	0.84
Big	0.06	0.09	-0.11	0.03	-0.15	0.65	1.25	-1.46	0.41	-1.52

Internet Appendix Table 4A, continued

	Intercepts					*t*-stat				
	Low	2	3	4	High	Low	2	3	4	High
Global excl. North America (NA)										
Small	-0.59	-0.28	-0.08	-0.15	-0.01	-2.79	-1.74	-0.61	-1.04	-0.04
2	-0.24	0.02	0.36	-0.05	-0.07	-1.48	0.16	0.89	-0.39	-0.44
3	-0.21	-0.03	-0.10	-0.04	-0.01	-1.68	-0.22	-0.80	-0.28	-0.06
4	-0.11	-0.02	-0.09	-0.10	0.02	-0.87	-0.19	-0.78	-0.77	0.13
Big	-0.24	-0.08	-0.05	-0.03	0.00	-1.97	-0.60	-0.44	-0.30	0.02
Developed Markets Only excl. North America (NA)										
Small	-0.46	-0.33	-0.18	-0.19	-0.01	-1.95	-1.89	-1.09	-1.17	-0.06
2	-0.50	-0.17	-0.22	-0.10	-0.13	-2.54	-0.81	-1.47	-0.60	-0.70
3	-0.28	-0.24	-0.23	-0.01	-0.03	-1.61	-1.58	-1.48	-0.05	-0.19
4	-0.13	-0.13	-0.03	-0.07	0.02	-0.85	-0.90	-0.18	-0.42	0.11
Big	-0.22	-0.04	-0.13	0.00	0.00	-1.61	-0.28	-1.11	0.01	0.02

Table 4A reports the intercepts from the partial segmentation model regressions to explain monthly excess returns on portfolios from 5×5 sorts on size and B/M. The Main CL Tier is used here.

In the regional experiments, the partial segmentation Fama-French model is as follows:

$$r^e_i = \alpha_i + \beta_{i\text{PS}} R_{D,m} + s_{i\text{PS}}\text{SMB}_D + h_{i\text{PS}}\text{HML}_D + \eta_{i\text{PS}}(f_D - f^*_D) + \kappa_{i\text{PS}} f^*_F$$

The subscript designation of "*D*" on the market and factor portfolios implies that they are constructed only from domestic - or regional, in our experiments - stocks. The superscript "PS" denotes the intercept and the risk loadings for the partial-segmentation model. The term of $f_D - f^*_D$ is referred as the local externality factor, and that of f^*_F represents the global externality factor.

In the global experiments, the partial segmentation Fama-French model is as follows:

$$r^e_j = \alpha_j + \beta_{j\text{PS}} R_{W,m} + s_{j\text{PS}}\text{SMB}_W + h_{j\text{PS}}\text{HML}_W + \eta_{j\text{PS}}(f_F - f^*_F)$$

The subscript "*W*" on the beta and factors implies that they are constructed from all stocks around the world, and "*F*" implies that they are constructed from foreign - or global, in our experiments - stocks. The superscript "PS" denotes the intercept and the risk loadings for the partial-segmentation model. The term of $f_F - f^*_F$ is referred as the local externality factor.

Internet Appendix Table 4B. Betas from the Partial Segmentation Model Regressions to Explain Monthly Excess Returns on Portfolios from 5×5 Sorts on Size and B/M

Panel A. Regional Experiments

Beta	Local Externality Factor					Global Externality Factor				
	Low	2	3	4	High	Low	2	3	4	High
North America										
Small	0.24*	0.11*	0.27*	0.21*	0.17*	0.48	0.38	0.68*	0.45*	0.00
2	-0.19*	-0.03	-0.14*	-0.11*	-0.07*	0.09	0.24	-0.37*	-0.33*	-0.62*
3	-0.13*	-0.28*	-0.13*	-0.13*	-0.15*	0.08	-0.11	0.07	0.10	-0.21
4	-0.17*	-0.19*	-0.10*	-0.08*	-0.06	-0.19	0.35*	0.46*	0.61*	0.29*
Big	-0.04	0.05	-0.01	-0.05	-0.13*	-0.55*	-0.20	0.46*	0.48*	-0.08
Europe										
Small	0.00	-0.02	-0.02	0.05	0.05*	0.19	0.02	0.01	-0.25*	-0.29*
2	-0.01	-0.09*	-0.04	0.02	0.05*	0.32*	-0.15	-0.32*	-0.25*	0.06
3	-0.06	-0.11*	-0.08*	0.00	0.06	0.11	0.04	-0.51*	-0.27*	0.02
4	-0.21*	-0.13*	-0.06	-0.01	0.04	0.15	-0.34*	0.06	-0.29*	-0.06
Big	0.05	0.05	-0.01	0.04	-0.15*	-0.29*	-0.21	0.00	0.27*	-0.17
Asian Pacific										
Small	-0.02	0.16*	0.12*	0.10*	0.38*	0.09	0.12	0.05	0.17*	0.13*
2	-0.08	-0.10*	-0.17*	-0.09*	0.08*	0.13	0.15*	0.12	0.05	0.03
3	-0.26*	-0.28*	-0.12*	-0.20*	-0.09*	0.00	0.15*	0.12*	0.16*	0.02
4	-0.27*	-0.17*	-0.28*	-0.31*	-0.17*	0.04	0.01	0.13*	0.22*	0.06
Big	0.13*	0.01	-0.14*	-0.10*	-0.14*	0.03	0.16*	0.09	0.10*	0.03
Japan										
Small	0.02	-0.01	-0.01	0.02	0.18*	-0.05	0.01	0.07*	0.02	-0.01
2	-0.18*	-0.08*	-0.09*	-0.05	0.03	-0.03	0.00	-0.02	-0.04*	-0.03
3	-0.29*	-0.16*	-0.18*	-0.22*	-0.12*	-0.05	0.05	-0.05*	-0.06*	-0.02
4	-0.33*	-0.36*	-0.24*	-0.27*	-0.21*	-0.07*	0.01	-0.01	-0.03	-0.02
Big	-0.05	0.11*	0.03	-0.10*	-0.13*	-0.09*	0.02	0.01	0.04	-0.05
Emerging Markets										
Small	0.54*	0.35*	0.32*	0.22*	0.44*	1.36*	1.94*	1.64*	1.16*	1.12*
2	0.22*	0.22*	0.21*	0.21*	0.44*	1.15*	1.60*	1.18*	1.25*	0.94*
3	0.07	0.10*	0.11*	0.10*	0.34*	2.26*	2.38*	2.30*	1.74*	0.58
4	0.02	0.06	0.11*	0.09*	0.21*	1.97*	2.01*	2.00*	2.27*	1.22*
Big	0.32*	0.30*	0.22*	0.20*	0.30*	0.98*	1.35*	1.58*	1.87*	1.32*

Internet Appendix Table 4B, continued

Panel A. Regional Experiments, continued

MKT	Perfect Segmentation Model					Partial Segmentation Model				
	Low	2	3	4	High	Low	2	3	4	High
North America										
Small	1.00	0.92	0.96	0.93	0.96	1.00	0.93	0.97	0.94	0.97
2	1.01	1.01	1.00	0.99	1.07	1.01	1.01	0.99	0.99	1.06
3	1.10	1.10	1.04	0.97	1.08	1.09	1.09	1.04	0.97	1.07
4	1.09	1.08	1.06	1.07	1.08	1.08	1.07	1.05	1.07	1.08
Big	1.03	1.00	0.98	0.94	1.02	1.03	1.01	0.97	0.94	1.01
Europe										
Small	1.04	0.94	0.93	0.90	0.90	1.04	0.94	0.93	0.90	0.90
2	1.08	1.00	1.00	0.96	1.00	1.08	1.00	1.00	0.96	1.00
3	1.10	1.04	0.98	1.01	1.07	1.10	1.04	0.98	1.01	1.07
4	1.09	0.98	1.01	1.02	1.07	1.09	0.98	1.01	1.02	1.07
Big	0.97	0.91	1.05	1.01	1.07	0.97	0.91	1.05	1.01	1.06
Asian Pacific										
Small	1.23	1.15	1.08	1.00	0.95	1.23	1.16	1.08	1.00	0.96
2	0.96	1.02	1.05	0.97	1.00	0.96	1.02	1.05	0.97	1.00
3	1.07	0.93	1.04	0.96	1.01	1.06	0.93	1.04	0.96	1.01
4	1.01	1.02	0.90	0.89	1.08	1.01	1.02	0.90	0.88	1.08
Big	0.99	1.02	1.04	0.91	1.23	0.99	1.02	1.04	0.91	1.23
Japan										
Small	1.07	0.95	0.91	0.90	0.93	1.07	0.95	0.91	0.90	0.93
2	0.97	1.03	0.96	0.99	1.00	0.97	1.03	0.96	0.99	1.00
3	1.02	1.07	1.02	1.03	1.06	1.01	1.07	1.01	1.03	1.06
4	1.07	1.06	1.03	1.04	1.08	1.06	1.06	1.03	1.04	1.08
Big	1.01	0.99	0.97	0.96	1.06	1.01	0.99	0.97	0.96	1.06
Emerging Markets										
Small	0.98	0.79	0.81	0.77	0.86	0.98	0.79	0.81	0.77	0.86
2	0.83	0.86	0.83	0.83	0.89	0.83	0.86	0.83	0.83	0.90
3	0.83	0.85	0.90	0.84	0.85	0.84	0.86	0.90	0.84	0.85
4	0.82	0.86	0.84	0.79	0.91	0.83	0.86	0.84	0.79	0.91
Big	0.84	0.88	0.82	0.83	0.89	0.84	0.89	0.83	0.83	0.90

Internet Appendix Table 4B, continued

Panel A. Regional Experiments, continued

Size	Perfect Segmentation Model					Partial Segmentation Model				
	Low	2	3	4	High	Low	2	3	4	High
North America										
Small	1.45	1.21	1.31	1.14	0.96	1.45	1.21	1.32	1.14	0.97
2	1.07	1.05	0.99	0.64	0.68	1.06	1.04	0.99	0.64	0.68
3	0.97	0.61	0.57	0.34	0.39	0.96	0.60	0.57	0.34	0.38
4	0.62	0.32	0.34	0.21	0.22	0.61	0.31	0.33	0.20	0.22
Big	-0.44	-0.23	-0.06	-0.16	-0.17	-0.44	-0.23	-0.06	-0.16	-0.18
Europe										
Small	1.16	0.98	0.95	0.90	0.89	1.16	0.98	0.95	0.90	0.89
2	1.07	0.89	0.89	0.81	0.88	1.07	0.89	0.89	0.81	0.88
3	0.82	0.72	0.62	0.64	0.70	0.82	0.72	0.62	0.64	0.70
4	0.44	0.37	0.34	0.35	0.40	0.44	0.37	0.34	0.35	0.39
Big	-0.30	-0.27	-0.15	-0.19	-0.13	-0.30	-0.27	-0.15	-0.19	-0.13
Asian Pacific										
Small	0.73	1.05	0.94	0.99	1.25	0.73	1.05	0.93	0.99	1.24
2	1.06	0.92	0.58	0.75	0.90	1.06	0.92	0.59	0.75	0.90
3	0.55	0.47	0.48	0.58	0.61	0.55	0.48	0.48	0.58	0.61
4	0.36	0.42	0.31	0.11	0.27	0.37	0.42	0.31	0.11	0.28
Big	-0.17	-0.25	-0.15	-0.25	-0.38	-0.17	-0.25	-0.15	-0.25	-0.38
Japan										
Small	1.47	1.09	1.06	0.99	0.93	1.47	1.09	1.06	0.99	0.93
2	1.15	1.00	0.96	0.85	0.88	1.15	1.00	0.96	0.85	0.88
3	0.84	0.75	0.75	0.74	0.73	0.84	0.75	0.76	0.74	0.73
4	0.40	0.40	0.37	0.48	0.51	0.40	0.40	0.37	0.48	0.51
Big	-0.15	-0.20	-0.19	-0.14	-0.03	-0.15	-0.20	-0.19	-0.14	-0.03
Emerging Markets										
Small	0.83	0.66	0.55	0.51	0.53	0.86	0.69	0.57	0.52	0.56
2	0.45	0.63	0.66	0.43	0.44	0.46	0.65	0.68	0.44	0.47
3	0.29	0.36	0.27	0.35	0.33	0.31	0.38	0.29	0.36	0.35
4	0.24	0.07	0.02	0.08	0.18	0.25	0.08	0.04	0.10	0.19
Big	-0.27	-0.37	-0.29	-0.41	-0.24	-0.25	-0.34	-0.27	-0.39	-0.22

Internet Appendix Table 4B, continued

Panel A. Regional Experiments, continued

Value	Perfect Segmentation Model					Partial Segmentation Model				
	Low	2	3	4	High	Low	2	3	4	High
North America										
Small	-0.36	-0.07	0.01	0.32	0.63	-0.35	-0.06	0.02	0.33	0.64
2	-0.62	-0.14	0.22	0.50	0.77	-0.63	-0.14	0.21	0.50	0.77
3	-0.59	-0.01	0.29	0.55	0.72	-0.60	-0.03	0.28	0.55	0.71
4	-0.64	0.02	0.33	0.60	0.75	-0.64	0.01	0.32	0.60	0.75
Big	-0.46	-0.03	0.25	0.52	0.45	-0.46	-0.02	0.25	0.52	0.44
Europe										
Small	-0.72	-0.32	-0.13	0.28	0.49	-0.72	-0.32	-0.13	0.28	0.49
2	-0.58	-0.17	0.23	0.46	0.63	-0.58	-0.18	0.23	0.46	0.63
3	-0.65	-0.16	0.39	0.51	0.66	-0.66	-0.16	0.38	0.50	0.67
4	-0.52	0.29	0.22	0.55	0.67	-0.53	0.29	0.22	0.55	0.67
Big	-0.55	-0.13	0.09	0.35	0.50	-0.55	-0.13	0.09	0.35	0.50
Asian Pacific										
Small	-0.05	0.23	0.07	0.32	0.63	-0.05	0.25	0.08	0.33	0.66
2	-0.44	-0.07	0.40	0.33	0.69	-0.44	-0.06	0.40	0.33	0.70
3	-0.25	-0.03	0.04	0.30	0.55	-0.26	-0.04	0.03	0.30	0.55
4	-0.04	-0.03	-0.03	0.16	0.54	-0.06	-0.04	-0.04	0.15	0.54
Big	-0.47	-0.02	0.20	0.39	0.96	-0.46	-0.01	0.20	0.39	0.96
Japan										
Small	-0.16	0.18	0.12	0.21	0.50	-0.17	0.18	0.13	0.22	0.50
2	-0.47	-0.05	0.17	0.39	0.66	-0.48	-0.05	0.17	0.39	0.65
3	-0.45	-0.16	0.30	0.51	0.66	-0.47	-0.16	0.29	0.50	0.66
4	-0.44	0.05	0.28	0.56	0.71	-0.46	0.04	0.27	0.55	0.70
Big	-0.47	-0.14	0.21	0.43	0.67	-0.48	-0.14	0.21	0.43	0.66
Emerging Markets										
Small	-0.39	-0.08	0.05	0.36	0.60	-0.35	-0.04	0.08	0.38	0.63
2	-0.50	-0.33	-0.02	0.23	0.52	-0.48	-0.31	0.00	0.25	0.55
3	-0.53	-0.37	-0.18	0.20	0.46	-0.50	-0.35	-0.16	0.22	0.48
4	-0.43	-0.34	-0.18	0.16	0.56	-0.41	-0.32	-0.16	0.18	0.58
Big	-0.32	-0.17	-0.08	0.24	0.43	-0.30	-0.15	-0.05	0.27	0.45

Internet Appendix Table 4B, continued

Panel B. Global Experiments

	Local Externality Factor					Global Externality Factor				
	Low	2	3	4	High	Low	2	3	4	High
Global										
Small	0.04	0.10*	0.31*	0.16*	0.25*	n.a.	n.a.	n.a.	n.a.	n.a.
2	-0.13*	-0.12*	-0.08*	-0.05*	0.00	n.a.	n.a.	n.a.	n.a.	n.a.
3	-0.16*	-0.13*	-0.20*	-0.20*	-0.13*	n.a.	n.a.	n.a.	n.a.	n.a.
4	-0.11*	-0.20*	-0.18*	-0.20*	-0.21*	n.a.	n.a.	n.a.	n.a.	n.a.
Big	0.11*	0.06*	-0.03	-0.07*	-0.06*	n.a.	n.a.	n.a.	n.a.	n.a.
Developed Only										
Small	-0.04	0.08	0.20*	0.14*	0.18*	n.a.	n.a.	n.a.	n.a.	n.a.
2	-0.19*	-0.08*	-0.08*	-0.08*	-0.08*	n.a.	n.a.	n.a.	n.a.	n.a.
3	-0.24*	-0.25*	-0.26*	-0.20*	-0.17*	n.a.	n.a.	n.a.	n.a.	n.a.
4	-0.23*	-0.25*	-0.20*	-0.23*	-0.20*	n.a.	n.a.	n.a.	n.a.	n.a.
Big	0.06*	0.05*	0.00	-0.03	-0.02	n.a.	n.a.	n.a.	n.a.	n.a.
Global excl. NA										
Small	0.01	0.04	0.17*	0.08*	0.18*	n.a.	n.a.	n.a.	n.a.	n.a.
2	-0.27*	-0.24*	-0.18	-0.11*	-0.07	n.a.	n.a.	n.a.	n.a.	n.a.
3	-0.31*	-0.26*	-0.29*	-0.29*	-0.16*	n.a.	n.a.	n.a.	n.a.	n.a.
4	-0.26*	-0.32*	-0.30*	-0.31*	-0.26*	n.a.	n.a.	n.a.	n.a.	n.a.
Big	-0.11*	-0.10*	-0.12*	-0.15*	-0.15*	n.a.	n.a.	n.a.	n.a.	n.a.
Developed excl. NA										
Small	-0.16*	-0.04	0.04	0.04	0.06	n.a.	n.a.	n.a.	n.a.	n.a.
2	-0.33*	-0.21*	-0.18*	-0.20*	-0.19*	n.a.	n.a.	n.a.	n.a.	n.a.
3	-0.37*	-0.34*	-0.32*	-0.31*	-0.33*	n.a.	n.a.	n.a.	n.a.	n.a.
4	-0.41*	-0.39*	-0.38*	-0.40*	-0.37*	n.a.	n.a.	n.a.	n.a.	n.a.
Big	-0.15*	-0.11*	-0.09*	-0.13*	-0.10*	n.a.	n.a.	n.a.	n.a.	n.a.

Internet Appendix Table 4B, continued

Panel B. Global Experiments, continued

MKT	Perfect Integration Model					Partial Segmentation Model				
	Low	2	3	4	High	Low	2	3	4	High
Global										
Small	1.08	0.98	0.93	0.93	0.94	1.09	0.99	0.94	0.94	0.95
2	1.03	0.98	0.96	0.98	1.00	1.03	0.97	0.96	0.98	1.00
3	1.06	1.04	1.07	1.02	1.07	1.05	1.03	1.06	1.01	1.07
4	1.15	1.06	1.08	1.03	1.10	1.15	1.05	1.08	1.03	1.09
Big	0.97	0.97	0.99	0.98	1.05	0.97	0.97	0.99	0.98	1.05
Developed Only										
Small	1.13	1.02	1.02	0.95	0.89	1.12	1.03	1.02	0.96	0.89
2	1.16	1.10	1.02	0.97	0.99	1.15	1.09	1.02	0.97	0.98
3	1.17	1.11	1.11	1.01	1.06	1.16	1.10	1.10	1.00	1.06
4	1.17	1.06	1.05	1.04	1.10	1.17	1.05	1.04	1.03	1.09
Big	0.95	0.94	0.99	0.95	1.04	0.96	0.95	0.99	0.95	1.04
Global excl. NA										
Small	1.05	0.92	0.90	0.89	0.93	1.05	0.93	0.91	0.89	0.93
2	0.96	0.90	0.86	0.93	0.95	0.95	0.90	0.85	0.92	0.95
3	0.96	0.96	0.99	0.96	1.01	0.95	0.95	0.98	0.95	1.01
4	1.04	1.02	1.05	1.03	1.12	1.04	1.01	1.04	1.02	1.11
Big	1.07	1.02	1.04	1.06	1.13	1.07	1.01	1.04	1.06	1.12
Developed excl. NA										
Small	1.07	0.94	0.91	0.87	0.82	1.07	0.94	0.91	0.87	0.82
2	1.02	1.03	0.94	0.89	0.88	1.01	1.03	0.94	0.89	0.87
3	1.08	1.04	1.04	0.96	1.01	1.07	1.03	1.03	0.95	1.00
4	1.16	1.02	1.02	1.01	1.10	1.15	1.00	1.01	1.00	1.09
Big	1.05	0.98	1.06	1.04	1.12	1.05	0.98	1.06	1.03	1.12

Internet Appendix Table 4B, continued

Panel B. Global Experiments, continued

Size	Perfect Integration Model					Partial Segmentation Model				
	Low	2	3	4	High	Low	2	3	4	High
Global										
Small	1.14	1.24	1.70	0.98	0.85	1.15	1.25	1.71	0.99	0.85
2	0.97	0.92	0.82	0.78	0.72	0.96	0.91	0.82	0.78	0.72
3	0.66	0.68	0.59	0.47	0.46	0.66	0.68	0.59	0.46	0.46
4	0.55	0.35	0.29	0.24	0.24	0.54	0.35	0.29	0.23	0.24
Big	-0.40	-0.23	-0.11	-0.14	-0.18	-0.40	-0.23	-0.11	-0.15	-0.18
Developed Only										
Small	1.02	0.94	0.98	0.83	0.71	1.02	0.94	0.99	0.83	0.72
2	0.73	0.58	0.50	0.46	0.52	0.72	0.57	0.50	0.45	0.52
3	0.38	0.41	0.35	0.24	0.22	0.37	0.41	0.35	0.24	0.21
4	0.35	0.11	0.08	0.09	0.06	0.35	0.10	0.08	0.08	0.05
Big	-0.48	-0.29	-0.21	-0.22	-0.25	-0.48	-0.28	-0.21	-0.22	-0.25
Global excl. NA										
Small	1.17	1.15	1.05	0.86	0.81	1.17	1.15	1.05	0.86	0.82
2	0.99	1.09	1.45	0.87	0.89	0.99	1.09	1.44	0.87	0.89
3	0.97	0.89	0.77	0.79	0.78	0.97	0.88	0.76	0.78	0.78
4	0.72	0.69	0.58	0.56	0.57	0.71	0.68	0.57	0.55	0.56
Big	-0.07	0.02	0.06	-0.02	0.02	-0.07	0.02	0.06	-0.02	0.01
Developed excl. NA										
Small	1.01	0.90	0.82	0.72	0.68	1.01	0.90	0.82	0.72	0.69
2	0.86	0.80	0.61	0.57	0.65	0.86	0.80	0.61	0.57	0.65
3	0.59	0.56	0.45	0.49	0.54	0.58	0.55	0.45	0.49	0.53
4	0.40	0.33	0.32	0.33	0.35	0.39	0.32	0.31	0.32	0.34
Big	-0.21	-0.08	-0.09	-0.13	-0.13	-0.21	-0.08	-0.10	-0.14	-0.14

Internet Appendix Table 4B, continued

Panel B. Global Experiments, continued

Value	Perfect Integration Model					Partial Segmentation Model				
	Low	2	3	4	High	Low	2	3	4	High
Global										
Small	-0.40	-0.15	-0.03	0.34	0.61	-0.39	-0.14	0.00	0.36	0.64
2	-0.47	-0.19	0.14	0.43	0.70	-0.48	-0.20	0.13	0.42	0.70
3	-0.49	-0.17	0.26	0.51	0.73	-0.51	-0.18	0.24	0.49	0.71
4	-0.47	0.09	0.25	0.54	0.72	-0.49	0.07	0.23	0.52	0.70
Big	-0.49	-0.09	0.20	0.48	0.52	-0.48	-0.09	0.20	0.47	0.51
Developed Only										
Small	-0.33	-0.03	-0.03	0.30	0.53	-0.33	-0.02	-0.01	0.31	0.54
2	-0.45	-0.06	0.24	0.47	0.70	-0.47	-0.07	0.23	0.46	0.69
3	-0.43	-0.02	0.32	0.51	0.70	-0.45	-0.05	0.30	0.49	0.68
4	-0.51	0.16	0.31	0.55	0.76	-0.53	0.13	0.29	0.53	0.73
Big	-0.50	-0.11	0.21	0.46	0.47	-0.49	-0.10	0.21	0.45	0.47
Global excl. NA										
Small	-0.35	0.00	0.16	0.49	0.69	-0.35	0.00	0.18	0.50	0.71
2	-0.40	-0.01	0.23	0.50	0.65	-0.42	-0.02	0.21	0.49	0.65
3	-0.29	-0.10	0.27	0.52	0.69	-0.31	-0.12	0.25	0.50	0.68
4	-0.24	0.14	0.40	0.58	0.66	-0.25	0.11	0.38	0.55	0.64
Big	-0.29	0.00	0.20	0.42	0.53	-0.30	-0.01	0.19	0.41	0.52
Developed excl. NA										
Small	-0.33	0.13	0.16	0.43	0.54	-0.35	0.13	0.16	0.44	0.54
2	-0.21	-0.05	0.37	0.53	0.57	-0.24	-0.06	0.36	0.51	0.56
3	-0.17	0.21	0.51	0.55	0.64	-0.20	0.18	0.48	0.53	0.62
4	-0.17	0.32	0.36	0.55	0.71	-0.20	0.29	0.34	0.52	0.68
Big	-0.31	-0.03	0.23	0.39	0.46	-0.32	-0.03	0.22	0.38	0.46

Table 4B reports the betas from the partial segmentation model regressions to explain monthly excess returns on portfolios from 5×5 sorts on size and B/M. The Main CL Tier is used here.

Panel A report results in the regional experiments, the partial segmentation Fama-French model is as follows:

$$r^e_i = \alpha_i + \beta_{i\text{PS}} R_{D,m} + s_{i\text{PS}}\text{SMB}_D + h_{i\text{PS}}\text{HML}_D + \eta_{i\text{PS}}(f_D - f^*_D) + \kappa_{i\text{PS}} f^*_F$$

The subscript designation of "*D*" on the market and factor portfolios implies that they are constructed only from domestic - or regional, in our experiments - stocks. The superscript "PS" denotes the intercept and the risk loadings for the partial-segmentation model. The term of $f_D - f^*_D$ is referred as the local externality factor, and that of f^*_F represents the global externality factor.

Panel B report results in the global experiments, the partial segmentation Fama-French model is as follows:

$$r^e_j = \alpha_j + \beta_{j\text{PS}} R_{W,m} + s_{j\text{PS}}\text{SMB}_W + h_{j\text{PS}}\text{HML}_W + \eta_{j\text{PS}}(f_F - f^*_F)$$

The subscript "*W*" on the beta and factors implies that they are constructed from all stocks around the world, and "*F*" implies that they are constructed from foreign - or global, in our experiments - stocks. The superscript "PS" denotes the intercept and the risk loadings for the partial-segmentation model. The term of $f_F - f^*_F$ is referred as the local externality factor.

For the local externality factor and the global externality factor, * denotes that the p-value is less than -0.05.

Internet Appendix Table 4C, Summary Statistics for Regional Regression Tests Using Monthly Excess Returns on 25 Size/B/M (Size/Momentum) Portfolios and Industry Portfolios

Panel A reports statistics for regional regression tests when the partial segmentation model consists of the local externality factor and the perfect segmentation model as the base model.

Panel A.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
North America	0.77	0.18	***(0.01)***	0.24	0.13	***(0.01)***	0.88	0.04	***(0.09)***	0.17	0.07	*(0.10)*
Europe	0.67	0.01	*(0.65)*	0.18	0.02	*(0.37)*	0.75	0.20	***(0.00)***	0.27	0.19	***(0.00)***
Asia Pacific	0.51	0.15	***(0.03)***	0.26	0.09	***(0.03)***	0.74	0.09	***(0.03)***	0.18	0.05	***(0.07)***
Japan	0.73	0.11	*(0.12)*	0.22	0.03	*(0.25)*	0.70	0.03	*(0.27)*	0.19	0.02	*(0.34)*
Emerging Markets	0.55	0.06	*(0.39)*	0.34	0.08	***(0.03)***	0.86	0.13	***(0.01)***	0.27	0.09	***(0.01)***

Panel A.2. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$
North America	0.68*	0.06	0.36	0.33	0.54	0.21	0.36	0.33	0.79*
Europe	0.17	0.40	-0.16	0.66*	0.01	0.56	-0.15	0.65*	0.37
Asia Pacific	0.71*	0.05	0.01	0.71*	0.84*	-0.06	0.00	0.72*	0.89*
Japan	0.74*	-0.77	-0.18	0.50*	0.74*	-0.77	-0.17	0.50*	0.29
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.39*	-0.98	0.31	0.91*	0.88*
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$
North America	0.68*	0.08	4.78*	4.10*	0.54	1.28	4.67*	4.81*	8.29*
Europe	0.17	2.09	-2.62	9.87*	0.01	2.79	-2.63	9.96*	4.14
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.84	0.26	-0.94	7.61*	3.88*
Japan	0.74*	-0.88	-0.34	6.09*	0.74	-0.87	-0.33	6.16*	3.16
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.39	-2.77	4.74*	6.58*	3.05*

Panel A.3. Test Diagnostics

Test Assets	Fama-French for 25 Size/B/M + 10 industry					Carhart for 25 Size/Momentum + 10 industry				
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*
Perfect Segmentation										
North America	0.83	1.83	0.15	0.19	0.57	0.83	1.79	0.15	0.21	0.57
Europe	0.86	1.99	0.15	0.20	0.60	0.86	3.08	0.23	0.32	0.77
Asia Pacific	0.78	1.56	0.30	0.39	0.54	0.80	2.52	0.26	0.32	0.70
Japan	0.85	2.00	0.14	0.20	0.59	0.85	3.13	0.22	0.27	0.75
Emerging Markets	0.62	1.79	0.45	0.28	0.56	0.61	2.13	0.62	0.35	0.62
Partial Segmentation										
North America	0.84	1.45	0.11	0.13	0.54	0.83	1.56	0.16	0.18	0.55
Europe	0.87	1.91	0.15	0.20	0.60	0.86	2.10	0.17	0.22	0.67
Asia Pacific	0.80	1.47	0.29	0.35	0.53	0.81	2.42	0.26	0.29	0.69
Japan	0.85	1.93	0.11	0.17	0.59	0.85	3.16	0.22	0.27	0.75
Emerging Markets	0.66	1.53	0.26	0.30	0.53	0.63	1.92	0.50	0.26	0.60

Internet Appendix Table 4C, continued

Panel B reports statistics for regional regression tests when the partial segmentation model consists of the global externality factor and the perfect segmentation model as the base model.

Panel B.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
North America	0.67	0.08	*(0.12)*	0.18	0.08	***(0.04)***	0.85	0.00	*(0.86)*	0.16	0.06	***(0.07)***
Europe	0.69	0.03	*(0.33)*	0.20	0.04	*(0.19)*	0.81	0.26	***(0.00)***	0.25	0.18	***(0.00)***
Asia Pacific	0.37	0.01	*(0.72)*	0.27	0.09	***(0.08)***	0.74	0.09	***(0.03)***	0.19	0.06	*(0.13)*
Japan	0.77	0.15	***(0.08)***	0.34	0.16	***(0.03)***	0.75	0.08	***(0.06)***	0.27	0.10	***(0.02)***
Emerging Markets	0.49	0.01	*(0.94)*	0.27	0.00	*(0.87)*	0.74	0.01	*(0.65)*	0.18	0.00	*(0.96)*

Panel B.2. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.49	0.24	0.36	0.35	-0.16*
Europe	0.17	0.40	-0.16	0.66*	0.56	0.03	-0.16	0.67*	0.27
Asia Pacific	0.71*	0.05	0.01	0.71*	0.67*	0.07	0.00	0.73*	1.07
Japan	0.74*	-0.77	-0.18	0.50*	0.68*	-0.70	-0.17	0.47*	1.74*
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.36*	-0.94	0.31	0.95*	0.01
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.49	1.24	4.36*	4.62*	-25.97*
Europe	0.17	2.09	-2.62	9.87*	0.56	0.56	-2.68	9.97*	31.32
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.67	0.73	-1.20	7.99*	10.54
Japan	0.74*	-0.88	-0.34	6.09*	0.68	-0.63	-0.39	6.43*	7.58*
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.36	-2.69	4.71*	6.66*	2.39

Panel B.3. Test Diagnostics

Test Assets	Fama-French for 25 Size/B/M + 10 industry					Carhart for 25 Size/Momentum+ 10 industry				
	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*
Perfect Segmentation										
North America	0.83	1.83	0.15	0.19	0.57	0.83	1.79	0.15	0.21	0.57
Europe	0.86	1.99	0.15	0.20	0.60	0.86	3.08	0.23	0.32	0.77
Asia Pacific	0.78	1.56	0.30	0.39	0.54	0.80	2.52	0.26	0.32	0.70
Japan	0.85	2.00	0.14	0.20	0.59	0.85	3.13	0.22	0.27	0.75
Emerging Markets	0.62	1.79	0.45	0.28	0.56	0.61	2.13	0.62	0.35	0.62
Partial Segmentation										
North America	0.84	1.90	0.13	0.17	0.58	0.83	1.56	0.16	0.22	0.54
Europe	0.87	1.95	0.14	0.19	0.60	0.86	3.13	0.22	0.30	0.78
Asia Pacific	0.78	1.42	0.29	0.38	0.52	0.80	2.59	0.27	0.32	0.71
Japan	0.85	1.76	0.11	0.18	0.57	0.85	2.98	0.19	0.26	0.74
Emerging Markets	0.65	1.70	0.26	0.30	0.56	0.61	2.07	0.58	0.34	0.62

Internet Appendix Table 4C, continued

The regressions use the Fama-French three-factor model (*left in Panels A.1, A.3, B.1, B.3*) and the Carhart four-factor model (*right in Panels A.1, A.3, B.1, B.3*) to explain the returns on five sets of regional portfolios on North America ("NA" in the table), Europe, Japan, Asia Pacific (excluding Japan), and Emerging Markets. The models are estimated using monthly returns on the 25 Fama-French size and B/M ranked portfolios and ten industry portfolios (*left in Panels A.1, A.3, B.1, B.3*) and those on size and momentum and ten industry portfolios (*right in Panels A.1, A.3, B.1, B.3*). The table presents regression results of the benchmark of the perfect segmentation model and the partial-segmentation model. Four classes of models are investigated:

Perfect Segmentation Fama-French Model:

$$r^e_i = \alpha_i + \beta_{iD} R_{D,m} + s_{iD}\text{SMB}_D + h_{iD}\text{HML}_D$$

Partial Segmentation Fama-French Model:

$$r^e_i = \alpha_i + \beta_{i\text{PS}} R_{D,m} + s_{i\text{PS}}\text{SMB}_D + h_{i\text{PS}}\text{HML}_D + \eta_{i\text{PS}}(f_D - f^*_D) + \kappa_{i\text{PS}} f^*_F$$

Perfect Segmentation Carhart Model:

$$r^e_i = \alpha_i + \beta_{iD} R_{D,m} + s_{iD}\text{SMB}_D + h_{iD}\text{HML}_D + w_{iD}\text{WML}_D$$

Partial Segmentation Carhart Model:

$$r^e_i = \alpha_i + \beta_{i\text{PS}} R_{D,m} + s_{i\text{PS}}\text{SMB}_D + h_{i\text{PS}}\text{HML}_D + w_{i\text{PS}}\text{WML}_D + \eta_{i\text{PS}}(f_D - f^*_D) + \kappa_{i\text{PS}} f^*_F$$

The subscript designation of "*D*" on the market and factor portfolios implies that they are constructed only from domestic - or regional, in our experiments - stocks, and "*F*" implies that they are constructed from foreign - or global, in our experiments - stocks. The superscript "PS" denotes the intercept for the partial-segmentation model. The term of $f_D - f^*_D$ denotes the local externality effect, and that of f^*_F represents the global externality effect. The Main CL Tier is used here.

Panel A in the Table reports pairwise tests of equality of the OLS and GLS cross-sectional R^2s (Kan, Robotti, and Shanken (2013)) of the Perfect segmentation model and the partial segmentation models. The difference between the sample cross-sectional R^2s of the models ($\Delta\rho^2$in the table) is reported, as well as the associated *p*-value (*p-Value* in the table, bold if significant at the 10% level) for the test of H_0: $\Delta\rho^2 = 0$. The *p*-values are computed under the assumption that the models are potentially misspecified.

Panel B reports estimates of zero-beta Rate, risk premia, and prices of covariance risk under misspecifiedmodels. Here * denotes that the estimate is significant at 10% level, for example, the *t*-ratio of $\hat{\gamma}_0^{\text{PS}}$ is for the test of the null hypothesis that the excess zero-beta rate is equal to zero. Without loss of generality, we report the GLS cross-sectional regressions in which the Fama-French three-factor model is used to explain the 25 size and B/M ranked portfolios and ten industry portfolios.

Two forms of beta pricing models are studied: Let f be a *K*-vector of factors, R be a vector of returns on *N* test assets, and β be the $N\times K$ matrix of multiple regression betas of the *N* assets with respect to the *K* factors. The proposed *K*-factor beta pricing model specifies that asset expected returns are linear in β, that is,

$$\mu_R = X\gamma$$

where $X = [1_N, \beta]$, and γ is a vector consisting of the zero-beta rate and risk premia on the *K* factors. Here $\hat{\gamma}_{EX\_L}$ denotes the estimated risk premium of the local externality factor, and $\hat{\gamma}_{EX\_G}$ denotes the estimated risk premium of the local externality factor. An alternative specification is considered in terms of the $N\times K$ matrix of V_{Rf} of covariances between returns and the factors, thus

$$\mu_R = C\lambda$$

where $C = [1_N, V_{Rf}]$, and λ is a vector consisting of the zero-beta rate and price of the covariance risk on the *K* factors. Here $\hat{\lambda}_{EX\_L}$ denotes the risk premium of the local externality factor, and $\hat{\lambda}_{EX\_G}$ denotes the risk premium of the local externality factor.

In Panel C, R^2 is the average time-series adjusted R^2; the GRS statistic tests whether all intercepts in a set of 35 (5×5+10) regressions are zero; $|\alpha|$ is the average absolute intercepts; *std(α)* is the standard deviation of the intercepts for a set of regressions;; *SR(α)* is the Sharpe ratio for the intercepts. With 35 portfolios and 242 monthly returns, critical values of the GRS statistic for all models are: 90%: 1.35; 95%: 1.48; 97.5%: 1.60; 99%: 1.73 and 99.9%: 2.05.

Internet Appendix Table 5A, Summary Statistics for Regional Regression Tests on a "Trivial" Partial Segmentation Model

Panel A reports statistics for regional regression tests when the "trivial" partial segmentation model is compared with the perfect segmentation model.

Panel A.1. Kan, Robotti, and Shanken (2013) Test (Fama-French for 25 Size/B/M + 10 industry)

Test Assets	*OLS*			*GLS*		
	ρ_T^2	$\Delta\rho^2$	*p-Value*	ρ_T^2	$\Delta\rho^2$	*p-Value*
North America	0.64	0.06	*(0.69)*	0.13	0.02	*(0.83)*
Europe	0.74	0.07	*(0.43)*	0.20	0.03	*(0.70)*
Asia Pacific	0.43	0.07	*(0.60)*	0.25	0.07	*(0.50)*
Japan	0.80	0.18	*(0.26)*	0.32	0.14	*(0.28)*
Emerging Markets	0.63	0.14	*(0.18)*	0.28	0.02	*(0.86)*

Panel A.2. Estimates of Zero-beta Rate, Risk Premia, and Prices of Covariance Risk (Fama-French for 25 Size/B/M + 10 industry)

i. Risk Premia	$\hat{\gamma}_0^M$	$\hat{\gamma}_{vw}^D$	$\hat{\gamma}_{Size}^D$	$\hat{\gamma}_{B/M}^D$	$\hat{\gamma}_{vw}^W$	$\hat{\gamma}_{Size}^W$	$\hat{\gamma}_{B/M}^W$
North America	0.64*	0.09	0.37	0.34	-0.05	0.29	-0.10
Europe	0.20	0.38	-0.16	0.66*	0.32	0.15	-0.33
Asia Pacific	0.61*	0.15	0.00	0.74*	-0.51	0.61	0.17
Japan	0.71*	-0.73	-0.18	0.48*	0.01	0.67	0.29
Emerging Markets	1.40*	-0.96	0.30	0.97*	0.10	0.15	-0.27
ii. Prices of Covariance Risk	$\hat{\lambda}_0^M$	$\hat{\lambda}_{vw}^D$	$\hat{\lambda}_{Size}^D$	$\hat{\lambda}_{B/M}^D$	$\hat{\lambda}_{vw}^W$	$\hat{\lambda}_{Size}^W$	$\hat{\lambda}_{B/M}^W$
North America	0.64*	0.30	4.76	4.28*	-6.22	10.37	-3.43
Europe	0.20	1.99	-2.66	9.93*	6.40	1.99	-10.91
Asia Pacific	0.61*	0.91	-1.24	7.87*	-4.18	13.82	4.76
Japan	0.71*	-0.74	-0.40	6.27	-1.21	16.26	8.67
Emerging Markets	1.40*	-2.74	4.54	6.71*	0.89	3.25	-5.20

Panel A.3. Test Diagnostics (Fama-French for 25 Size/B/M + 10 industry)

Test Assets	*Perfect Segmentation*					*"Trivial" Model*				
	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*
North America	0.83	1.83	0.15	0.19	0.57	0.83	1.69	0.16	0.20	0.56
Europe	0.86	1.99	0.15	0.20	0.60	0.87	2.01	0.16	0.21	0.61
Asia Pacific	0.78	1.56	0.30	0.39	0.54	0.79	1.51	0.30	0.40	0.54
Japan	0.85	2.00	0.14	0.20	0.59	0.85	1.76	0.15	0.23	0.57
Emerging Markets	0.62	1.79	0.45	0.28	0.56	0.65	1.66	0.31	0.31	0.55

Internet Appendix Table 5A, continued

Panel A.4. Kan, Robotti, and Shanken (2013) Test (Carhart for 25 Size/Momentum + 10 industry)

Test Assets	*OLS*			*GLS*		
	ρ_T^2	$\Delta\rho^2$	*p-Value*	ρ_T^2	$\Delta\rho^2$	*p-Value*
North America	0.89	0.05	*(0.37)*	0.13	0.03	*(0.90)*
Europe	0.74	0.19	***(0.06)***	0.17	0.10	*(0.21)*
Asia Pacific	0.70	0.04	*(0.79)*	0.27	0.14	*(0.30)*
Japan	0.73	0.06	*(0.57)*	0.20	0.03	*(0.92)*
Emerging Markets	0.83	0.10	*(0.38)*	0.32	0.14	*(0.24)*

Panel A.5. Estimates of Zero-beta Rate, Risk Premia, and Prices of Covariance Risk (Carhart for 25 Size/Momentum + 10 industry)

i. Risk Premia	$\hat{\gamma}_0^M$	$\hat{\gamma}_{vw}^D$	$\hat{\gamma}_{Size}^D$	$\hat{\gamma}_{B/M}^D$	$\hat{\gamma}_{Mom}^D$	$\hat{\gamma}_{vw}^W$	$\hat{\gamma}_{Size}^W$	$\hat{\gamma}_{B/M}^W$	$\hat{\gamma}_{Mom}^W$
North America	0.70	0.08	0.55*	-0.26	0.41	0.11	0.21	0.05	0.13
Europe	0.86	-0.19	-0.07	0.08	0.81*	0.76	0.08	-0.12	-0.50
Asia Pacific	0.02	0.86	-0.14	0.16	1.30*	-0.91	0.57	0.21	-0.48
Japan	0.88*	-0.86*	-0.02	-0.22	-0.52	0.15	0.07	-0.12	0.43
Emerging Markets	1.52*	-1.18	0.44	0.38	0.97*	0.97	-0.06	-0.56	-1.09
ii. Prices of Covariance Risk	$\hat{\lambda}_0^M$	$\hat{\lambda}_{vw}^D$	$\hat{\lambda}_{Size}^D$	$\hat{\lambda}_{B/M}^D$	$\hat{\lambda}_{Mom}^D$	$\hat{\lambda}_{vw}^W$	$\hat{\lambda}_{Size}^W$	$\hat{\lambda}_{B/M}^W$	$\hat{\lambda}_{Mom}^W$
North America	0.70	-1.09	5.19	-0.62	0.35	1.89	6.97	5.16	4.18
Europe	0.86	0.37	-0.92	2.27	4.24*	23.20*	0.00	4.25	-9.30
Asia Pacific	0.02	3.67	-3.37	3.10	5.67*	-12.30	11.51	3.11	-6.15
Japan	0.88*	-3.86*	-0.79	-6.52	-2.41	2.34	-0.22	-2.10	4.17
Emerging Markets	1.52*	-3.24	5.41	2.97	1.79	8.56	4.45	-11.74	-9.02

Panel A.6. Test Diagnostics (Carhart for 25 Size/Momentum + 10 industry)

Test Assets	*Perfect Segmentation*					*"Trivial" Model*				
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*
North America	0.83	1.79	0.15	0.21	0.57	0.83	1.64	0.16	0.22	0.57
Europe	0.86	3.08	0.23	0.32	0.77	0.86	3.05	0.25	0.34	0.78
Asia Pacific	0.80	2.52	0.26	0.32	0.70	0.82	2.42	0.24	0.32	0.71
Japan	0.85	3.13	0.22	0.27	0.75	0.85	2.95	0.22	0.31	0.77
Emerging Markets	0.61	2.13	0.62	0.35	0.62	0.64	2.00	0.50	0.34	0.62

Internet Appendix Table 5A, continued

Panel B reports statistics for regional regression tests when the "trivial" partial segmentation model is compared with our partial segmentation model.

Panel B.1. Kan, Robotti, and Shanken (2013) Test (Fama-French for 25 Size/B/M + 10 industry)

Test Assets	*OLS*			*GLS*		
	ρ_T^2	$\Delta\rho^2$	*p-Value*	ρ_T^2	$\Delta\rho^2$	*p-Value*
North America	0.64	-0.13	*(0.22)*	0.13	-0.12	*(0.27)*
Europe	0.74	0.01	*(0.95)*	0.20	-0.06	*(0.59)*
Asia Pacific	0.43	-0.19	*(0.18)*	0.25	-0.14	*(0.20)*
Japan	0.80	0.00	*(0.99)*	0.32	-0.02	*(0.83)*
Emerging Markets	0.63	0.04	*(0.79)*	0.28	-0.06	*(0.38)*

Panel B.2. Estimates of Zero-beta Rate, Risk Premia, and Prices of Covariance Risk (Fama-French for 25 Size/B/M + 10 industry)

i. Risk Premia	$\hat{\gamma}_0^M$	$\hat{\gamma}_{vw}^D$	$\hat{\gamma}_{Size}^D$	$\hat{\gamma}_{B/M}^D$	$\hat{\gamma}_{vw}^W$	$\hat{\gamma}_{Size}^W$	$\hat{\gamma}_{B/M}^W$
North America	0.64*	0.09	0.37	0.34	-0.05	0.29	-0.10
Europe	0.20	0.38	-0.16	0.66*	0.32	0.15	-0.33
Asia Pacific	0.61*	0.15	0.00	0.74*	-0.51	0.61	0.17
Japan	0.71*	-0.73	-0.18	0.48*	0.01	0.67	0.29
Emerging Markets	1.40*	-0.96	0.30	0.97*	0.10	0.15	-0.27
ii. Prices of Covariance Risk	$\hat{\lambda}_0^M$	$\hat{\lambda}_{vw}^D$	$\hat{\lambda}_{Size}^D$	$\hat{\lambda}_{B/M}^D$	$\hat{\lambda}_{vw}^W$	$\hat{\lambda}_{Size}^W$	$\hat{\lambda}_{B/M}^W$
North America	0.64*	0.30	4.76	4.28*	-6.22	10.37	-3.43
Europe	0.20	1.99	-2.66	9.93*	6.40	1.99	-10.91
Asia Pacific	0.61*	0.91	-1.24	7.87*	-4.18	13.82	4.76
Japan	0.71*	-0.74	-0.40	6.27	-1.21	16.26	8.67
Emerging Markets	1.40*	-2.74	4.54	6.71*	0.89	3.25	-5.20

Panel B.3. Test Diagnostics (Fama-French for 25 Size/B/M + 10 industry)

Test Assets	*Partial Segmentation*					*"Trivial" Model*				
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*
North America	0.84	1.72	0.12	0.15	0.59	0.83	1.69	0.16	0.20	0.56
Europe	0.87	1.78	0.14	0.19	0.58	0.87	2.01	0.16	0.21	0.61
Asia Pacific	0.80	1.31	0.27	0.33	0.50	0.79	1.51	0.30	0.40	0.54
Japan	0.86	1.75	0.10	0.16	0.57	0.85	1.76	0.15	0.23	0.57
Emerging Markets	0.69	1.54	0.23	0.33	0.54	0.65	1.66	0.31	0.31	0.55

Internet Appendix Table 5A, continued

Panel B.4. Kan, Robotti, and Shanken (2013) Test (Carhart for 25 Size/Momentum + 10 industry)

Test Assets	*OLS*			*GLS*		
	ρ_T^2	$\Delta\rho^2$	*p-Value*	ρ_T^2	$\Delta\rho^2$	*p-Value*
North America	0.89	0.00	*(0.92)*	0.13	-0.21	*(0.12)*
Europe	0.74	-0.07	*(0.56)*	0.17	-0.13	*(0.23)*
Asia Pacific	0.70	-0.06	*(0.60)*	0.27	0.08	*(0.58)*
Japan	0.73	-0.03	*(0.68)*	0.20	-0.10	*(0.33)*
Emerging Markets	0.83	-0.03	*(0.68)*	0.32	0.05	*(0.61)*

Panel B.5. Estimates of Zero-beta Rate, Risk Premia, and Prices of Covariance Risk (Carhart for 25 Size/Momentum + 10 industry)

i. Risk Premia	$\hat{\gamma}_0^M$	$\hat{\gamma}_{vw}^D$	$\hat{\gamma}_{Size}^D$	$\hat{\gamma}_{B/M}^D$	$\hat{\gamma}_{Mom}^D$	$\hat{\gamma}_{vw}^W$	$\hat{\gamma}_{Size}^W$	$\hat{\gamma}_{B/M}^W$	$\hat{\gamma}_{Mom}^W$
North America	0.70	0.08	0.55*	-0.26	0.41	0.11	0.21	0.05	0.13
Europe	0.86	-0.19	-0.07	0.08	0.81*	0.76	0.08	-0.12	-0.50
Asia Pacific	0.02	0.86	-0.14	0.16	1.30*	-0.91	0.57	0.21	-0.48
Japan	0.88*	-0.86*	-0.02	-0.22	-0.52	0.15	0.07	-0.12	0.43
Emerging Markets	1.52*	-1.18	0.44	0.38	0.97*	0.97	-0.06	-0.56	-1.09
ii. Prices of Covariance Risk	$\hat{\lambda}_0^M$	$\hat{\lambda}_{vw}^D$	$\hat{\lambda}_{Size}^D$	$\hat{\lambda}_{B/M}^D$	$\hat{\lambda}_{Mom}^D$	$\hat{\lambda}_{vw}^W$	$\hat{\lambda}_{Size}^W$	$\hat{\lambda}_{B/M}^W$	$\hat{\lambda}_{Mom}^W$
North America	0.70	-1.09	5.19	-0.62	0.35	1.89	6.97	5.16	4.18
Europe	0.86	0.37	-0.92	2.27	4.24*	23.20*	0.00	4.25	-9.30
Asia Pacific	0.02	3.67	-3.37	3.10	5.67*	-12.30	11.51	3.11	-6.15
Japan	0.88*	-3.86*	-0.79	-6.52	-2.41	2.34	-0.22	-2.10	4.17
Emerging Markets	1.52*	-3.24	5.41	2.97	1.79	8.56	4.45	-11.74	-9.02

Panel B.6. Test Diagnostics (Carhart for 25 Size/Momentum + 10 industry)

Test Assets	*Partial Segmentation*					*"Trivial" Model*				
	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*
North America	0.84	1.12	0.14	0.18	0.50	0.83	1.64	0.16	0.22	0.57
Europe	0.86	2.18	0.18	0.23	0.69	0.86	3.05	0.25	0.34	0.78
Asia Pacific	0.81	2.49	0.27	0.29	0.70	0.82	2.42	0.24	0.32	0.71
Japan	0.86	2.90	0.18	0.24	0.74	0.85	2.95	0.22	0.31	0.77
Emerging Markets	0.65	1.84	0.39	0.28	0.60	0.64	2.00	0.50	0.34	0.62

Internet Appendix Table 5A, continued

The regressions use the Fama-French three-factor model and the Carhart four-factor model to explain the returns on five sets of regional portfolios on North America ("NA" in the table), Europe, Japan, Asia Pacific (excluding Japan), and Emerging Markets. The models are estimated using monthly returns on the 25 Fama-French size and B/M ranked portfolios and ten industry portfolios and those on size and momentum and ten industry portfolios. Please see Internet Appendix Table 4C for details on the model specification on the perfect segmentation model and the partial segmentation model.

Six classes of models are investigated:

Perfect Segmentation Fama-French Model:

$$r^e_i = \alpha_i + \beta_{iD} R_{D,m} + s_{iD} SMB_D + h_{iD} HML_D$$

Perfect Segmentation Carhart Model:

$$r^e_i = \alpha_i + \beta_{iD} R_{D,m} + s_{iD} SMB_D + h_{iD} HML_D + w_{iD} WML_D$$

Partial Segmentation Fama-French Model:

$$r^e_i = \alpha_i + \beta_{i\mathrm{PS}} R_{D,m} + s_{i\mathrm{PS}} \mathrm{SMB}_D + h_{i\mathrm{PS}} \mathrm{HML}_D + \eta_{i\mathrm{PS}} (f_D - f^*_D) + \kappa_{i\mathrm{PS}} f^*_F$$

Partial Segmentation Carhart Model:

$$r^e_i = \alpha_i + \beta_{i\mathrm{PS}} R_{D,m} + s_{i\mathrm{PS}} \mathrm{SMB}_D + h_{i\mathrm{PS}} \mathrm{HML}_D + w_{i\mathrm{PS}} \mathrm{WML}_D + \eta_{i\mathrm{PS}} (f_D - f^*_D) + \kappa_{i\mathrm{PS}} f^*_F$$

"Trivial" Partial Segmentation Fama-French Model:

$$r^e_i = \alpha_i + \beta_{iD} R_{D,m} + s_{iD} \mathrm{SMB}_D + h_{iD} \mathrm{HML}_D + \beta_{jW} R_{W,m} + s_{jW} \mathrm{SMB}_W + h_{jW} \mathrm{HML}_W$$

"Trivial" Partial Segmentation Carhart Model:

$$r^e_i = \alpha_i + \beta_{iD} R_{D,m} + s_{iD} \mathrm{SMB}_D + h_{iD} \mathrm{HML}_D + w_{iD} \mathrm{WML}_D + \beta_{jW} R_{W,m} + s_{jW} \mathrm{SMB}_W + h_{jW} \mathrm{HML}_W + w_{jW} \mathrm{WML}_W$$

The subscript designation of "*D*" on the market and factor portfolios implies that they are constructed only from domestic - or regional, in our experiments – stocks, and "*F*" implies that they are constructed from foreign stocks. The superscript "PS" denotes the intercept and the risk loadings for the partial-segmentation model. The term of $f_D - f^*_D$ is referred as the local externality factor, and that of f^*_F represents the global externality factor. The Main CL Tier is used here.

The table presents regression results in comparing the "trivial" partial segmentation model with the perfect segmentation model (in Panel A) and those in comparing the "trivial" partial segmentation model with our partial segmentation model (in Panel B). Please see Internet Appendix Table 4C for details on the regression tests.

Internet Appendix Table 6A, Summary Statistics for Global Regression Tests Using Monthly Excess Returns on 25 Size/B/M (Size/Momentum) Portfolios and Industry Portfolios

Panel A reports statistics for global regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect integration model as the base model.

Panel A.1. Kan, Robotti, and Shanken (2013) tests

Test Assets	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
Developed Only	0.70	0.41	***(0.00)***	0.25	0.13	***(0.01)***	0.80	0.34	***(0.00)***	0.16	0.11	***(0.06)***
Global excl. NA	0.71	0.21	***(0.08)***	0.34	0.17	***(0.01)***	0.86	0.42	***(0.00)***	0.21	0.18	***(0.00)***
Developed excl. NA	0.77	0.21	***(0.09)***	0.25	0.12	***(0.02)***	0.78	0.50	***(0.06)***	0.25	0.17	***(0.03)***

Panel A.2. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

	Perfect Integration				*Partial Segmentation*					
i. Risk Premia										
	$\hat{\gamma}^L_0$	$\hat{\gamma}^L_{vw}$	$\hat{\gamma}^L_{Size}$	$\hat{\gamma}^L_{B/M}$	$\hat{\gamma}^{PS}_0$	$\hat{\gamma}^L_{vw}$	$\hat{\gamma}^L_{Size}$	$\hat{\gamma}^L_{B/M}$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
Developed Only	1.11*	-0.64	0.22	0.45*	0.72*	-0.27	0.18	0.45*	0.84*	0.18
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.55	-0.14	0.03	0.56*	0.93*	-0.51
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.39	-0.14	-0.03	0.62*	0.80*	0.11
ii. Prices of Covariance Risk										
	$\hat{\lambda}^L_0$	$\hat{\lambda}^L_{vw}$	$\hat{\lambda}^L_{Size}$	$\hat{\lambda}^L_{B/M}$	$\hat{\lambda}^{PS}_0$	$\hat{\lambda}^L_{vw}$	$\hat{\lambda}^L_{Size}$	$\hat{\lambda}^L_{B/M}$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
Developed Only	1.11*	-2.67	5.66	6.70*	0.72*	-0.24	4.90	8.57*	10.26*	0.60
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.55	0.59	2.17	9.82*	7.86*	-1.67
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.39	0.75	1.05	10.65*	7.37*	0.82

Panel A.3. Test Diagnostics

Test Assets	Fama-French for 25 Size/B/M + 10 industry					Carhart for 25 Size/Momentum + 10 industry				
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*
Perfect Integration										
Developed Only	0.84	2.66	0.18	0.23	0.69	0.84	2.62	0.18	0.25	0.70
Global excl. NA	0.79	1.84	0.24	0.21	0.58	0.78	2.44	0.25	0.28	0.67
Developed excl. NA	0.74	2.24	0.31	0.24	0.63	0.74	2.24	0.31	0.24	0.63
Partial Segmentation										
Developed Only	0.85	1.64	0.10	0.14	0.59	0.84	2.14	0.13	0.19	0.65
Global excl. NA	0.81	1.37	0.13	0.18	0.51	0.79	2.14	0.20	0.24	0.64
Developed excl. NA	0.78	1.73	0.17	0.21	0.58	0.77	1.80	0.19	0.18	0.59

Internet Appendix Table 6A, continued

Panel B reports statistics for global regression tests when the partial segmentation model consists of the global externality factor and the perfect integration model as the base model.

Panel B.1. Kan, Robotti, and Shanken (2013) tests

Test Assets	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
Developed Only	0.30	0.01	*(0.62)*	0.12	0.00	*(0.91)*	0.51	0.05	*(0.38)*	0.05	0.01	*(0.70)*
Global excl. NA	0.67	0.17	*(0.13)*	0.21	0.03	*(0.33)*	0.83	0.40	***(0.00)***	0.13	0.10	*(0.10)*
Developed excl. NA	0.56	0.01	*(0.73)*	0.13	0.00	*(0.94)*	0.62	0.34	***(0.08)***	0.08	0.01	*(0.71)*

Panel B.2. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

	Perfect Integration				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
Developed Only	1.11*	-0.64	0.22	0.45*	1.10	-0.63	0.22	0.45*	-0.10
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.66*	-0.23	-0.04	0.53*	-0.78
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.61*	-0.33	-0.08	0.62*	-0.03
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
Developed Only	1.11*	-2.67	5.66	6.70*	1.10	-2.61	5.65	6.78	-0.31
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.66*	-0.02	0.65	8.52*	-4.04
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.61*	-0.42	0.15	9.46*	-0.27

Panel B.3. Test Diagnostics

Test Assets	Fama-French for 25 Size/B/M + 10 industry					Carhart for 25 Size/Momentum + 10 industry				
	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*
Perfect Integration										
Developed Only	0.84	2.66	0.18	0.23	0.69	0.84	2.62	0.18	0.25	0.70
Global excl. NA	0.79	1.84	0.24	0.21	0.58	0.78	2.44	0.25	0.28	0.67
Developed excl. NA	0.74	2.24	0.31	0.24	0.63	0.74	2.24	0.31	0.24	0.63
Partial Segmentation										
Developed Only	0.85	2.53	0.19	0.22	0.68	0.84	2.53	0.17	0.24	0.69
Global excl. NA	0.80	1.68	0.20	0.21	0.56	0.78	2.45	0.26	0.29	0.68
Developed excl. NA	0.76	2.13	0.27	0.25	0.62	0.74	1.95	0.31	0.25	0.60

Internet Appendix Table 6A, continued

The regressions use the Fama-French three-factor model (*left in Panels A.1, A.3, B.1, B.3*) and the Carhart four-factor model (*right in Panels A.1, A.3, B.1, B.3*) to explain the returns on four sets of global portfolios. Here four sets of global portfolios include Global portfolios, Developed Markets portfolios, Global portfolios excluding North America, Developed Markets portfolios excluding North America. The models are estimated using monthly returns on the 25 Fama-French size and B/M ranked portfolios and ten industry portfolios (*left in Panels A.1, A.3, B.1, B.3*) and those on size and momentum and ten industry portfolios (*right in Panels A.1, A.3, B.1, B.3*). The table presents regression results of the benchmark of the perfect integration model and the partial segmentation model. Please see Internet Appendix Table 4C for details on the regression tests.

Four classes of models are investigated:

Perfect Integration Fama-French Model:

$$r^e_j = \alpha_j + \beta_{jW} R_{W,m} + s_{jW}\text{SMB}_W + h_{jW}\text{HML}_W$$

Partial Segmentation Fama-French Model:

$$r^e_j = \alpha_j + \beta_{j\text{PS}} R_{W,m} + s_{j\text{PS}}\text{SMB}_W + h_{j\text{PS}}\text{HML}_W + \eta_{j\text{PS}}(f_F - f^*_F)$$

Perfect Integration Carhart Model:

$$r^e_j = \alpha_j + \beta_{jW} R_{W,m} + s_{jW}\text{SMB}_W + h_{jW}\text{HML}_W + w_{jW}\text{WML}_W$$

Partial Segmentation Carhart Model:

$$r^e_j = \alpha_j + \beta_{j\text{PS}} R_{W,m} + s_{j\text{PS}}\text{SMB}_W + h_{j\text{PS}}\text{HML}_W + w_{j\text{PS}}\text{WML}_W + \eta_{j\text{PS}}(f_F - f^*_F)$$

The subscript "*W*" on the beta and factors implies that they are constructed from all stocks around the world, and "*F*" implies that they are constructed from foreign - or global, in our experiments - stocks. The superscript "PS" denotes the intercept and the risk loadings for the partial-segmentation model. The term of $f_F - f^*_F$ is referred as the local externality factor. The Main CL Tier is used here.

Internet Appendix Table 7A, Summary Statistics for Regression Tests of the CAPM Model

Panel A reports statistics for regional regression tests when the partial segmentation model consists of the CAPM-based local externality factor and the CAPM-based perfect segmentation model as the base model.

Panel A.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
North America	0.43	0.27	*(0.10)*	0.03	0.03	*(0.19)*	0.65	0.46	***(0.01)***	0.04	0.02	*(0.26)*
Europe	0.17	0.15	*(0.17)*	0.04	0.03	***(0.07)***	0.11	0.00	*(0.86)*	0.00	0.00	*(0.59)*
Asia Pacific	0.04	0.03	*(0.48)*	0.00	0.00	*(0.66)*	0.01	0.01	*(0.67)*	0.00	0.00	*(0.85)*
Japan	0.54	0.06	*(0.60)*	0.10	0.01	*(0.43)*	0.09	0.02	*(0.73)*	0.07	0.01	*(0.58)*
Emerging Markets	0.02	0.02	*(0.61)*	0.04	0.01	*(0.33)*	0.05	0.04	*(0.56)*	0.05	0.01	*(0.35)*

Panel A.2. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

	Perfect Segmentation		*Partial Segmentation*		
i. Risk Premia					
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{EX\_L}$
North America	0.66*	0.08	0.72*	0.02	0.21
Europe	0.22	0.35	0.15	0.42	-0.26
Asia Pacific	0.75*	0.02	0.74*	0.03	0.08
Japan	0.77*	-0.81*	0.77*	-0.81*	-0.15
Emerging Markets	1.25*	-0.82	1.16	-0.73	-0.27
ii. Prices of Covariance Risk					
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{EX\_L}$
North America	0.66*	0.38	0.72*	0.05	5.04
Europe	0.22	1.46	0.15	1.77	-7.16
Asia Pacific	0.75*	0.06	0.74*	0.09	1.37
Japan	0.77*	-2.21	0.77*	-2.21	-1.91
Emerging Markets	1.25*	-2.05	1.16	-1.82	-1.85

Panel A.3. Test Diagnostics

Test Assets	25 Size/B/M + 10 industry					25 Size/Momentum + 10 industry				
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*
Perfect Segmentation										
North America	0.67	2.01	0.22	0.26	0.59	0.64	1.93	0.28	0.33	0.58
Europe	0.75	2.53	0.24	0.29	0.66	0.72	3.80	0.31	0.42	0.81
Asia Pacific	0.70	1.85	0.28	0.39	0.56	0.69	3.28	0.38	0.52	0.75
Japan	0.72	2.32	0.18	0.26	0.63	0.69	3.04	0.19	0.26	0.72
Emerging Markets	0.56	2.15	0.50	0.38	0.60	0.52	2.53	0.76	0.62	0.65
Partial Segmentation										
North America	0.73	2.71	0.28	0.29	0.69	0.69	2.38	0.35	0.38	0.64
Europe	0.80	2.48	0.22	0.27	0.65	0.76	3.88	0.32	0.43	0.82
Asia Pacific	0.74	2.14	0.30	0.40	0.61	0.74	3.69	0.40	0.52	0.80
Japan	0.82	2.51	0.26	0.24	0.65	0.78	3.30	0.26	0.28	0.75
Emerging Markets	0.63	2.03	0.37	0.39	0.59	0.56	2.44	0.68	0.67	0.65

Internet Appendix Table 7A, continued

Panel B reports statistics for regional regression tests when the partial segmentation model consists of the CAPM-based global externality factor and the CAPM-based perfect segmentation model as the base model.

Panel B.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
North America	0.34	0.18	*(0.12)*	0.01	0.01	*(0.45)*	0.50	0.31	***(0.04)***	0.04	0.03	*(0.33)*
Europe	0.12	0.09	*(0.33)*	0.01	0.00	*(0.87)*	0.11	0.00	*(0.91)*	0.04	0.03	*(0.15)*
Asia Pacific	0.26	0.25	***(0.06)***	0.15	0.15	***(0.02)***	0.14	0.14	*(0.11)*	0.11	0.11	***(0.02)***
Japan	0.52	0.04	*(0.59)*	0.09	0.01	*(0.61)*	0.26	0.20	*(0.18)*	0.08	0.01	*(0.48)*
Emerging Markets	0.02	0.02	*(0.72)*	0.02	0.00	*(0.77)*	0.07	0.05	*(0.54)*	0.05	0.01	*(0.41)*

Panel B.2. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

	Perfect Segmentation			*Partial Segmentation*		
i. Risk Premia						
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$		$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{EX\_G}$
North America	0.66*	0.08		0.67*	0.07	0.34
Europe	0.22	0.35		0.21	0.36	-0.07
Asia Pacific	0.75*	0.02		0.65*	0.13	-1.04*
Japan	0.77*	-0.81*		0.77*	-0.81*	0.25
Emerging Markets	1.25*	-0.82		1.26*	-0.73	-0.11
ii. Prices of Covariance Risk						
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$		$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{EX\_G}$
North America	0.66*	0.38		0.67*	0.33	3.98
Europe	0.22	1.46		0.21	1.52	-1.11
Asia Pacific	0.75*	0.06		0.65*	0.35	-14.81*
Japan	0.77*	-2.21		0.77*	-2.22	1.88
Emerging Markets	1.25*	-2.05		1.26*	-2.08	-1.09

Panel B.3. Test Diagnostics

Test Assets	25 Size/B/M + 10 industry					25 Size/Momentum + 10 industry				
	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*
Perfect Segmentation										
North America	0.67	2.01	0.22	0.26	0.59	0.64	1.93	0.28	0.33	0.58
Europe	0.75	2.53	0.24	0.29	0.66	0.72	3.80	0.31	0.42	0.81
Asia Pacific	0.70	1.85	0.28	0.39	0.56	0.69	3.28	0.38	0.52	0.75
Japan	0.72	2.32	0.18	0.26	0.63	0.69	3.04	0.19	0.26	0.72
Emerging Markets	0.56	2.15	0.50	0.38	0.60	0.52	2.53	0.76	0.62	0.65
Partial Segmentation										
North America	0.68	2.01	0.23	0.26	0.59	0.65	1.94	0.29	0.34	0.58
Europe	0.75	2.53	0.24	0.30	0.66	0.72	3.77	0.32	0.43	0.80
Asia Pacific	0.70	2.02	0.29	0.40	0.59	0.69	3.42	0.39	0.52	0.77
Japan	0.73	2.27	0.22	0.25	0.63	0.70	3.00	0.20	0.24	0.72
Emerging Markets	0.58	2.16	0.46	0.38	0.61	0.53	2.42	0.74	0.65	0.64

Internet Appendix Table 7A, continued

Panel C reports statistics for global regression tests when the partial segmentation model consists of the CAPM-based local externality factor and the CAPM-based perfect integration model as the base model.

Panel C.1. Kan, Robotti, and Shanken (2013) Test on Global Experiments

Test Assets	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentumn + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
Global	0.08	0.06	*(0.41)*	0.02	0.00	*(0.64)*	0.14	0.12	*(0.20)*	0.00	0.00	*(0.96)*
Developed Only	0.06	0.00	*(0.95)*	0.04	0.00	*(0.69)*	0.03	0.02	*(0.63)*	0.02	0.01	*(0.35)*
Global excl. NA	0.08	0.00	*(0.87)*	0.07	0.05	***(0.05)***	0.14	0.00	*(0.89)*	0.03	0.02	*(0.25)*
Developed excl. NA	0.27	0.21	*(0.10)*	0.05	0.04	***(0.07)***	0.21	0.19	*(0.14)*	0.03	0.03	*(0.14)*

Panel C.2. Estimates of Zero-beta Rate, Risk Premia, and Prices of Covariance Risk on Global Experiments

	Fama-French for 25 Size/B/M + 10 industry			Carhart for 25 Size/Momentum + 10 industry		
i. Risk Premia						
	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{D}$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{D}$	$\hat{\gamma}_{EX\_L}$
Global	0.96*	-0.48	-0.07	0.61*	-0.06	-0.01
Developed Only	1.13*	-0.67	-0.06	0.32*	0.27	-0.12
Global excl. NA	0.84*	-0.45	-0.31*	0.77*	-0.30	-0.20
Developed excl. NA	0.71*	-0.38	-0.29	0.57*	-0.11	-0.23
ii. Prices of Covariance Risk						
	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{D}$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{D}$	$\hat{\lambda}_{EX\_L}$
Global	0.96*	-2.41	-2.13	0.61*	-0.30	-0.23
Developed Only	1.13*	-3.36	-1.84	0.32*	1.37	-4.11
Global excl. NA	0.84*	-2.20	-6.62*	0.77*	-1.47	-4.16
Developed excl. NA	0.71*	-1.85	-5.66	0.57*	-0.52	-4.60

Panel C.3. Test Diagnostics on Global Experiments

Test Assets	Fama-French for 25 Size/B/M + 10 industry					Carhart for 25 Size/Momentum + 10 industry				
	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*
Perfect Integration										
Global	0.75	3.07	0.24	0.30	0.72	0.70	2.84	0.26	0.35	0.70
Developed Only	0.76	3.11	0.22	0.26	0.73	0.71	2.68	0.19	0.26	0.68
Global excl. NA	0.68	2.23	0.24	0.30	0.62	0.63	2.34	0.27	0.37	0.63
Developed excl. NA	0.67	2.61	0.24	0.30	0.67	0.63	2.10	0.23	0.29	0.60
Partial Segmentation										
Global	0.79	3.03	0.30	0.34	0.73	0.74	2.91	0.34	0.42	0.71
Developed Only	0.80	3.02	0.26	0.27	0.73	0.75	2.72	0.27	0.31	0.69
Global excl. NA	0.74	2.06	0.28	0.32	0.60	0.71	2.36	0.33	0.40	0.64
Developed excl. NA	0.76	2.43	0.24	0.28	0.65	0.73	2.07	0.22	0.28	0.60

Internet Appendix Table 7A, continued

Panel D reports statistics for global regression tests when the partial segmentation model consists of the CAPM-based local externality factor, the CAPM-based global externality factor, and the CAPM-based perfect integration model as the base model.

Panel D.1. Kan, Robotti, and Shanken (2013) tests

Test Assets	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
Developed Only	0.30	0.24	*(0.25)*	0.07	0.03	*(0.28)*	0.29	0.29	*(0.13)*	0.15	0.15	***(0.01)***
Global excl. NA	0.10	0.02	*(0.89)*	0.07	0.05	*(0.14)*	0.29	0.15	*(0.38)*	0.05	0.04	*(0.27)*
Developed excl. NA	0.33	0.28	*(0.22)*	0.06	0.04	*(0.17)*	0.33	0.31	*(0.22)*	0.04	0.04	*(0.31)*

Panel D.2. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

	Perfect Integration		*Partial Segmentation*			
i. Risk Premia						
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
Developed Only	1.15*	-0.69	1.22*	-0.73	-0.06	0.75
Global excl. NA	0.83*	-0.46	0.82*	-0.47	-0.31	-0.02
Developed excl. NA	0.72*	-0.40	0.63*	-0.38	-0.29	-0.10
ii. Prices of Covariance Risk						
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
Developed Only	1.15*	-3.46	1.22*	-3.61	-3.50	3.59
Global excl. NA	0.83*	-2.29	0.82*	-2.33	-7.20	-2.16
Developed excl. NA	0.72*	-1.99	0.63*	-1.87	-6.84	-3.65

Panel D.3. Test Diagnostics

Test Assets	Fama-French for 25 Size/B/M + 10 industry					Carhart for 25 Size/Momentum + 10 industry				
	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*
Perfect Integration										
Developed Only	0.76	3.11	0.22	0.26	0.73	0.71	2.68	0.19	0.26	0.68
Global excl. NA	0.68	2.23	0.24	0.30	0.62	0.63	2.34	0.27	0.37	0.63
Developed excl. NA	0.67	2.61	0.24	0.30	0.67	0.63	2.10	0.23	0.29	0.60
Partial Segmentation										
Developed Only	0.81	2.98	0.26	0.27	0.72	0.76	2.69	0.28	0.29	0.69
Global excl. NA	0.78	2.03	0.32	0.32	0.60	0.75	2.43	0.37	0.39	0.65
Developed excl. NA	0.81	2.39	0.28	0.27	0.65	0.78	2.23	0.27	0.27	0.63

Internet Appendix Table 7A, continued

Panel E reports statistics for global regression tests when the partial segmentation model consists of the CAPM-based global externality factor and the CAPM-based perfect integration model as the base model.

Panel E.1. Kan, Robotti, and Shanken (2013) tests

Test Assets	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
Developed Only	0.27	0.21	*(0.12)*	0.07	0.03	*(0.15)*	0.29	0.29	***(0.05)***	0.12	0.12	***(0.01)***
Global excl. NA	0.09	0.02	*(0.66)*	0.02	0.00	*(0.79)*	0.23	0.10	*(0.18)*	0.05	0.04	*(0.18)*
Developed excl. NA	0.27	0.22	*(0.17)*	0.02	0.00	*(0.87)*	0.30	0.28	*(0.14)*	0.03	0.03	*(0.32)*

Panel E.2. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

	Perfect Integration		*Partial Segmentation*		
i. Risk Premia					
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{EX\_G}$
Developed Only	1.15*	-0.69	1.24*	-0.75	0.72
Global excl. NA	0.83*	-0.46	0.84*	-0.44	0.11
Developed excl. NA	0.72*	-0.40	0.74*	-0.40	0.06
ii. Prices of Covariance Risk					
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{EX\_G}$
Developed Only	1.15*	-3.46	1.08*	-3.78	3.23
Global excl. NA	0.83*	-2.29	0.84*	-2.17	1.77
Developed excl. NA	0.72*	-1.99	0.74*	-1.97	1.02

Panel E.3. Test Diagnostics

Test Assets	Fama-French for 25 Size/B/M + 10 industry					Carhart for 25 Size/Momentum + 10 industry				
	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*
Perfect Integration										
Developed Only	0.76	3.11	0.22	0.26	0.73	0.71	2.68	0.19	0.26	0.68
Global excl. NA	0.68	2.23	0.24	0.30	0.62	0.63	2.34	0.27	0.37	0.63
Developed excl. NA	0.67	2.61	0.24	0.30	0.67	0.63	2.10	0.23	0.29	0.60
Partial Segmentation										
Developed Only	0.76	3.09	0.22	0.26	0.73	0.72	2.68	0.19	0.25	0.68
Global excl. NA	0.74	2.14	0.27	0.30	0.61	0.70	2.32	0.31	0.36	0.63
Developed excl. NA	0.75	2.50	0.25	0.29	0.66	0.71	2.11	0.23	0.28	0.60

Internet Appendix Table 7A, continued

The regressions use the CAPM model to explain the returns on five sets of regional portfolios and on four sets of global portfolios. Five sets of regional portfolios are for North America, Europe, Japan, Asia Pacific (excluding Japan) and Emerging Markets *(in Panels A&B)*. Four sets of global portfolios include Global portfolios that combine all the five regions, Developed Markets portfolios that combine the first four regions, Global portfolios excluding North America, Developed Markets portfolios excluding North America*(in Panels C, D&E)*.The models are estimated using monthly returns on the 25 Fama-French size and B/M ranked portfolios and ten industry portfolios (*left in Panels A.1, A.3, B.1, B.3, C.1, C.3, D.1, D.3, E.1& E.3*) and those on size and momentum and ten industry portfolios (*right in Panels A.1, A.3, B.1, B.3, C.1, C.3, D.1, D.3, E.1& E.3*).Please see Internet Appendix Table 4C for details on the regression tests.

Four classes of models are investigated:

Perfect Segmentation CAPM:

$$r^e_i = \alpha_i + \beta_{iD} R_{D,m}$$

Partial Segmentation CAPM for Regional Portfolios:

$$r^e_i = \alpha_i + \beta_{i\mathrm{PS}} R_{D,m} + \eta_{i\mathrm{PS}}(f_D - f^*_D) + \kappa_{i\mathrm{PS}} f^*_F$$

Perfect Integration CAPM:

$$r^e_j = \alpha_j + \beta_{jW} R_{W,m}$$

Partial Segmentation CAPM for Global Portfolios:

$$r^e_j = \alpha_j + \beta_{j\mathrm{PS}} R_{W,m} + \eta_{j\mathrm{PS}}(f_F - f^*_F) - \kappa_{j\mathrm{PS}}(f_D - f^*_D)$$

The subscript designation of "*D*" on the market and factor portfolios implies that they are constructed only from domestic - or regional, in our experiments - stocks, "*F*" implies that they are constructed from foreign - or global, in our experiments - stocks, and "*W*" implies that they are constructed from all stocks around the world. The superscript "PS" denotes the intercept and the risk loadings for the partial-segmentation model. The Main CL Tier is used here.

Internet Appendix Table 8A, Over-identification Tests Using Only Globally Accessible Stocks as Test Assets

Panel A reports statistics for regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect integration model as the base model.

Panel A.1. Kan, Robotti, and Shanken (2013) tests

Test Assets	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
Developed Only	0.68	0.08	***(0.08)***	0.30	0.14	***(0.02)***	0.64	0.01	*(0.75)*	0.13	0.05	*(0.34)*
Global excl. NA	0.68	0.08	*(0.28)*	0.25	0.10	*(0.16)*	0.68	0.16	***(0.07)***	0.17	0.07	*(0.13)*
Developed excl. NA	0.66	0.09	*(0.42)*	0.26	0.16	***(0.03)***	0.52	0.14	*(0.35)*	0.09	0.01	*(0.83)*

Panel A.2. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

	Perfect Integration				*Partial Segmentation*					
i. Risk Premia										
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
Developed Only	0.73*	-0.04	0.61*	0.22	0.42	0.18	0.54*	0.30	0.93*	1.46
Global excl. NA	1.32*	-0.79*	0.33	0.39*	1.15*	-0.47	0.21	0.21	0.27	-1.43
Developed excl. NA	0.87*	-0.41	0.29	0.37	0.69*	-0.22	0.22	0.38	1.14*	-0.60
ii. Prices of Covariance Risk										
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
Developed Only	0.73*	-0.28	11.74*	5.05	0.42	1.66	10.90*	8.15*	11.47*	3.70
Global excl. NA	1.32*	-3.70	7.65	5.74	1.15*	-2.05	4.83	3.59	0.72	-7.08
Developed excl. NA	0.87*	-1.66	6.53	6.07	0.69*	-0.27	5.37	7.23*	9.86*	-2.66

Panel A.3.Test Diagnostics

Test Assets	Fama-French for 25 Size/B/M + 10 industry					Carhart for 25 Size/Momentum + 10 industry				
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*
Perfect Integration										
Developed Only	0.80	2.42	0.25	0.26	0.66	0.79	3.17	0.28	0.30	0.77
Global excl. NA	0.76	2.09	0.18	0.21	0.61	0.76	3.26	0.27	0.33	0.78
Developed excl. NA	0.74	1.89	0.18	0.21	0.58	0.74	3.69	0.23	0.31	0.83
Partial Segmentation										
Developed Only	0.80	1.48	0.19	0.21	0.56	0.80	2.73	0.24	0.29	0.74
Global excl. NA	0.77	1.84	0.15	0.19	0.59	0.77	3.16	0.24	0.31	0.78
Developed excl. NA	0.75	1.47	0.17	0.22	0.53	0.75	3.55	0.21	0.28	0.83

Internet Appendix Table 8A, continued

Panel B reports statistics for global regression tests when the partial segmentation model consists of the global externality factor and the perfect integration model as the base model.

Panel B.1. Kan, Robotti, and Shanken (2013) tests

Test Assets	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
Developed Only	0.60	0.00	*(0.75)*	0.19	0.03	*(0.27)*	0.63	0.00	*(0.98)*	0.08	0.00	*(0.70)*
Global excl. NA	0.66	0.06	*(0.16)*	0.25	0.10	***(0.07)***	0.54	0.02	*(0.53)*	0.12	0.02	*(0.43)*
Developed excl. NA	0.57	0.00	*(0.72)*	0.12	0.02	*(0.43)*	0.38	0.00	*(0.95)*	0.08	0.00	*(0.79)*

Panel B.2. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

	Perfect Integration				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}^L_0$	$\hat{\gamma}^L_{vw}$	$\hat{\gamma}^L_{Size}$	$\hat{\gamma}^L_{B/M}$	$\hat{\gamma}^{PS}_0$	$\hat{\gamma}^L_{vw}$	$\hat{\gamma}^L_{Size}$	$\hat{\gamma}^L_{B/M}$	$\hat{\gamma}_{EX\_G}$
Developed Only	0.73*	-0.04	0.61*	0.22	0.68*	0.00	0.61*	0.23	1.30
Global excl. NA	1.32*	-0.79*	0.33	0.39*	1.15*	-0.46	0.21	0.20	-1.44
Developed excl. NA	0.87*	-0.41	0.29	0.37	0.82*	-0.29	0.24	0.30	-0.58
ii. Prices of Covariance Risk									
	$\hat{\lambda}^L_0$	$\hat{\lambda}^L_{vw}$	$\hat{\lambda}^L_{Size}$	$\hat{\lambda}^L_{B/M}$	$\hat{\lambda}^{PS}_0$	$\hat{\lambda}^L_{vw}$	$\hat{\lambda}^L_{Size}$	$\hat{\lambda}^L_{B/M}$	$\hat{\lambda}_{EX\_G}$
Developed Only	0.73*	-0.28	11.74*	5.05	0.68*	0.08	11.85	5.64*	3.23*
Global excl. NA	1.32*	-3.70	7.65	5.74	1.15	-2.06	4.77	3.28	-7.27
Developed excl. NA	0.87*	-1.66	6.53	6.07	0.82	-1.09	5.34	5.05	-3.05

Panel B.3. Test Diagnostics

Test Assets	Fama-French for 25 Size/B/M + 10 industry					Carhart for 25 Size/Momentum + 10 industry				
	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*
Perfect Integration										
Developed Only	0.80	2.42	0.25	0.26	0.66	0.79	3.17	0.28	0.30	0.77
Global excl. NA	0.76	2.09	0.18	0.21	0.61	0.76	3.26	0.27	0.33	0.78
Developed excl. NA	0.74	1.89	0.18	0.21	0.58	0.74	3.69	0.23	0.31	0.83
Partial Segmentation										
Developed Only	0.80	2.24	0.24	0.24	0.64	0.79	3.11	0.27	0.30	0.77
Global excl. NA	0.77	1.92	0.17	0.20	0.59	0.77	3.43	0.27	0.34	0.80
Developed excl. NA	0.75	1.81	0.18	0.22	0.57	0.75	3.73	0.23	0.31	0.83

Internet Appendix Table 8A, continued

Panel C reports statistics for regression tests using the most recent ten years of monthly returns when the partial segmentation model consists of the local externality factor and the perfect integration model as the base model.

Panel C.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
Global	0.63	0.00	*(0.80)*	0.17	0.02	*(0.37)*	0.63	0.00	*(0.78)*	0.12	0.02	*(0.34)*
Developed Only	0.75	0.00	*(0.91)*	0.13	0.01	*(0.55)*	0.61	0.01	*(0.59)*	0.05	0.00	*(0.72)*
Global excl. NA	0.67	0.04	*(0.25)*	0.26	0.08	*(0.14)*	0.61	0.00	*(0.86)*	0.09	0.02	*(0.40)*
Developed excl. NA	0.75	0.00	*(0.77)*	0.23	0.00	*(0.70)*	0.48	0.01	*(0.56)*	0.09	0.04	*(0.24)*

Panel C.2. Estimates of Zero-beta Rate, Risk Premia, and Prices of Covariance Risk

	Fama-French for 25 Size/B/M + 10 industry					Carhart for 25 Size/Momentum + 10 industry					
i. Risk Premia											
	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{W}$	$\hat{\gamma}_{Size}^{W}$	$\hat{\gamma}_{B/M}^{W}$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{W}$	$\hat{\gamma}_{Size}^{W}$	$\hat{\gamma}_{B/M}^{W}$	$\hat{\gamma}_{Mom}^{W}$	$\hat{\gamma}_{EX\_L}$
Global	0.48	-0.02	0.55	0.82*	0.41	0.47	0.04	0.84*	0.34	0.58	0.45
Developed Only	0.21	0.25	0.58	0.55*	0.23	0.22	0.29	0.41	0.33	0.40	-0.20
Global excl. NA	1.27*	-0.71	0.55	0.56*	-0.98*	0.35	0.14	0.74	0.28	0.26	-0.81
Developed excl. NA	0.70	-0.27	0.49	0.74*	-0.20	-0.07	0.49	0.13	0.41	0.53	-1.04
ii. Prices of Covariance Risk											
	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{W}$	$\hat{\lambda}_{Size}^{W}$	$\hat{\lambda}_{B/M}^{W}$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{W}$	$\hat{\lambda}_{Size}^{W}$	$\hat{\lambda}_{B/M}^{W}$	$\hat{\lambda}_{Mom}^{W}$	$\hat{\lambda}_{EX\_L}$
Global	0.48	-0.40	11.72	16.27*	9.16	0.47	-0.01	16.95*	6.74	1.47	8.59
Developed Only	0.21	0.55	11.70	11.21*	4.88	0.22	1.39	7.67	5.49	1.61	-3.38
Global excl. NA	1.27*	-3.13	12.08	10.66*	-15.93*	0.35	-0.18	14.67	5.60	0.02	-8.26
Developed excl. NA	0.70	-1.31	10.45	14.25*	-2.47	-0.07	3.00	1.21	5.38	3.08	-13.24

Panel C.3. Test Diagnostics

Test Assets	Fama-French for 25 Size/B/M + 10 industry					Carhart for 25 Size/Momentum + 10 industry				
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*
Perfect Integration										
Global	0.88	1.76	0.25	0.30	0.93	0.87	2.52	0.30	0.34	1.11
Developed Only	0.86	1.59	0.19	0.24	0.88	0.85	2.21	0.25	0.30	1.04
Global excl. NA	0.84	1.69	0.24	0.30	0.91	0.85	2.82	0.28	0.34	1.18
Developed excl. NA	0.82	1.02	0.19	0.23	0.71	0.82	2.80	0.26	0.34	1.17
Partial Segmentation										
Global	0.88	1.73	0.25	0.29	0.92	0.88	2.48	0.29	0.33	1.11
Developed Only	0.86	1.54	0.19	0.24	0.87	0.85	2.29	0.25	0.29	1.08
Global excl. NA	0.84	1.80	0.24	0.30	0.94	0.85	2.85	0.28	0.33	1.19
Developed excl. NA	0.83	1.03	0.19	0.23	0.72	0.82	2.89	0.25	0.34	1.21

Internet Appendix Table 8A, continued

Panel D reports statistics for global regression tests using monthly returns on 5 Size/B/M (Size/Momentum) Portfolios and Industry Portfolios when the partial segmentation model consists of the local externality factor and the perfect integration model as the base model.

Panel D.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
Global	0.71	0.38	*(0.11)*	0.68	0.11	*(0.24)*	0.56	0.05	*(0.63)*	0.67	0.05	*(0.51)*
Developed Only	0.65	0.30	*(0.16)*	0.63	0.05	*(0.35)*	0.66	0.16	*(0.27)*	0.64	0.12	*(0.31)*
Global excl. NA	0.84	0.28	*(0.17)*	0.40	0.36	***(0.03)***	0.81	0.21	***(0.06)***	0.26	0.23	*(0.12)*
Developed excl. NA	0.82	0.22	*(0.16)*	0.28	0.23	***(0.04)***	0.85	0.20	*(0.10)*	0.16	0.08	*(0.27)*

Panel D.2. Estimates of Zero-beta Rate, Risk Premia, and Prices of Covariance Risk

	Fama-French for 5 Size/B/M + 10 industry					Carhart for 5 Size/Momentum + 10 industry					
i. Risk Premia											
	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{W}$	$\hat{\gamma}_{Size}^{W}$	$\hat{\gamma}_{B/M}^{W}$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{W}$	$\hat{\gamma}_{Size}^{W}$	$\hat{\gamma}_{B/M}^{W}$	$\hat{\gamma}_{Mom}^{W}$	$\hat{\gamma}_{EX\_L}$
Global	0.74	0.02	1.46	0.04	1.69	1.41	-0.54	1.61	-0.22	0.42	0.83
Developed Only	1.18	-0.13	1.91*	-0.26	0.86	1.21	-0.24	1.67	-0.05	0.40	0.99
Global excl. NA	0.64	-0.17	0.14	0.46	1.95*	0.46	-0.05	-0.20	0.35	0.11	1.42
Developed excl. NA	0.58	-0.09	0.24	0.36	1.20*	0.31	0.12	-0.30	0.28	-0.25	0.62
ii. Prices of Covariance Risk											
	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{W}$	$\hat{\lambda}_{Size}^{W}$	$\hat{\lambda}_{B/M}^{W}$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{W}$	$\hat{\lambda}_{Size}^{W}$	$\hat{\lambda}_{B/M}^{W}$	$\hat{\lambda}_{Mom}^{W}$	$\hat{\lambda}_{EX\_L}$
Global	0.74	-0.30	27.53	6.11	20.39	1.41	-4.69	29.83	-0.82	-0.90	10.34
Developed Only	1.18	-2.46	34.84*	0.78	10.28	1.21	-2.57	31.05	3.25	-0.22	16.04
Global excl. NA	0.64	0.34	4.21	8.95*	16.96*	0.46	1.36	-3.12	6.61	1.88	10.43
Developed excl. NA	0.58	0.32	5.61	7.19	10.63*	0.31	1.54	-4.83	4.45	-0.14	4.91

Panel C.3. Test Diagnostics

Test Assets	Fama-French for 25 Size/B/M + 10 industry					Carhart for 25 Size/Momentum + 10 industry				
	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*
Perfect Integration										
Global	0.76	3.72	0.21	0.28	0.51	0.76	2.91	0.22	0.29	0.46
Developed Only	0.75	3.78	0.21	0.28	0.51	0.75	2.82	0.22	0.28	0.45
Global excl. NA	0.71	2.40	0.18	0.22	0.41	0.72	3.17	0.26	0.31	0.48
Developed excl. NA	0.69	2.34	0.18	0.22	0.41	0.70	2.80	0.24	0.30	0.45
Partial Segmentation										
Global	0.77	1.98	0.11	0.15	0.40	0.76	2.15	0.16	0.23	0.40
Developed Only	0.76	2.10	0.14	0.19	0.41	0.75	2.02	0.16	0.22	0.39
Global excl. NA	0.71	1.74	0.14	0.18	0.36	0.72	2.54	0.20	0.25	0.44
Developed excl. NA	0.70	1.67	0.18	0.22	0.35	0.70	2.38	0.18	0.23	0.42

Internet Appendix Table 8A, continued

The regressions use the Fama-French three-factor model (*left in the panels*) and the Carhart four-factor model (*right in the panels*) to explain the returns on four sets of global portfolios. Here four sets of global portfolios include Global portfolios, Developed Markets portfolios, Global portfolios excluding North America, Developed Markets portfolios excluding North America. The models are estimated using monthly returns on the 25 Fama-French size and B/M ranked portfolios and ten industry portfolios (*left in the panels*) and those on size and momentum and ten industry portfolios (*right in the panels*). The table presents regression results of the benchmark of the perfect integration model and the partial segmentation model. Please see Internet Appendix Table 4C for details on the regression tests and Internet Appendix Table 4D on the model specifications.

Internet Appendix Table 8B, Over-identification Tests Using All Stocks Since 2000 as Test Assets

Panel A: Kan, Robotti, and Shanken (2013) Test

Test Assets	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
Global	0.84	0.02	*(0.24)*	0.24	0.00	*(0.93)*	0.84	0.11	***(0.00)***	0.14	0.01	*(0.36)*
Developed Only	0.80	0.00	*(0.94)*	0.19	0.01	*(0.50)*	0.68	0.02	*(0.45)*	0.09	0.02	*(0.39)*
Global excl. NA	0.85	0.00	*(0.89)*	0.31	0.00	*(0.86)*	0.78	0.12	***(0.02)***	0.07	0.01	*(0.30)*
Developed excl. NA	0.87	0.00	*(0.73)*	0.30	0.00	*(0.82)*	0.61	0.04	*(0.36)*	0.07	0.02	*(0.32)*

Panel B: Estimates of Zero-beta Rate, Risk Premia, and Prices of Covariance Risk

	Fama-French for 25 Size/B/M + 10 industry					Carhart for 25 Size/Momentum + 10 industry					
i. Risk Premia											
	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{W}$	$\hat{\gamma}_{Size}^{W}$	$\hat{\gamma}_{B/M}^{W}$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{W}$	$\hat{\gamma}_{Size}^{W}$	$\hat{\gamma}_{B/M}^{W}$	$\hat{\gamma}_{Mom}^{W}$	$\hat{\gamma}_{EX\_L}$
Global	0.47	-0.20	0.39	1.04*	-0.06	-0.17	0.47	0.57*	0.83*	0.19	0.24
Developed Only	0.55	-0.36	0.32	0.87*	0.21	-0.35	0.57	0.24	0.75*	0.22	0.36
Global excl. NA	0.17	-0.07	0.37	1.08*	0.05	0.48	-0.18	0.27	0.66	0.20	0.40
Developed excl. NA	0.37	-0.38	0.06	1.16*	-0.11	0.41	-0.29	0.01	0.48	0.40	-0.46
ii. Prices of Covariance Risk											
	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{W}$	$\hat{\lambda}_{Size}^{W}$	$\hat{\lambda}_{B/M}^{W}$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{W}$	$\hat{\lambda}_{Size}^{W}$	$\hat{\lambda}_{B/M}^{W}$	$\hat{\lambda}_{Mom}^{W}$	$\hat{\lambda}_{EX\_L}$
Global	0.47	-0.13	10.39*	16.91*	-0.49	-0.17	2.01	12.09*	15.41*	-0.37	5.02
Developed Only	0.55	-0.88	8.78	14.04*	3.90	-0.35	3.14	5.81	13.14*	0.98	7.94
Global excl. NA	0.17	0.45	10.09*	17.51*	0.98	0.48	-0.44	7.38	10.97*	-0.36	4.48
Developed excl. NA	0.37	-0.42	5.85	17.12*	-1.08	0.41	-0.28	1.29	6.50	1.28	-5.38

Panel C: Test Diagnostics

Test Assets	Fama-French for 25 Size/B/M + 10 industry					Carhart for 25 Size/Momentum + 10 industry				
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*
Perfect Integration										
Global	0.89	1.74	0.17	0.22	0.87	0.87	2.54	0.23	0.31	1.06
Developed Only	0.87	1.71	0.17	0.23	0.87	0.87	2.31	0.22	0.28	1.01
Global excl. NA	0.84	1.05	0.16	0.21	0.68	0.83	2.06	0.23	0.32	0.95
Developed excl. NA	0.81	1.05	0.30	0.27	0.68	0.80	2.10	0.27	0.29	0.96
Partial Segmentation										
Global	0.90	1.71	0.17	0.21	0.87	0.88	2.47	0.21	0.28	1.05
Developed Only	0.87	1.70	0.17	0.23	0.87	0.87	2.16	0.20	0.26	0.99
Global excl. NA	0.85	1.03	0.16	0.21	0.68	0.84	2.03	0.20	0.29	0.95
Developed excl. NA	0.82	1.05	0.27	0.25	0.68	0.81	2.08	0.22	0.27	0.97

Internet Appendix Table 8B, continued

The regressions use the Fama-French three-factor model (*left in the panels*) and the Carhart four-factor model (*right in the panels*) to explain the returns on four sets of global portfolios. Here four sets of global portfolios include Global portfolios, Developed Markets portfolios, Global portfolios excluding North America, Developed Markets portfolios excluding North America. The models are estimated using monthly returns on the 25 Fama-French size and B/M ranked portfolios and ten industry portfolios (*left in the panels*) and those on size and momentum and ten industry portfolios (*right in the panels*). The table presents regression results of the benchmark of the perfect integration model and the partial segmentation model. Please see Internet Appendix Table 4C for details on the regression tests and Internet Appendix Table 4D on the model specifications.

Internet Appendix Table 9A, Placebo Tests of Partial Segmentation Models Using Monthly Excess Returns on 25 Size/B/M Portfolios and Industry Portfolios

Panel A reports statistics for regional regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect segmentation model as the base model.

Panel A.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Perfect Segmentation	Partial Segmentation											
		Main CL Tier			*Placebo Tests*								
					Size			Liquidity			PCA		
	ρ^2	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*
North America	0.11	0.25	0.14	***(0.02)***	0.15	0.04	*(0.40)*	0.14	0.03	*(0.42)*	0.11	0.01	*(0.86)*
Europe	0.16	0.25	0.09	***(0.07)***	0.21	0.04	*(0.24)*	0.24	0.07	*(0.14)*	0.18	0.02	*(0.59)*
Asia Pacific	0.18	0.39	0.22	***(0.01)***	0.34	0.17	***(0.00)***	0.21	0.03	*(0.49)*	0.25	0.08	*(0.33)*
Japan	0.18	0.34	0.16	***(0.08)***	0.22	0.04	*(0.40)*	0.25	0.07	*(0.25)*	0.21	0.03	*(0.61)*
Emerging Markets	0.27	0.35	0.08	***(0.09)***	0.33	0.06	*(0.20)*	0.30	0.03	*(0.56)*	0.32	0.05	*(0.38)*

Panel A.2. Test Diagnostics

Test Assets	Perfect Segmentation	Partial Segmentation											
		Main CL Tier			*Placebo Tests*								
					Size			Liquidity			PCA		
	R^2	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$
North America	0.83	0.84	1.72	0.12	0.84	2.03	0.15	0.84	1.77	0.14	0.83	1.82	0.15
Europe	0.86	0.87	1.78	0.14	0.87	2.33	0.20	0.87	1.97	0.17	0.86	1.93	0.15
Asia Pacific	0.78	0.80	1.31	0.27	0.80	1.48	0.26	0.79	1.50	0.30	0.78	1.45	0.29
Japan	0.85	0.86	1.75	0.10	0.85	2.66	0.14	0.85	1.96	0.16	0.85	2.48	0.22
Emerging Markets	0.62	0.69	1.54	0.23	0.64	1.93	0.56	0.63	1.96	0.52	0.63	1.76	0.38

Internet Appendix Table 9A, continued

Panel A.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

a) Main CL Tier

i. Risk Premia

	Perfect Segmentation				*Partial Segmentation*					
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.49	0.25	0.36	0.34	0.77*	-0.14*
Europe	0.17	0.40	-0.16	0.66*	0.44	0.14	-0.16	0.65*	0.10	0.30
Asia Pacific	0.71*	0.05	0.01	0.71*	0.81*	-0.07	-0.02	0.73*	0.96*	1.24*
Japan	0.74*	-0.77	-0.18	0.50*	0.68*	-0.70	-0.17	0.47*	0.20	1.71*
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.54*	-1.13	0.31	0.90*	0.90*	-0.03

ii. Prices of Covariance Risk

	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.49	1.52	4.53*	4.89*	6.92	-9.87
Europe	0.17	2.09	-2.62	9.87*	0.44	1.15	-2.74	10.21*	8.43*	48.54*
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.81*	0.45	-1.26	8.34*	4.69*	12.65*
Japan	0.74*	-0.88	-0.34	6.09*	0.68*	-0.64	-0.38	6.43*	0.43	7.39*
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.54*	-3.15	4.75*	6.48*	3.36*	-8.85

b) Size

i. Risk Premia

	Perfect Segmentation				*Partial Segmentation*					
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.56	0.17	0.36	0.33	0.43	-0.08
Europe	0.17	0.40	-0.16	0.66*	-0.12	0.70	-0.15	0.66*	0.15	-0.19
Asia Pacific	0.71*	0.05	0.01	0.71*	0.70*	0.06	0.00	0.72*	1.27*	-0.09
Japan	0.74*	-0.77	-0.18	0.50*	0.74*	-0.77	-0.17	0.50*	0.09	0.15
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.72*	-1.30	0.27	0.94*	0.99	0.02

ii. Prices of Covariance Risk

	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.56	0.88	4.64	4.48*	2.95	-10.85
Europe	0.17	2.09	-2.62	9.87*	-0.12	3.31	-2.60	10.06*	1.20	-18.96
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.70*	0.72	-1.14	8.00*	3.72*	-8.41
Japan	0.74*	-0.88	-0.34	6.09*	0.74*	-0.83	-0.30	6.28*	0.33	11.81
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.72*	-3.56	4.55	6.79*	2.64	16.61

Internet Appendix Table 9A, continued

Panel A.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry, continued

c) Liquidity

	Perfect Segmentation				*Partial Segmentation*					
i. Risk Premia										
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.71*	0.03	0.36	0.33	-0.03	0.51
Europe	0.17	0.40	-0.16	0.66*	0.60	-0.03	-0.16	0.66*	-0.17	-0.78
Asia Pacific	0.71*	0.05	0.01	0.71*	0.73*	0.03	0.01	0.72*	0.01	1.08
Japan	0.74*	-0.77	-0.18	0.50*	0.77*	-0.81*	-0.18	0.47*	0.01	1.06
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.31*	-0.89	0.33	0.93*	-0.07	-0.83
ii. Prices of Covariance Risk										
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.71	-0.04	4.87*	4.11*	-26.56	2.94
Europe	0.17	2.09	-2.62	9.87*	0.60	0.30	-2.63	9.88*	-26.03	-9.71
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.73*	0.49	-0.95	7.59*	4.86	2.06
Japan	0.74*	-0.88	-0.34	6.09*	0.77*	-0.95	-0.39	6.26*	55.09	3.94
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.31*	-2.57	4.76	6.47*	-9.67	-3.68

d) PCA

	Perfect Segmentation				*Partial Segmentation*					
i. Risk Premia										
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.62	0.07	0.36	0.20	0.02	0.08
Europe	0.17	0.40	-0.16	0.66*	0.24	0.33	-0.16	0.66*	-0.02	-0.05
Asia Pacific	0.71*	0.05	0.01	0.71*	0.95*	-0.21	-0.03	0.75*	0.07	-0.04
Japan	0.74*	-0.77	-0.18	0.50*	0.76*	-0.80*	-0.18	0.49*	0.00	0.16
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.78*	-1.39	0.34	0.94*	0.04	-1.00
ii. Prices of Covariance Risk										
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.62	0.02	4.43	3.04	69.74	6.33
Europe	0.17	2.09	-2.62	9.87*	0.24	1.81	-2.69	9.95*	-47.50	-34.35
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.95*	0.00	-1.19	8.39*	241.97	-5.34
Japan	0.74*	-0.88	-0.34	6.09*	0.76*	-1.00	-0.33	5.95*	464.00	10.42
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.78*	-3.83	5.13*	6.72*	33.53	-8.16

Internet Appendix Table 9A, continued

Panel B reports statistics for regional regression tests when the partial segmentation model consists of the local externality factor and the perfect segmentation model as the base model.

Panel B.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Perfect Segmentation	Partial Segmentation											
		Main CL Tier			*Placebo Tests*								
					Size			Liquidity			PCA		
	ρ^2	ρ^2	$\Delta\rho^2$	*p-Value*	ρ^2	$\Delta\rho^2$	*p-Value*	ρ^2	$\Delta\rho^2$	*p-Value*	ρ^2	$\Delta\rho^2$	*p-Value*
North America	0.11	0.24	0.13	***(0.01)***	0.14	0.03	*(0.19)*	0.13	0.02	*(0.34)*	0.11	0.01	*(0.60)*
Europe	0.16	0.18	0.02	*(0.37)*	0.18	0.01	*(0.41)*	0.20	0.04	*(0.18)*	0.17	0.00	*(0.65)*
Asia Pacific	0.18	0.26	0.09	***(0.03)***	0.33	0.16	***(0.00)***	0.21	0.03	*(0.23)*	0.25	0.08	*(0.15)*
Japan	0.18	0.22	0.03	*(0.25)*	0.19	0.00	*(0.69)*	0.23	0.04	*(0.22)*	0.19	0.00	*(0.70)*
Emerging Markets	0.27	0.34	0.08	***(0.03)***	0.32	0.05	***(0.09)***	0.30	0.03	*(0.34)*	0.29	0.02	*(0.32)*

Panel B.2. Test Diagnostics

Test Assets	Perfect Segmentation	Partial Segmentation											
		Main CL Tier			*Placebo Tests*								
					Size			Liquidity			PCA		
	R^2	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$
North America	0.83	0.84	1.45	0.11	0.83	1.82	0.15	0.83	1.80	0.14	0.83	1.82	0.15
Europe	0.86	0.87	1.91	0.15	0.87	2.32	0.19	0.86	1.88	0.16	0.86	1.98	0.15
Asia Pacific	0.78	0.80	1.47	0.29	0.79	1.23	0.26	0.78	1.50	0.30	0.78	1.45	0.29
Japan	0.85	0.85	1.93	0.11	0.85	2.71	0.14	0.85	1.95	0.14	0.85	2.48	0.22
Emerging Markets	0.62	0.66	1.53	0.26	0.64	1.76	0.52	0.63	1.97	0.52	0.63	1.77	0.39

Internet Appendix Table 9A, continued

Panel B.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

a) Main CL Tier

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$
North America	0.68*	0.06	0.36	0.33	0.54	0.21	0.36	0.33	0.79*
Europe	0.17	0.40	-0.16	0.66*	0.01	0.56	-0.15	0.65*	0.37
Asia Pacific	0.71*	0.05	0.01	0.71*	0.84*	-0.06	0.00	0.72*	0.89*
Japan	0.74*	-0.77	-0.18	0.50*	0.74*	-0.77	-0.17	0.50*	0.29
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.39*	-0.98	0.31	0.91*	0.88*
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$
North America	0.68*	0.08	4.78*	4.10*	0.54	1.28	4.67*	4.81*	8.29*
Europe	0.17	2.09	-2.62	9.87*	0.01	2.79	-2.63	9.96*	4.14
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.84	0.26	-0.94	7.61*	3.88*
Japan	0.74*	-0.88	-0.34	6.09*	0.74	-0.87	-0.33	6.16*	3.16
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.39	-2.77	4.74*	6.58*	3.05*

b) Size

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$
North America	0.68*	0.06	0.36	0.33	0.60*	0.14	0.37	0.33	0.43
Europe	0.17	0.40	-0.16	0.66*	-0.10	0.67	-0.15	0.64*	0.27
Asia Pacific	0.71*	0.05	0.01	0.71*	0.70*	0.07	0.00	0.72*	1.36*
Japan	0.74*	-0.77	-0.18	0.50*	0.74*	-0.77	-0.18	0.50*	0.08
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.70*	-1.28	0.29	0.93*	1.10
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$
North America	0.68*	0.08	4.78*	4.10*	0.60*	0.74	4.78*	4.48*	3.74
Europe	0.17	2.09	-2.62	9.87*	-0.10	3.29	-2.64	10.16*	3.55
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.70*	0.77	-1.16	8.03*	4.17*
Japan	0.74*	-0.88	-0.34	6.09*	0.74*	-0.87	-0.34	6.11*	1.09
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.70*	-3.51	4.57*	6.63*	2.89

Internet Appendix Table 9A, continued

Panel B.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry, continued

c) Liquidity

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$
North America	0.68*	0.06	0.36	0.33	0.72*	0.02	0.36	0.33	0.49
Europe	0.17	0.40	-0.16	0.66*	0.21	0.35	-0.16	0.65*	-0.80
Asia Pacific	0.71*	0.05	0.01	0.71*	0.74*	0.02	0.01	0.72*	1.10
Japan	0.74*	-0.77	-0.18	0.50*	0.76*	-0.80*	-0.18	0.49*	0.90
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.21	-0.78	0.34	0.92*	-0.85
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$
North America	0.68*	0.08	4.78*	4.10*	0.72*	-0.14	4.88*	4.01	2.84
Europe	0.17	2.09	-2.62	9.87*	0.21	1.97	-2.69	10.08*	-8.14
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.74*	0.48	-0.95	7.63*	2.03
Japan	0.74*	-0.88	-0.34	6.09*	0.76*	-0.90	-0.36	6.38*	3.13
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.21	-2.29	4.81*	6.39*	-3.76

d) PCA

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$
North America	0.68*	0.06	0.36	0.33	0.53	0.16	0.36	0.20	0.02
Europe	0.17	0.40	-0.16	0.66*	0.20	0.37	-0.16	0.66*	-0.03
Asia Pacific	0.71*	0.05	0.01	0.71*	0.96*	-0.22	-0.03	0.75*	0.07
Japan	0.74*	-0.77	-0.18	0.50*	0.75*	-0.79*	-0.18	0.50*	0.00
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.49*	-1.09	0.29	0.96*	0.04
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$
North America	0.68*	0.08	4.78*	4.10*	0.53	0.53	4.20	3.18	60.66
Europe	0.17	2.09	-2.62	9.87*	0.20	1.93	-2.66	9.83*	-53.54
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.96*	-0.03	-1.19	8.35*	247.16
Japan	0.74*	-0.88	-0.34	6.09*	0.75*	-0.92	-0.36	6.14*	267.75
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.49*	-3.04	4.56*	6.78*	32.20

Internet Appendix Table 9A, continued

Panel C for regression tests when the partial segmentation model consists of the global externality factor and the perfect segmentation model as the base model.

Panel C.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Perfect Segmentation	Partial Segmentation											
		Main CL Tier			*Placebo Tests*								
					Size			Liquidity			PCA		
	ρ^2	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*
North America	0.11	0.18	0.08	***(0.04)***	0.13	0.02	*(0.35)*	0.12	0.01	*(0.45)*	0.11	0.00	*(0.84)*
Europe	0.16	0.20	0.04	*(0.19)*	0.21	0.04	*(0.11)*	0.18	0.02	*(0.33)*	0.18	0.01	*(0.35)*
Asia Pacific	0.18	0.27	0.09	***(0.08)***	0.24	0.06	***(0.08)***	0.18	0.00	*(0.79)*	0.18	0.01	*(0.66)*
Japan	0.18	0.34	0.16	***(0.03)***	0.22	0.04	*(0.17)*	0.19	0.00	*(0.66)*	0.20	0.02	*(0.44)*
Emerging Markets	0.27	0.27	0.00	*(0.87)*	0.29	0.02	*(0.40)*	0.27	0.01	*(0.61)*	0.30	0.04	*(0.29)*

Panel C.2. Test Diagnostics

Test Assets	Perfect Segmentation	Partial Segmentation											
		Main CL Tier			*Placebo Tests*								
					Size			Liquidity			PCA		
	R^2	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$
North America	0.83	0.84	1.90	0.13	0.83	2.02	0.15	0.83	1.79	0.14	0.83	1.83	0.15
Europe	0.86	0.87	1.95	0.14	0.87	2.32	0.16	0.87	2.07	0.16	0.86	1.94	0.15
Asia Pacific	0.78	0.78	1.42	0.29	0.79	2.10	0.31	0.79	1.57	0.30	0.78	1.56	0.29
Japan	0.85	0.85	1.76	0.11	0.85	1.92	0.12	0.85	2.03	0.15	0.85	2.03	0.15
Emerging Markets	0.62	0.65	1.70	0.26	0.62	1.81	0.49	0.62	1.78	0.45	0.62	1.79	0.44

Internet Appendix Table 9A, continued

Panel C.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

a) Main CL Tier

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.49	0.24	0.36	0.35	-0.16*
Europe	0.17	0.40	-0.16	0.66*	0.56	0.03	-0.16	0.67*	0.27
Asia Pacific	0.71*	0.05	0.01	0.71*	0.67*	0.07	0.00	0.73*	1.07
Japan	0.74*	-0.77	-0.18	0.50*	0.68*	-0.70	-0.17	0.47*	1.74*
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.36*	-0.94	0.31	0.95*	0.01
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.49	1.24	4.36*	4.62*	-25.97*
Europe	0.17	2.09	-2.62	9.87*	0.56	0.56	-2.68	9.97*	31.32
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.67	0.73	-1.20	7.99*	10.54
Japan	0.74*	-0.88	-0.34	6.09*	0.68	-0.63	-0.39	6.43*	7.58*
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.36	-2.69	4.71*	6.66*	2.39

b) Size

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.58	0.15	0.36	0.33	-0.10
Europe	0.17	0.40	-0.16	0.66*	-0.04	0.62	-0.15	0.66*	-0.19
Asia Pacific	0.71*	0.05	0.01	0.71*	0.72*	0.05	0.01	0.73*	-0.14*
Japan	0.74*	-0.77	-0.18	0.50*	0.74*	-0.77	-0.17	0.50*	0.15
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.49*	-1.09	0.28	0.97*	0.05
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.58	0.61	4.51*	4.25*	-20.80
Europe	0.17	2.09	-2.62	9.87*	-0.04	2.96	-2.59	9.97*	-20.28
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.72*	0.48	-0.93	7.52*	-20.11
Japan	0.74*	-0.88	-0.34	6.09*	0.74*	-0.83	-0.30	6.28*	12.10
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.49*	-3.03	4.64*	6.99*	35.41

Internet Appendix Table 9A, continued

Panel C.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry, continued

c) Liquidity

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.67*	0.07	0.36	0.34	-0.02
Europe	0.17	0.40	-0.16	0.66*	0.44	0.13	-0.16	0.67*	-0.18
Asia Pacific	0.71*	0.05	0.01	0.71*	0.71*	0.06	0.01	0.71*	0.02
Japan	0.74*	-0.77	-0.18	0.50*	0.74*	-0.77	-0.18	0.49*	0.01
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.50*	-1.10	0.30	0.96*	-0.08
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.67*	0.17	4.77*	4.19*	-25.14
Europe	0.17	2.09	-2.62	9.87*	0.44	0.88	-2.56	9.69*	-19.08
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.71*	0.54	-0.92	7.39*	3.92
Japan	0.74*	-0.88	-0.34	6.09*	0.74*	-0.89	-0.35	6.00*	23.86
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.50*	-3.09	4.65*	6.72*	-10.71

d) PCA

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.49	0.20	0.38	0.21	0.01
Europe	0.17	0.40	-0.16	0.66*	0.22	0.36	-0.16	0.66*	-0.06
Asia Pacific	0.71*	0.05	0.01	0.71*	0.71*	0.06	0.01	0.72*	-0.05
Japan	0.74*	-0.77	-0.18	0.50*	0.74*	-0.77	-0.17	0.49*	0.14
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.68*	-1.28	0.37	0.93*	-1.00
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.49	0.64	4.29	3.26	0.86
Europe	0.17	2.09	-2.62	9.87*	0.22	1.94	-2.66	9.99*	-35.48
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.71*	0.57	-0.93	7.59*	-16.56
Japan	0.74*	-0.88	-0.34	6.09*	0.74*	-0.92	-0.31	5.91*	8.27
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.68*	-3.57	5.27*	6.56*	-8.00

Internet Appendix Table 9A, continued

Panel D reports statistics for global regression tests when the partial segmentation model consists of the local externality factor and the perfect integration model as the base model.

Panel D.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Perfect Integration	Partial Segmentation											
		Main CL Tier			*Placebo Tests*								
					Size			Liquidity			PCA		
	ρ^2	ρ^2	$\Delta\,\rho^2$	*p-Value*	ρ^2	$\Delta\,\rho^2$	*p-Value*	ρ^2	$\Delta\,\rho^2$	*p-Value*	ρ^2	$\Delta\,\rho^2$	*p-Value*
Global	0.13	0.30	0.17	***(0.00)***	0.14	0.01	*(0.44)*	0.14	0.00	*(0.59)*	0.13	0.00	*(0.68)*
Developed Only	0.12	0.25	0.12	***(0.00)***	0.16	0.04	*(0.14)*	0.14	0.02	*(0.22)*	0.12	0.00	*(0.77)*
Global excl. NA	0.17	0.34	0.16	***(0.00)***	0.32	0.14	***(0.00)***	0.18	0.00	*(0.72)*	0.24	0.06	***(0.08)***
Developed only excl.NA	0.13	0.24	0.12	***(0.00)***	0.17	0.04	*(0.14)*	0.13	0.00	*(0.87)*	0.16	0.03	*(0.17)*

Panel D.2. Test Diagnostics

Test Assets	Perfect Integration	Partial Segmentation											
		Main CL Tier			*Placebo Tests*								
					Size			Liquidity			PCA		
	R^2	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$
Global	0.87	0.87	2.31	0.11	0.74	2.24	0.31	0.87	3.20	0.17	0.87	3.27	0.18
Developed Only	0.84	0.85	1.72	0.12	0.85	2.09	0.16	0.85	2.60	0.18	0.84	2.67	0.18
Global excl. NA	0.79	0.81	1.44	0.13	0.80	1.39	0.17	0.80	1.82	0.23	0.79	1.84	0.24
Developed only excl.NA	0.74	0.77	1.79	0.18	0.75	1.88	0.30	0.75	2.19	0.28	0.79	2.45	0.34

Internet Appendix Table 9A, continued

Panel D.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

a) Main CL Tier

	Perfect Integration				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$
Global	0.88*	-0.40	0.18	0.54*	0.55	-0.07	0.18	0.53*	0.96*
Developed Only	0.60*	-0.11	0.07	0.26	0.75	-0.28	0.18	0.45*	0.84*
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.56	-0.19	0.06	0.60*	0.93*
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.40	-0.13	-0.04	0.60*	0.80*
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$
Global	0.88*	-1.19	4.79	8.63*	0.55	1.01	4.89	10.44*	11.92*
Developed Only	0.60*	-0.11	1.96	4.30	0.75	-0.37	4.92	8.41*	10.23*
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.56	0.37	2.88	10.42*	8.27*
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.40	0.81	0.86	10.37*	7.26*

b) Size

	Perfect Integration				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{Fac\,I}$
Global	0.88*	-0.40	0.18	0.54*	0.77*	-0.29	0.18	0.53*	0.29
Developed Only	0.60*	-0.11	0.07	0.26	0.47*	-0.18	0.09	0.61*	0.81
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.47	-0.18	0.09	0.61*	0.81*
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.44	-0.19	0.00	0.59*	0.51
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\hat{\lambda}}_{Fac\,I}$
Global	0.88*	-1.19	4.79	8.63*	0.77	-0.48	4.77	9.08	2.93
Developed Only	0.60*	-0.11	1.96	4.30	0.47*	0.58	3.48	11.15*	8.60
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.47	0.58	3.48	11.15*	8.60*
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.44	0.41	1.61	10.12*	5.18

Internet Appendix Table 9A, continued

Panel D.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry, continued

c) Liquidity

i. Risk Premia

	Perfect Integration				*Partial Segmentation*				
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{Fac\,I}$
Global	0.88*	-0.40	0.18	0.54*	1.11*	-0.64	0.22	0.44*	0.51
Developed Only	0.60*	-0.11	0.07	0.26	0.86*	-0.36	0.12	0.26	1.19
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.70*	-0.36	0.04	0.63*	-0.22
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.61*	-0.33	-0.08	0.62*	-0.08

ii. Prices of Covariance Risk

	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\hat{\lambda}}_{Fac\,I}$
Global	0.88*	-1.19	4.79	8.63*	1.11*	-2.67	5.56	6.66	3.97
Developed Only	0.60*	-0.11	1.96	4.30	0.86*	-1.43	3.22	4.08	9.11
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.70*	-0.63	2.40	9.96*	-1.30
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.61*	-0.41	0.21	9.54*	-0.45

d) PCA

i. Risk Premia

	Perfect Integration				*Partial Segmentation*				
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{Fac\,I}$
Global	0.88*	-0.40	0.18	0.54*	0.81*	-0.33	0.18	0.54*	-0.02
Developed Only	0.60*	-0.11	0.07	0.26	0.35	0.17	0.06	0.29	-0.19
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.94*	-0.59	-0.02	0.64*	0.08
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.73*	-0.41	-0.04	0.63*	-0.02

ii. Prices of Covariance Risk

	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\hat{\lambda}}_{Fac\,I}$
Global	0.88*	-1.19	4.79	8.63*	0.81*	-0.79	4.78	8.83*	-38.50
Developed Only	0.60*	-0.11	1.96	4.30	0.35	1.46	1.73	5.44	-68.92
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.94*	-1.84	1.48	9.43*	97.38
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.73*	-0.87	1.06	9.62*	-114.87

Internet Appendix Table 9A, continued

Panel E reports statistics for global regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect integration model as the base model.

Panel E.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Perfect Integration	Partial Segmentation											
		Main CL Tier			*Placebo Tests*								
					Size			Liquidity			PCA		
	ρ^2	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*
Developed Only	0.12	0.25	0.13	***(0.01)***	0.16	0.04	*(0.34)*	0.15	0.03	*(0.41)*	0.14	0.02	*(0.55)*
Global excl. NA	0.17	0.34	0.17	***(0.01)***	0.32	0.14	***(0.01)***	0.21	0.03	*(0.60)*	0.25	0.07	*(0.19)*
Developed only excl.NA	0.13	0.25	0.12	***(0.02)***	0.17	0.04	*(0.32)*	0.13	0.01	*(0.84)*	0.17	0.04	*(0.31)*

Panel E.2. Test Diagnostics

Test Assets	Perfect Integration	Partial Segmentation											
		Main CL Tier			*Placebo Tests*								
					Size			Liquidity			PCA		
	R^2	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$
Developed Only	0.84	0.85	1.64	0.10	0.85	2.06	0.13	0.85	2.63	0.19	0.85	2.69	0.18
Global excl. NA	0.79	0.81	1.37	0.13	0.81	1.52	0.17	0.81	1.60	0.20	0.80	1.81	0.24
Developed only excl.NA	0.74	0.79	1.73	0.17	0.77	1.75	0.27	0.77	2.12	0.26	0.80	2.45	0.34

Internet Appendix Table 9A, continued

Panel E.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

a) Main CL Tier

Perfect Integration | *Partial Segmentation*

i. Risk Premia

	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
Developed Only	1.11*	-0.64	0.22	0.45*	0.72*	-0.27	0.18	0.45*	0.84*	0.18
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.55	-0.14	0.03	0.56*	0.93*	-0.51
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.39	-0.14	-0.03	0.62*	0.80*	0.11

ii. Prices of Covariance Risk

	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
Developed Only	1.11*	-2.67	5.66	6.70*	0.72*	-0.24	4.90	8.57*	10.26*	0.60
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.55	0.59	2.17	9.82*	7.86*	-1.67
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.39	0.75	1.05	10.65*	7.37*	0.82

b) Size

Perfect Integration | *Partial Segmentation*

i. Risk Premia

	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{Fac\ I}$	$\hat{\gamma}_{Fac\ II}$
Developed Only	1.11*	-0.64	0.22	0.45*	0.95*	-0.46	0.25	0.38	0.62	-1.33
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.47	-0.16	0.07	0.60*	0.80*	-0.31
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.44	-0.20	0.00	0.60*	0.51	0.17

ii. Prices of Covariance Risk

	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{Fac\ I}$	$\hat{\lambda}_{Fac\ II}$
Developed Only	1.11*	-2.67	5.66	6.70*	0.95*	-1.79	6.01	6.35	5.11	-1.31
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.47	0.69	3.03	10.85*	8.47*	-0.70
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.44	0.36	1.75	10.24*	5.10	0.49

Internet Appendix Table 9A, continued

Panel E.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry, continued

c) Liquidity

	Perfect Integration				*Partial Segmentation*					
i. Risk Premia										
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{Fac\ I}$	$\hat{\gamma}_{Fac\ II}$
Developed Only	1.11*	-0.64	0.22	0.45*	1.07*	-0.63	0.19	0.48*	0.55	0.60
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.66*	-0.23	-0.05	0.54*	-0.24	-0.68
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.61*	-0.38	-0.06	0.66*	-0.05	0.29
ii. Prices of Covariance Risk										
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{Fac\ I}$	$\hat{\lambda}_{Fac\ II}$
Developed Only	1.11*	-2.67	5.66	6.70*	1.07*	-2.44	5.17	7.46	4.19	1.74
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.66*	0.03	0.65	8.77*	-1.25	-3.94
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.61*	-0.63	0.69	10.18*	-0.54	1.91

d) PCA

	Perfect Integration				*Partial Segmentation*					
i. Risk Premia										
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{Fac\ I}$	$\hat{\gamma}_{Fac\ II}$
Developed Only	1.11*	-0.64	0.22	0.45*	0.94	-0.47	0.01	0.42*	-0.13	0.16*
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.92*	-0.58	-0.04	0.64*	0.09	-0.86
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.74*	-0.40	-0.02	0.63*	-0.02	-0.12
ii. Prices of Covariance Risk										
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{Fac\ I}$	$\hat{\lambda}_{Fac\ II}$
Developed Only	1.11*	-2.67	5.66	6.70*	0.94	-1.36	1.67	6.88	-47.55	184.82*
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.92*	-1.70	1.25	9.60*	101.35	-1.30
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.74*	-0.85	1.41	9.73*	-123.22	-10.33

Internet Appendix Table 9A, continued

Panel F reports statistics for global regression tests when the partial segmentation model consists of the global externality factor and the perfect integration model as the base model.

Panel F.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Perfect Integration	Partial Segmentation											
		Main CL Tier			*Placebo Tests*								
					Size			Liquidity			PCA		
	ρ^2	ρ^2	$\Delta\,\rho^2$	*p-Value*	ρ^2	$\Delta\,\rho^2$	*p-Value*	ρ^2	$\Delta\,\rho^2$	*p-Value*	ρ^2	$\Delta\,\rho^2$	*p-Value*
Developed Only	0.12	0.12	0.00	*(0.91)*	0.12	0.00	*(0.92)*	0.13	0.00	*(0.66)*	0.14	0.02	*(0.28)*
Global excl. NA	0.17	0.21	0.03	*(0.33)*	0.18	0.01	*(0.59)*	0.20	0.03	*(0.35)*	0.18	0.01	*(0.68)*
Developed only excl.NA	0.13	0.13	0.00	*(0.94)*	0.13	0.00	*(0.73)*	0.13	0.01	*(0.60)*	0.13	0.00	*(0.66)*

Panel F.2. Test Diagnostics

Test Assets	Perfect Integration	Partial Segmentation											
		Main CL Tier			*Placebo Tests*								
					Size			Liquidity			PCA		
	R^2	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$
Developed Only	0.84	0.85	2.53	0.19	0.84	2.50	0.17	0.85	2.69	0.20	0.84	2.67	0.18
Global excl. NA	0.79	0.80	1.68	0.20	0.80	1.93	0.24	0.80	1.62	0.21	0.79	1.82	0.24
Developed only excl.NA	0.74	0.76	2.13	0.27	0.76	2.16	0.28	0.76	2.15	0.27	0.75	2.24	0.31

Internet Appendix Table 9A, continued

Panel F.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

a) Main CL Tier

	Perfect Integration				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
Developed Only	1.11*	-0.64	0.22	0.45*	1.10	-0.63	0.22	0.45*	0.10
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.66*	-0.23	-0.04	0.53*	-0.78
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.61*	-0.33	-0.08	0.62*	-0.03
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
Developed Only	1.11*	-2.67	5.66	6.70*	1.10	-2.61	5.65	6.78	0.31
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.66*	-0.02	0.65	8.52*	-4.04
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.61*	-0.42	0.15	9.46*	-0.27

b) Size

	Perfect Integration				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{Fac\,II}$
Developed Only	1.11*	-0.64	0.22	0.45*	1.12*	-0.65	0.23	0.44*	-0.39
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.69*	-0.31	-0.02	0.59*	-0.53
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.60*	-0.35	-0.06	0.64*	0.22
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\hat{\lambda}}_{Fac\,II}$
Developed Only	1.11*	-2.67	5.66	6.70*	1.12*	-2.78	5.70	6.48	-0.30
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.69*	-0.43	1.32	9.28*	-1.54
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.60*	-0.53	0.55	9.82*	1.08

Internet Appendix Table 9A, continued

Panel F.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry, continued

c) Liquidity

	Perfect Integration				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{Fac\,II}$
Developed Only	1.11*	-0.64	0.22	0.45*	1.08*	-0.63	0.20	0.48*	0.45
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.67*	-0.24	-0.05	0.54*	-0.68
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.62*	-0.39	-0.06	0.66*	0.30
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\hat{\lambda}}_{Fac\,II}$
Developed Only	1.11*	-2.67	5.66	6.70*	1.08*	-2.49	5.36	7.33	1.39
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.67*	-0.03	0.53	8.72*	-3.95
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.62*	-0.67	0.68	10.18*	1.87

d) PCA

	Perfect Integration				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{Fac\,II}$
Developed Only	1.11*	-0.64	0.22	0.45*	1.16*	-0.71	0.00	0.42*	0.18*
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.68*	-0.35	0.02	0.63*	-0.64
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.61*	-0.33	-0.07	0.62*	-0.09
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\hat{\lambda}}_{Fac\,II}$
Developed Only	1.11*	-2.67	5.66	6.70*	1.16*	-2.66	1.82	6.26	201.89*
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.68*	-0.57	2.13	10.05*	-0.97
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.61*	-0.40	0.41	9.63*	-7.44

Internet Appendix Table 9A, continued

In Panel A, B, and C, the regressions use the Fama-French three-factor model to explain the returns on five sets of regional portfolios on North America ("NA" in the table), Europe, Japan, Asia Pacific (excluding Japan), and Emerging Markets. The models are estimated using monthly returns on the 25 Fama-French size and B/M ranked portfolios and ten industry portfolios. Please see Internet Appendix Table 4C for details on the model specification.

In Panel D, E, and F, the regressions use the Fama-French three-factor model to explain the returns on four sets of global portfolios. Here four sets of global portfolios include Global portfolios, Developed Markets portfolios, Global portfolios excluding North America, Developed Markets portfolios excluding North America.. The models are estimated using monthly returns on the 25 Fama-French size and B/M ranked portfolios and ten industry portfolios. Please see Internet Appendix Table 4D for details on the model specification.

The table presents regression results of alternative partial-segmentation models. Here alternative models are built on only size screening, only liquidity screening, and principal component analysis (PCA). For the size screening, the globally accessible stocks are those among those stocks in the top 75% of market capitalization for the market. For the liquidity screening, the liquidity is measured by the proportion of zero daily returns (ZR) observed over the relevant month for each market, followed by Lesmond, Ogden and Trzcinka (1999) and Lesmond (2005); the globally accessible stocks are those in the bottom 75% percentile of ZR for each country. The extra factors in the PCA-based alternative model is constructed as follow: first orthogonalize the stock returns for the specific region for which the test is performed relative to the factors in the perfect segmentation model, next identify up to two principal components of the residuals, then the additional factor portfolios are determined by the extracted principal factors, with portfolio weights given by the scaled eigenvector. The PCA-based alternative model therefore consists of three perfect segmentation factors and two principal component factors. Note that the regression results for the Main CL Tier and the benchmark of perfect segmentation and perfect integration are repeated from Tables 2 and 3 in the paper for comparison. Please see Internet Appendix Table 4C for details on the regression tests.

Internet Appendix Table 10A, Regression Tests of the Partial Segmentation Models Using Monthly Excess Returns on 25 Size/B/M Portfolios and Industry Portfolios When Different CL Samples are Considered

Panel A reports statistics for regional regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect segmentation model as the base model.

Panel A.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Perfect Segmentation	Partial Segmentation											
		Main CL Tier			*Alternative Definitions on Global Accessibility*								
					CL1st Tier			*CL 2nd Tier*			*CL 3rd Tier*		
	ρ^2	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*
North America	0.11	0.25	0.14	***(0.02)***	0.28	0.18	***(0.00)***	0.27	0.16	***(0.03)***	0.23	0.12	***(0.04)***
Europe	0.16	0.25	0.09	***(0.07)***	0.25	0.09	***(0.09)***	0.19	0.03	*(0.46)*	0.26	0.09	***(0.09)***
Asia Pacific	0.18	0.39	0.22	***(0.01)***	0.39	0.21	***(0.00)***	0.22	0.05	*(0.27)*	0.25	0.07	*(0.12)*
Japan	0.18	0.34	0.16	***(0.08)***	0.31	0.13	***(0.08)***	0.31	0.13	*(0.14)*	0.34	0.16	***(0.08)***
Emerging Markets	0.27	0.35	0.08	***(0.09)***	0.34	0.07	*(0.17)*	0.34	0.07	***(0.09)***	0.37	0.09	***(0.07)***

Panel A.2. Test Diagnostics

Test Assets	Perfect Segmentation	Partial Segmentation											
		Main CL Tier			*Alternative Definitions on Global Accessibility*								
					CL1st Tier			*CL 2nd Tier*			*CL 3rd Tier*		
	R^2	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$
North America	0.83	0.84	1.72	0.12	0.84	1.90	0.13	0.84	1.62	0.12	0.84	1.39	0.11
Europe	0.86	0.87	1.78	0.14	0.87	1.66	0.12	0.87	1.87	0.14	0.87	1.80	0.14
Asia Pacific	0.78	0.80	1.31	0.27	0.79	1.22	0.26	0.80	1.52	0.29	0.80	1.47	0.28
Japan	0.85	0.86	1.75	0.10	0.86	2.25	0.18	0.86	1.93	0.14	0.86	1.86	0.12
Emerging Markets	0.62	0.69	1.54	0.23	0.64	1.76	0.55	0.67	1.77	0.41	0.68	1.58	0.29

Internet Appendix Table 10A, continued

Panel A.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

a) Main CL Tier

i. Risk Premia

	Perfect Segmentation				*Partial Segmentation*					
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.49	0.25	0.36	0.34	0.77*	-0.14*
Europe	0.17	0.40	-0.16	0.66*	0.44	0.14	-0.16	0.65*	0.10	0.30
Asia Pacific	0.71*	0.05	0.01	0.71*	0.81*	-0.07	-0.02	0.73*	0.96*	1.24*
Japan	0.74*	-0.77	-0.18	0.50*	0.68*	-0.70	-0.17	0.47*	0.20	1.71*
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.54*	-1.13	0.31	0.90*	0.90*	-0.03

ii. Prices of Covariance Risk

	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.49	1.52	4.53*	4.89*	6.92	-9.87
Europe	0.17	2.09	-2.62	9.87*	0.44	1.15	-2.74	10.21*	8.43*	48.54*
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.81*	0.45	-1.26	8.34*	4.69*	12.65*
Japan	0.74*	-0.88	-0.34	6.09*	0.68*	-0.64	-0.38	6.43*	0.43	7.39*
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.54*	-3.15	4.75*	6.48*	3.36*	-8.85

b) CL1st Tier

i. Risk Premia

	Perfect Segmentation				*Partial Segmentation*					
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.65*	0.10	0.35	0.35	0.77*	-0.10*
Europe	0.17	0.40	-0.16	0.66*	0.20	0.37	-0.15	0.64*	0.58	0.15
Asia Pacific	0.71*	0.05	0.01	0.71*	0.73*	0.06	-0.01	0.70*	1.68*	0.00
Japan	0.74*	-0.77	-0.18	0.50*	0.76*	-0.78*	-0.17	0.48*	0.46	0.03
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.91*	-1.53	0.34	0.91*	1.02	-0.27

ii. Prices of Covariance Risk

	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.65*	0.71	4.88	4.77*	5.81*	-39.72*
Europe	0.17	2.09	-2.62	9.87*	0.20	2.26	-2.81	10.75*	12.51*	27.27
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.73*	0.76	-1.25	7.90*	5.89*	10.38
Japan	0.74*	-0.88	-0.34	6.09*	0.76*	-0.87	-0.35	6.37*	6.69*	35.90
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.91*	-4.16	5.07*	6.49*	0.65	-13.68

Internet Appendix Table 10A, continued

Panel A.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry, continued

c) CL 2nd Tier

	Perfect Segmentation				*Partial Segmentation*					
i. Risk Premia										
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.53	0.21	0.36	0.35	1.03*	-0.13
Europe	0.17	0.40	-0.16	0.66*	0.16	0.41	-0.15	0.65*	0.48	0.03
Asia Pacific	0.71*	0.05	0.01	0.71*	0.76*	0.02	0.00	0.72*	0.66	-0.09
Japan	0.74*	-0.77	-0.18	0.50*	0.77*	-0.80*	-0.18	0.49*	0.16	0.09
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.44*	-1.04	0.33*	0.92*	0.86*	-0.22
ii. Prices of Covariance Risk										
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.53	1.20	4.60	4.80	7.16	-19.34
Europe	0.17	2.09	-2.62	9.87*	0.16	2.20	-2.65	10.03*	9.15	9.46
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.76*	0.50	-0.97	7.60*	2.03	-9.93
Japan	0.74*	-0.88	-0.34	6.09*	0.77*	-0.94	-0.35	6.25*	4.19	87.39
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.44*	-2.92	4.88*	6.58*	2.84*	-0.18

d) CL 3rd Tier

	Perfect Segmentation				Partial Segmentation					
i. Risk Premia										
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.52	0.22	0.36	0.33	0.79*	-0.13
Europe	0.17	0.40	-0.16	0.66*	0.01	0.58	-0.15	0.64*	1.48*	0.17
Asia Pacific	0.71*	0.05	0.01	0.71*	0.80*	-0.02	0.00	0.73*	0.63	-0.23*
Japan	0.74*	-0.77	-0.18	0.50*	0.79*	-0.83*	-0.18	0.48*	0.32	0.10*
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.40*	-1.00	0.33	0.92*	0.85*	-0.21
ii. Prices of Covariance Risk										
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.52	1.39	4.70*	4.89*	6.48	-9.88
Europe	0.17	2.09	-2.62	9.87*	0.01	3.00	-2.71	10.39*	9.32*	19.34
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.80*	0.40	-1.02	7.76*	1.22	-10.37
Japan	0.74*	-0.88	-0.34	6.09*	0.79*	-1.05	-0.36	6.11*	4.60	93.28*
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.40*	-2.81	4.93*	6.64*	2.68*	-3.75

Internet Appendix Table 10A, continued

Panel B reports statistics for regional regression tests when the partial segmentation model consists of the local externality factor and the perfect segmentation model as the base model.

Panel B.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Perfect Segmentation	Partial Segmentation											
		Main CL Tier			*Alternative Definitions on Global Accessibility*								
					CL1st Tier			*CL 2nd Tier*			*CL 3rd Tier*		
	ρ^2	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*
North America	0.11	0.24	0.13	***(0.01)***	0.21	0.11	***(0.01)***	0.25	0.14	***(0.03)***	0.23	0.12	***(0.01)***
Europe	0.16	0.18	0.02	*(0.37)*	0.22	0.05	***(0.07)***	0.19	0.03	*(0.23)*	0.24	0.07	***(0.04)***
Asia Pacific	0.18	0.26	0.09	***(0.03)***	0.38	0.20	***(0.00)***	0.22	0.04	*(0.16)*	0.22	0.04	*(0.15)*
Japan	0.18	0.22	0.03	*(0.25)*	0.24	0.06	*(0.12)*	0.19	0.01	*(0.62)*	0.20	0.01	*(0.48)*
Emerging Markets	0.27	0.34	0.08	***(0.03)***	0.32	0.06	***(0.08)***	0.34	0.07	***(0.04)***	0.35	0.09	***(0.02)***

Panel B.2. Test Diagnostics

Test Assets	Perfect Segmentation	Partial Segmentation											
		Main CL Tier			*Alternative Definitions on Global Accessibility*								
					CL1st Tier			*CL 2nd Tier*			*CL 3rd Tier*		
	R^2	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$
North America	0.83	0.84	1.45	0.11	0.84	1.80	0.13	0.83	1.72	0.13	0.84	1.39	0.12
Europe	0.86	0.87	1.91	0.15	0.87	1.71	0.12	0.86	1.89	0.14	0.87	1.76	0.14
Asia Pacific	0.78	0.80	1.47	0.29	0.79	1.22	0.26	0.79	1.52	0.29	0.79	1.51	0.29
Japan	0.85	0.85	1.93	0.11	0.85	2.08	0.13	0.86	2.03	0.14	0.85	1.98	0.12
Emerging Markets	0.62	0.66	1.53	0.26	0.64	1.74	0.51	0.65	1.68	0.35	0.66	1.52	0.26

Internet Appendix Table 10A, continued

Panel B.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

a) Main CL Tier

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$
North America	0.68*	0.06	0.36	0.33	0.54	0.21	0.36	0.33	0.79*
Europe	0.17	0.40	-0.16	0.66*	0.01	0.56	-0.15	0.65*	0.37
Asia Pacific	0.71*	0.05	0.01	0.71*	0.84*	-0.06	0.00	0.72*	0.89*
Japan	0.74*	-0.77	-0.18	0.50*	0.74*	-0.77	-0.17	0.50*	0.29
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.39*	-0.98	0.31	0.91*	0.88*
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$
North America	0.68*	0.08	4.78*	4.10*	0.54	1.28	4.67*	4.81*	8.29*
Europe	0.17	2.09	-2.62	9.87*	0.01	2.79	-2.63	9.96*	4.14
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.84	0.26	-0.94	7.61*	3.88*
Japan	0.74*	-0.88	-0.34	6.09*	0.74	-0.87	-0.33	6.16*	3.16
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.39	-2.77	4.74*	6.58*	3.05*

b) CL1st Tier

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$
North America	0.68*	0.06	0.36	0.33	0.68*	0.07	0.36	0.33	0.83*
Europe	0.17	0.40	-0.16	0.66*	0.01	0.56	-0.15	0.64*	0.61
Asia Pacific	0.71*	0.05	0.01	0.71*	0.74*	0.04	-0.01	0.71*	1.65*
Japan	0.74*	-0.77	-0.18	0.50*	0.74*	-0.76	-0.18	0.50*	0.40
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.73*	-1.32	0.30	0.91*	1.00
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$
North America	0.68*	0.08	4.78*	4.10*	0.68*	0.49	5.02	4.60*	6.79*
Europe	0.17	2.09	-2.62	9.87*	0.01	3.00	-2.79	10.71*	9.09
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.74*	0.69	-1.21	7.95*	5.47*
Japan	0.74*	-0.88	-0.34	6.09*	0.74*	-0.80	-0.35	6.38*	4.09
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.73*	-3.63	4.64*	6.49*	2.69

Internet Appendix Table 10A, continued

Panel B.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry, continued

c) CL 2nd Tier

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$
North America	0.68*	0.06	0.36	0.33	0.64*	0.11	0.36	0.35	1.16*
Europe	0.17	0.40	-0.16	0.66*	0.03	0.54	-0.15	0.65*	0.47
Asia Pacific	0.71*	0.05	0.01	0.71*	0.76*	0.02	0.00	0.71*	0.69
Japan	0.74*	-0.77	-0.18	0.50*	0.73*	-0.76	-0.18	0.50*	0.16
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.44*	-1.04	0.32	0.92*	0.87*
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$
North America	0.68*	0.08	4.78*	4.10*	0.64*	0.52	4.83	4.51	9.08*
Europe	0.17	2.09	-2.62	9.87*	0.03	2.71	-2.64	10.07*	7.67
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.76*	0.46	-0.95	7.49*	2.44
Japan	0.74*	-0.88	-0.34	6.09*	0.73*	-0.85	-0.34	6.15*	1.37
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.44*	-2.91	4.82*	6.58*	3.28*

d) CL 3rd Tier

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$
North America	0.68*	0.06	0.36	0.33	0.50	0.23	0.36	0.33	0.78*
Europe	0.17	0.40	-0.16	0.66*	-0.17	0.75	-0.15	0.63*	1.24
Asia Pacific	0.71*	0.05	0.01	0.71*	0.78*	0.00	0.00	0.72*	0.65
Japan	0.74*	-0.77	-0.18	0.50*	0.74*	-0.77	-0.18	0.50*	0.20
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.37*	-0.96	0.31	0.92*	0.88*
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$
North America	0.68*	0.08	4.78*	4.10*	0.50	1.48	4.64*	4.89*	7.86*
Europe	0.17	2.09	-2.62	9.87*	-0.17	3.72	-2.66	10.37*	8.49*
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.78*	0.41	-0.99	7.54*	2.83
Japan	0.74*	-0.88	-0.34	6.09*	0.74*	-0.88	-0.34	6.11*	1.79
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.37*	-2.70	4.76*	6.66*	3.53*

Internet Appendix Table 10A, continued

Panel C for regression tests when the partial segmentation model consists of the global externality factor and the perfect segmentation model as the base model.

Panel C.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Perfect Segmentation	Partial Segmentation											
		Main CL Tier			*Alternative Definitions on Global Accessibility*								
					CL1st Tier			*CL 2nd Tier*			*CL 3rd Tier*		
	ρ^2	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*
North America	0.11	0.18	0.08	***(0.04)***	0.21	0.10	*(0.03)*	0.21	0.10	***(0.05)***	0.20	0.10	***(0.02)***
Europe	0.16	0.20	0.04	*(0.19)*	0.17	0.00	*(0.68)*	0.16	0.00	*(0.96)*	0.17	0.01	*(0.56)*
Asia Pacific	0.18	0.27	0.09	***(0.08)***	0.19	0.01	*(0.48)*	0.20	0.03	*(0.32)*	0.24	0.07	***(0.07)***
Japan	0.18	0.34	0.16	***(0.03)***	0.19	0.01	*(0.52)*	0.26	0.08	*(0.14)*	0.26	0.08	*(0.14)*
Emerging Markets	0.27	0.27	0.00	*(0.87)*	0.34	0.07	***(0.07)***	0.32	0.06	***(0.06)***	0.34	0.07	***(0.04)***

Panel C.2. Test Diagnostics

Test Assets	Perfect Segmentation	Partial Segmentation											
		Main CL Tier			*Alternative Definitions on Global Accessibility*								
					CL1st Tier			*CL 2nd Tier*			*CL 3rd Tier*		
	R^2	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$
North America	0.83	0.84	1.90	0.13	0.84	1.92	0.14	0.83	1.67	0.12	0.83	1.50	0.11
Europe	0.86	0.87	1.95	0.14	0.87	2.01	0.15	0.87	1.98	0.15	0.87	1.98	0.15
Asia Pacific	0.78	0.78	1.42	0.29	0.78	1.55	0.30	0.79	1.53	0.30	0.79	1.48	0.28
Japan	0.85	0.85	1.76	0.11	0.85	2.31	0.19	0.85	1.94	0.16	0.85	1.94	0.16
Emerging Markets	0.62	0.65	1.70	0.26	0.63	1.89	0.44	0.66	1.92	0.40	0.66	1.77	0.33

Internet Appendix Table 10A, continued

Panel C.Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

a) Main CL Tier

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.49	0.24	0.36	0.35	-0.16*
Europe	0.17	0.40	-0.16	0.66*	0.56	0.03	-0.16	0.67*	0.27
Asia Pacific	0.71*	0.05	0.01	0.71*	0.67*	0.07	0.00	0.73*	1.07
Japan	0.74*	-0.77	-0.18	0.50*	0.68*	-0.70	-0.17	0.47*	1.74*
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.36*	-0.94	0.31	0.95*	0.01
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.49	1.24	4.36*	4.62*	-25.97*
Europe	0.17	2.09	-2.62	9.87*	0.56	0.56	-2.68	9.97*	31.32
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.67	0.73	-1.20	7.99*	10.54
Japan	0.74*	-0.88	-0.34	6.09*	0.68	-0.63	-0.39	6.43*	7.58*
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.36	-2.69	4.71*	6.66*	2.39

b) CL1st Tier

	Perfect Segmentation				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.64*	0.10	0.35	0.35	-0.11*
Europe	0.17	0.40	-0.16	0.66*	0.25	0.33	-0.16	0.66*	0.09
Asia Pacific	0.71*	0.05	0.01	0.71*	0.74*	0.03	0.01	0.72*	-0.06
Japan	0.74*	-0.77	-0.18	0.50*	0.75*	-0.78	-0.18	0.49*	0.02
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.92*	-1.54	0.35	0.91*	-0.28
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.64*	0.40	4.66*	4.39*	-46.82*
Europe	0.17	2.09	-2.62	9.87*	0.25	1.77	-2.61	9.79*	8.02
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.74*	0.46	-0.91	7.53*	-12.12
Japan	0.74*	-0.88	-0.34	6.09*	0.75*	-0.92	-0.34	6.02*	12.14
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.92*	-4.20	5.16*	6.51*	-16.51

Internet Appendix Table 10A, continued

Panel C. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry, continued

c) CL 2nd Tier

i. Risk Premia

	Perfect Segmentation				*Partial Segmentation*				
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.45	0.29	0.36	0.35	-0.18*
Europe	0.17	0.40	-0.16	0.66*	0.19	0.39	-0.16	0.66*	0.01
Asia Pacific	0.71*	0.05	0.01	0.71*	0.72*	0.05	0.01	0.72*	-0.11
Japan	0.74*	-0.77	-0.18	0.50*	0.77*	-0.81*	-0.18	0.49*	0.07
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.43*	-1.04	0.35	0.93*	-0.26*

ii. Prices of Covariance Risk

	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.45	1.61	4.34*	4.84*	-38.19*
Europe	0.17	2.09	-2.62	9.87*	0.19	2.03	-2.62	9.87*	0.92
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.72*	0.57	-0.96	7.60*	-15.25
Japan	0.74*	-0.88	-0.34	6.09*	0.77*	-0.99	-0.35	6.07*	63.05*
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.43*	-2.94	5.11*	6.60*	-9.76

d) CL 3rd Tier

i. Risk Premia

	Perfect Segmentation				*Partial Segmentation*				
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.62*	0.11	0.36	0.34	-0.15*
Europe	0.17	0.40	-0.16	0.66*	0.30	0.28	-0.16	0.66*	0.07
Asia Pacific	0.71*	0.05	0.01	0.71*	0.78*	0.00	0.00	0.73*	-0.24*
Japan	0.74*	-0.77	-0.18	0.50*	0.77*	-0.81*	-0.18	0.49*	0.07
Emerging Markets	1.40*	-0.99	0.32	0.95*	1.48*	-1.09	0.37	0.91*	-0.25*

ii. Prices of Covariance Risk

	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.62	0.75	4.93*	4.71*	-41.84*
Europe	0.17	2.09	-2.62	9.87*	0.30	1.57	-2.64	9.86*	11.24
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.78*	0.43	-1.01	7.77*	-12.75
Japan	0.74*	-0.88	-0.34	6.09*	0.77*	-0.99	-0.35	6.07*	63.05
Emerging Markets	1.40*	-2.79	4.71	6.63*	1.48*	-3.07	5.30*	6.60*	-12.26*

Internet Appendix Table 10A, continued

Panel D reports statistics for global regression tests when the partial segmentation model consists of the local externality factor and the perfect integration model as the base model.

Panel D.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Global Bench-mark	Partial Segmentation											
		Main CL Tier			*Alternative Definitions on Global Accessibility*								
					CL1st Tier			*CL 2nd Tier*			*CL 3rd Tier*		
	ρ^2	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*
Global	0.13	0.30	0.17	***(0.00)***	0.32	0.19	***(0.00)***	0.26	0.13	***(0.00)***	0.27	0.14	***(0.00)***
Developed Only	0.12	0.25	0.12	***(0.00)***	0.25	0.13	***(0.00)***	0.16	0.04	*(0.11)*	0.18	0.06	***(0.04)***
Global excl. NA	0.17	0.34	0.16	***(0.00)***	0.25	0.07	***(0.04)***	0.25	0.08	***(0.06)***	0.35	0.17	***(0.00)***
Developed only excl.NA	0.13	0.24	0.12	***(0.00)***	0.26	0.13	***(0.00)***	0.18	0.05	*(0.10)*	0.19	0.06	***(0.03)***

Panel D.2. Test Diagnostics

Test Assets	Global Bench-mark	Partial Segmentation											
		Main CL Tier			*Alternative Definitions on Global Accessibility*								
					CL1st Tier			*CL 2nd Tier*			*CL 3rd Tier*		
	R^2	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$
Global	0.87	0.87	2.31	0.11	0.87	2.53	0.13	0.87	2.96	0.13	0.87	2.37	0.11
Developed Only	0.84	0.85	1.72	0.12	0.86	2.09	0.21	0.85	2.31	0.13	0.85	2.04	0.13
Global excl. NA	0.79	0.81	1.44	0.13	0.81	1.53	0.14	0.81	1.83	0.18	0.80	1.45	0.16
Developed only excl.NA	0.74	0.77	1.79	0.18	0.78	1.79	0.18	0.78	2.13	0.21	0.76	1.86	0.20

Internet Appendix Table 10A, continued

Panel D.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

a) Main CL Tier

	Global Benchmark				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$
Global	0.88*	-0.40	0.18	0.54*	0.55	-0.07	0.18	0.53*	0.96*
Developed Only	1.11*	-0.64	0.22	0.45*	0.75	-0.28	0.18	0.45*	0.84*
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.56	-0.19	0.06	0.60*	0.93*
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.40	-0.13	-0.04	0.60*	0.80*
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$
Global	0.88*	-1.19	4.79	8.63*	0.55	1.01	4.89	10.44*	11.92*
Developed Only	1.11*	-2.67	5.66	6.70*	0.75	-0.37	4.92	8.41*	10.23*
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.56	0.37	2.88	10.42*	8.27*
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.40	0.81	0.86	10.37*	7.26*

b) CL1st Tier

	Global Benchmark				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$
Global	0.88*	-0.40	0.18	0.54*	0.81*	-0.33	0.17	0.54*	1.38*
Developed Only	1.11*	-0.64	0.22	0.45*	1.00*	-0.51	0.26	0.45*	0.99*
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.67*	-0.31	0.05	0.61*	0.74*
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.59*	-0.27	-0.03	0.60*	0.81*
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$
Global	0.88*	-1.19	4.79	8.63*	0.81*	-0.40	5.02	9.89*	8.78*
Developed Only	1.11*	-2.67	5.66	6.70*	1.00*	-1.59	6.52	8.32*	7.40*
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.67*	-0.30	2.73	10.23*	4.35
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.59*	0.16	1.40	10.48*	7.25*

Internet Appendix Table 10A, continued

Panel D.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry, continued

c) CL 2nd Tier

i. Risk Premia

	Global Benchmark				*Partial Segmentation*				
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$
Global	0.88*	-0.40	0.18	0.54*	0.80*	-0.32	0.18	0.55*	1.11*
Developed Only	1.11*	-0.64	0.22	0.45*	1.03*	-0.56	0.23	0.46*	0.60
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.68*	-0.31	0.05	0.60*	0.85*
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.53*	-0.22	-0.04	0.60*	0.71

ii. Prices of Covariance Risk

	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$
Global	0.88*	-1.19	4.79	8.63*	0.80*	-0.54	4.92	9.50*	7.48*
Developed Only	1.11*	-2.67	5.66	6.70*	1.03*	-2.07	5.81	7.53*	4.54
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.68*	-0.37	2.68	9.75*	4.76
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.53*	0.18	0.82	9.71*	4.56

d) CL 3rd Tier

i. Risk Premia

	Global Benchmark				*Partial Segmentation*				
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$
Global	0.88*	-0.40	0.18	0.54*	0.56	-0.09	0.18	0.54*	0.94*
Developed Only	1.11*	-0.64	0.22	0.45*	0.93*	-0.46	0.21	0.45*	0.66*
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.52	-0.15	0.06	0.59*	1.04*
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.44	-0.17	-0.06	0.59*	0.66*

ii. Prices of Covariance Risk

	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$
Global	0.88*	-1.19	4.79	8.63*	0.56	0.89	4.86	10.37*	10.73*
Developed Only	1.11*	-2.67	5.66	6.70*	0.93*	-1.46	5.54	7.81*	5.62*
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.52	0.60	2.69	10.47*	8.32*
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.44	0.51	0.57	9.80*	5.20*

Internet Appendix Table 10A, continued

Panel E reports statistics for global regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect integration model as the base model.

Panel E.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Global Bench-mark	Partial Segmentation											
		Main CL Tier			*Alternative Definitions on Global Accessibility*								
					CL1st Tier			*CL 2nd Tier*			*CL 3rd Tier*		
	ρ^2	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*
Developed Only	0.12	0.25	0.13	***(0.01)***	0.26	0.14	***(0.01)***	0.18	0.06	*(0.15)*	0.18	0.06	***(0.09)***
Global excl. NA	0.17	0.34	0.17	***(0.01)***	0.28	0.10	***(0.08)***	0.28	0.10	*(0.13)*	0.36	0.19	***(0.01)***
Developed only excl.NA	0.13	0.25	0.12	***(0.02)***	0.26	0.13	***(0.01)***	0.18	0.06	*(0.26)*	0.19	0.06	*(0.10)*

Panel E.2. Test Diagnostics

Test Assets	Global Bench-mark	Partial Segmentation											
		Main CL Tier			*Alternative Definitions on Global Accessibility*								
					CL1st Tier			*CL 2nd Tier*			*CL 3rd Tier*		
	R^2	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$
Developed Only	0.84	0.85	1.64	0.10	0.86	1.96	0.16	0.85	2.30	0.12	0.85	2.02	0.12
Global excl. NA	0.79	0.81	1.37	0.13	0.82	1.51	0.14	0.82	1.74	0.17	0.81	1.45	0.14
Developed only excl.NA	0.74	0.79	1.73	0.17	0.80	1.77	0.20	0.79	1.99	0.20	0.78	1.84	0.18

Internet Appendix Table 10A, continued

Panel E.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

a) Main CL Tier

	Perfect Integration				*Partial Segmentation*					
i. Risk Premia										
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
Developed Only	1.11*	-0.64	0.22	0.45*	0.72*	-0.27	0.18	0.45*	0.84*	0.18
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.55	-0.14	0.03	0.56*	0.93*	-0.51
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.39	-0.14	-0.03	0.62*	0.80*	0.11
ii. Prices of Covariance Risk										
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
Developed Only	1.11*	-2.67	5.66	6.70*	0.72*	-0.24	4.90	8.57*	10.26*	0.60
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.55	0.59	2.17	9.82*	7.86*	-1.67
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.39	0.75	1.05	10.65*	7.37*	0.82

b) CL1st Tier

	Global Benchmark				*Partial Segmentation*					
i. Risk Premia										
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
Developed Only	1.11*	-0.64	0.22	0.45*	0.91*	-0.43	0.26	0.48*	0.98*	0.86
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.62*	-0.19	-0.02	0.52*	0.73	-0.69
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.59*	-0.27	-0.03	0.61*	0.81*	-0.08
ii. Prices of Covariance Risk										
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
Developed Only	1.11*	-2.67	5.66	6.70*	0.91*	-1.03	6.60	9.25*	7.39*	2.27
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.62*	0.28	1.05	8.87*	3.94	-4.05
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.59*	0.15	1.42	10.51*	7.26*	0.08

Internet Appendix Table 10A, continued

Panel E.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry, continued

c) CL 2nd Tier

	Global Benchmark				*Partial Segmentation*					
i. Risk Premia										
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
Developed Only	1.11*	-0.64	0.22	0.45*	1.12*	-0.64	0.23	0.45*	0.61	-1.15
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.62*	-0.17	-0.01	0.50*	0.86*	-0.77
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.53*	-0.19	-0.05	0.57*	0.72	-0.25
ii. Prices of Covariance Risk										
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
Developed Only	1.11*	-2.67	5.66	6.70*	1.12*	-2.61	5.89	6.92	4.79	-2.09
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.62*	0.29	1.28	8.49*	4.33	-3.87
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.53*	0.29	0.62	9.32*	4.48	-1.26

d) CL 3rd Tier

	Global Benchmark				*Partial Segmentation*					
i. Risk Premia										
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
Developed Only	1.11*	-0.64	0.22	0.45*	0.95*	-0.48	0.21	0.44*	0.67*	-0.33
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.48	-0.05	0.01	0.52*	1.07*	-0.76
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.44	-0.16	-0.06	0.58*	0.66*	-0.08
ii. Prices of Covariance Risk										
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
Developed Only	1.11*	-2.67	5.66	6.70*	0.95*	-1.59	5.53	7.63*	5.65*	-0.63
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.48	1.08	1.58	9.50*	7.95*	-2.95
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.44	0.53	0.53	9.74*	5.19*	-0.20

Internet Appendix Table 10A, continued

Panel F reports statistics for global regression tests when the partial segmentation model consists of the global externality factor and the perfect integration model as the base model.

Panel F.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Global Bench-mark	Partial Segmentation											
		Main CL Tier			*Alternative Definitions on Global Accessibility*								
					CL1st Tier			*CL 2nd Tier*			*CL 3rd Tier*		
	ρ^2	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*	ρ^2	$\Delta\ \rho^2$	*p-Value*
Developed Only	0.12	0.12	0.00	*(0.91)*	0.13	0.01	*(0.44)*	0.13	0.01	*(0.46)*	0.12	0.00	*(0.89)*
Global excl. NA	0.17	0.21	0.03	*(0.33)*	0.22	0.04	*(0.24)*	0.21	0.04	*(0.22)*	0.21	0.04	*(0.28)*
Developed only excl.NA	0.13	0.13	0.00	*(0.94)*	0.13	0.00	*(0.76)*	0.13	0.00	*(0.66)*	0.13	0.00	*(0.86)*

Panel F.2. Test Diagnostics

Test Assets	Global Bench-mark	Partial Segmentation											
		Main CL Tier			*Alternative Definitions on Global Accessibility*								
					CL1st Tier			*CL 2nd Tier*			*CL 3rd Tier*		
	R^2	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$	R^2	GRS	$\lvert\alpha\rvert$
Developed Only	0.84	0.85	2.53	0.19	0.85	2.47	0.18	0.84	2.59	0.18	0.85	2.56	0.18
Global excl. NA	0.79	0.80	1.68	0.20	0.80	1.81	0.22	0.80	1.71	0.21	0.80	1.79	0.20
Developed only excl.NA	0.74	0.76	2.13	0.27	0.76	2.16	0.27	0.75	2.07	0.27	0.76	2.20	0.28

Internet Appendix Table 10A, continued

Panel F.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry

a) Main CL Tier

	Perfect Integration				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
Developed Only	1.11*	-0.64	0.22	0.45*	1.10	-0.63	0.22	0.45*	0.10
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.66*	-0.23	-0.04	0.53*	-0.78
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.61*	-0.33	-0.08	0.62*	-0.03
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
Developed Only	1.11*	-2.67	5.66	6.70*	1.10	-2.61	5.65	6.78	0.31
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.66*	-0.02	0.65	8.52*	-4.04
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.61*	-0.42	0.15	9.46*	-0.27

b) CL1st Tier

	Global Benchmark				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
Developed Only	1.11*	-0.64	0.22	0.45*	1.01*	-0.56	0.22	0.48*	0.87
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.65*	-0.22	-0.06	0.51*	-0.78
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.62*	-0.31	-0.09	0.59*	-0.15
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
Developed Only	1.11*	-2.67	5.66	6.70*	1.01*	-2.10	5.74	7.64*	2.30
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.65*	0.04	0.30	8.30*	-4.92
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.62*	-0.36	-0.02	9.18*	-1.13

Internet Appendix Table 10A, continued

Panel F.3. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk: Fama-French for 25 Size/B/M + 10 industry, continued

c) CL 2nd Tier

	Global Benchmark				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
Developed Only	1.11*	-0.64	0.22	0.45*	1.19*	-0.71	0.23	0.43*	-1.02
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.62*	-0.19	-0.05	0.50*	-0.88
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.61*	-0.30	-0.09	0.58*	-0.28
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
Developed Only	1.11*	-2.67	5.66	6.70*	1.19*	-3.15	5.72	6.15	-1.76
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.62*	0.19	0.53	8.27*	-4.97
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.61*	-0.28	-0.05	9.02*	-1.72

d) CL 3rd Tier

	Global Benchmark				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_G}$
Developed Only	1.11*	-0.64	0.22	0.45*	1.12*	-0.65	0.22	0.44*	-0.21
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.64*	-0.22	-0.04	0.53*	-0.79
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.61*	-0.32	-0.08	0.61*	-0.10
ii. Prices of Covariance Risk									
	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_G}$
Developed Only	1.11*	-2.67	5.66	6.70*	1.12*	-2.76	5.65	6.57	-0.41
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.64*	0.04	0.77	8.59*	-4.10
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.61*	-0.38	0.09	9.37*	-0.60

Internet Appendix Table 10A, continued

In Panel A, B, and C, the regressions use the Fama-French three-factor model to explain the returns on five sets of regional portfolios on North America ("NA" in the table), Europe, Japan, Asia Pacific (excluding Japan), and Emerging Markets. The models are estimated using monthly returns on the 25 Fama-French size and B/M ranked portfolios and ten industry portfolios. Please see Internet Appendix Table 4C for details on the model specification.

In Panel D, E, and F, the regressions use the Fama-French three-factor model to explain the returns on four sets of global portfolios. Here four sets of global portfolios include Global portfolios, Developed Markets portfolios, Global portfolios excluding North America, Developed Markets portfolios excluding North America.. The models are estimated using monthly returns on the 25 Fama-French size and B/M ranked portfolios and ten industry portfolios. Please see Internet Appendix Table 4D for details on the model specification.

Four different set of globally accessible stocks are considered, where the Main CL Tier refers to the sample with two relative viability constraints, CL1st Tier refers to the sample without viability constraints, CL2nd Tier is the sample with absolute viable constraint, CL 3rd is the sample where more stringent screenings are imposed on the two viability constraints. Note that the regression results for the Main CL Tier and the benchmark of perfect segmentation and perfect integration are repeated from Tables 2 and 3 in the paper for comparison. Please see Internet Appendix Table 4C for details on the regression tests.

Internet Appendix Table 11A, Summary Statistics for Regression Tests of the Fama-French Three-Factor Model Using Individual Monthly Excess Returns

Panel A reports statistics for regional regression tests of the Fama-French Three-Factor Model Using Individual Monthly Excess Returns.

		Comparison between Perfect Segmentation Model and Partial Segmentation Model				Decomposition of Partial Segmentation Model			
	Percentiles	Adj. R^2 for Perfect Segmentation Model	Adj. R^2 for Partial Segmentation Model	Overall Increase in Adj. R^2	*Proportion*	Increase in Adj. R^2 by adding Global Externality	*Proportion to overall increase in R^2*	Increase in Adj. R^2 by adding Local Externality	*Proportion to overall increase in R^2*
North America	25th	2.68%	3.67%	**0.99%**	*36.94%*	**0.70%**	*76.92%*	**0.21%**	*23.08%*
	Mean	13.69%	15.08%	**1.39%**	*10.15%*	**0.90%**	*73.77%*	**0.32%**	*26.23%*
	Median	10.89%	12.62%	**1.73%**	*15.89%*	**1.10%**	*70.97%*	**0.45%**	*29.03%*
	75th	22.27%	24.35%	**2.08%**	*9.34%*	**1.22%**	*67.78%*	**0.58%**	*32.22%*
Europe	25th	5.47%	6.01%	**0.54%**	*9.87%*	**0.22%**	*44.00%*	**0.28%**	*56.00%*
	Mean	16.47%	17.43%	**0.96%**	*5.83%*	**0.53%**	*55.79%*	**0.42%**	*44.21%*
	Median	14.44%	15.68%	**1.24%**	*8.59%*	**0.62%**	*53.91%*	**0.53%**	*46.09%*
	75th	25.46%	27.16%	**1.70%**	*6.68%*	**0.97%**	*56.73%*	**0.74%**	*43.27%*
Asia Pacific	25th	6.85%	7.88%	**1.03%**	*15.04%*	**0.04%**	*3.81%*	**1.01%**	*96.19%*
	Mean	18.53%	20.17%	**1.64%**	*8.85%*	**0.15%**	*9.20%*	**1.48%**	*90.80%*
	Median	16.19%	18.10%	**1.91%**	*11.80%*	**0.33%**	*17.28%*	**1.58%**	*82.72%*
	75th	28.14%	30.24%	**2.10%**	*7.46%*	**0.28%**	*13.53%*	**1.79%**	*86.47%*
Japan	25th	22.60%	23.32%	**0.72%**	*3.19%*	**0.16%**	*22.86%*	**0.54%**	*77.14%*
	Mean	34.43%	35.27%	**0.84%**	*2.44%*	**0.23%**	*26.74%*	**0.63%**	*73.26%*
	Median	34.89%	35.81%	**0.92%**	*2.64%*	**0.26%**	*27.37%*	**0.69%**	*72.63%*
	75th	46.57%	47.69%	**1.12%**	*2.40%*	**0.36%**	*31.30%*	**0.79%**	*68.70%*
Emerging Markets	25th	2.98%	4.24%	**1.26%**	*42.28%*	**0.27%**	*20.15%*	**1.07%**	*79.85%*
	Mean	12.66%	15.55%	**2.89%**	*22.83%*	**0.97%**	*30.89%*	**2.17%**	*69.11%*
	Median	10.45%	13.36%	**2.91%**	*27.85%*	**0.88%**	*28.21%*	**2.24%**	*71.79%*
	75th	20.44%	24.75%	**4.31%**	*21.09%*	**1.46%**	*30.93%*	**3.26%**	*69.07%*

Internet Appendix Table 11A, continued

Panel B reports statistics for global regression tests of the Fama-French Three-Factor Model Using Individual Monthly Excess Returns.

		Comparison between Perfect Integration Model and Partial Segmentation Model				Decomposition of Partial Segmentation Model			
	Percentiles	Adj. R^2 for Perfect Integration Model	Adj. R^2 for Partial Segmentation Model	Overall Increase in Adj. R^2	*Proportion*	Increase in Adj. R^2 by adding Global Externality	*Proportion to overall increase in R^2*	Increase in Adj. R^2 by adding Local Externality	*Proportion to overall increase in R^2*
Global	25th	2.16%	2.29%	**0.13%**	*6.02%*				
	Mean	11.47%	12.27%	**0.80%**	*6.97%*				
	Median	9.04%	9.59%	**0.55%**	*6.08%*				
	75th	18.46%	19.76%	**1.30%**	*7.04%*				
Developed Only	25th	2.63%	2.99%	**0.36%**	*13.69%*	**0.12%**	*44.00%*	**0.25%**	*56.00%*
	Mean	12.39%	13.80%	**1.41%**	*11.38%*	**0.31%**	*55.79%*	**1.14%**	*44.21%*
	Median	9.84%	11.05%	**1.21%**	*12.30%*	**0.43%**	*53.91%*	**0.83%**	*46.09%*
	75th	19.82%	22.35%	**2.53%**	*12.76%*	**0.68%**	*56.73%*	**1.97%**	*43.27%*
Global excl. NA	25th	2.09%	2.59%	**0.50%**	*23.92%*	**0.30%**	*3.81%*	**0.21%**	*96.19%*
	Mean	11.25%	12.84%	**1.59%**	*14.13%*	**0.80%**	*9.20%*	**0.95%**	*90.80%*
	Median	8.96%	10.42%	**1.46%**	*16.29%*	**0.85%**	*17.28%*	**0.67%**	*82.72%*
	75th	18.19%	20.90%	**2.71%**	*14.90%*	**1.32%**	*13.53%*	**1.62%**	*86.47%*
Developed excl. NA	25th	2.72%	3.64%	**0.92%**	*33.82%*	**0.30%**	*22.86%*	**0.59%**	*77.14%*
	Mean	12.27%	14.84%	**2.57%**	*20.95%*	**0.81%**	*26.74%*	**1.98%**	*73.26%*
	Median	9.86%	12.35%	**2.49%**	*25.25%*	**0.92%**	*27.37%*	**1.71%**	*72.63%*
	75th	19.55%	23.96%	**4.41%**	*22.56%*	**1.33%**	*31.30%*	**3.44%**	*68.70%*

Internet Appendix Table 11A, continued

The regressions use the Fama-French three-factor models to explain the returns on individual securities. Each month, beginning with November 1990, individual security regressions are estimated over 180 rolling 60-month periods. The first 60-month period ends in October 1995 and the last period ends in December 2010. The individual stock returns are all dollar-denominated. A stock is included in the analysis only if the stock has all 60 monthly observations available during the five-year period. The average Adj. R^2s are averages across all individual stock regressions in the entire period.

Four classes of models are investigated:

Perfect Segmentation Fama-French Model in the Regional Experiments:

$$r^e_i = \alpha_i + \beta_{iD} R_{D,m} + s_{iD}\text{SMB}_D + h_{iD}\text{HML}_D$$

Partial Segmentation Fama-French Model in the Regional Experiments:

$$r^e_i = \alpha_i + \beta_{i\text{PS}} R_{D,m} + s_{i\text{PS}}\text{SMB}_D + h_{i\text{PS}}\text{HML}_D + \eta_{i\text{PS}}(f_D - f^*_D) + \kappa_{i\text{PS}} f^*_F$$

Perfect Integration Fama-French Model in the Global Experiments:

$$r^e_j = \alpha_j + \beta_{jW} R_{W,m} + s_{jW}\text{SMB}_W + h_{jW}\text{HML}_W$$

Partial Segmentation Fama-French Model in the Global Experiments:

$$r^e_j = \alpha_j + \beta_{j\text{PS}} R_{W,m} + s_{j\text{PS}}\,\text{SMB}_W + h_{j\text{PS}}\text{HML}_W + \eta_{j\text{PS}}(f_F - f^*_F) - \kappa_{j\text{PS}}(f_D - f^*_D)$$

The subscript designation of "*D*" on the market and factor portfolios implies that they are constructed only from domestic - or regional, in our experiments - stocks, "*F*" implies that they are constructed from foreign - or global, in our experiments - stocks, and "*W*" implies that they are constructed from all stocks around the world. The superscript "PS" denotes the intercept and the risk loadings for the partial-segmentation model.

Internet Appendix Table 12A, Summary Statistics for Regression Tests of the Partial Segmentation Version of the Fama-French Three-Factor Model Using Monthly Excess Returns on 25 Size/B/M Portfolios and 10 Industry Portfolios When the Frankfurt Stock Exchange and OTCQX International are Dropped from the List of Target Exchanges

Panel A reports statistics for regional regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect segmentation model as the base model.

Panel A.1. Test Diagnostics and Kan, Robotti, and Shanken (2013) Test

Test Assets	Test Diagnostic					Kan, Robotti, and Shanken (2013) tests					
						OLS			*GLS*		
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	ρ^2_{PS}	$\Delta\,\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\,\rho^2$	*p-Value*
					Perfect Segmentation						
North America	0.83	1.83	0.15	0.19	0.57						
Europe	0.86	1.99	0.15	0.20	0.60						
Asia Pacific	0.78	1.56	0.30	0.39	0.54						
Japan	0.85	2.00	0.14	0.20	0.59						
Emerging Markets	0.62	1.79	0.45	0.28	0.56						
					Partial Segmentation						
North America	0.84	1.48	0.12	0.16	0.56	0.73	0.15	***(0.08)***	0.23	0.13	***(0.05)***
Europe	0.87	2.07	0.15	0.20	0.63	0.70	0.04	*(0.44)*	0.20	0.03	*(0.38)*
Asia Pacific	0.80	1.54	0.29	0.37	0.53	0.50	0.14	*(0.12)*	0.30	0.13	***(0.05)***
Japan	0.85	1.81	0.11	0.19	0.57	0.76	0.14	*(0.14)*	0.36	0.18	***(0.07)***
Emerging Markets	0.64	1.81	0.35	0.29	0.57	0.55	0.06	*(0.56)*	0.37	0.10	***(0.07)***

Panel A.2. Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk

i. Risk Premia

	Perfect Segmentation				*Partial Segmentation*					
	$\hat{\gamma}_0^L$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^L$	$\hat{\gamma}_{Size}^L$	$\hat{\gamma}_{B/M}^L$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
North America	0.68*	0.06	0.36	0.33	0.48	0.25	0.36	0.33	0.85*	-0.16*
Europe	0.17	0.40	-0.16	0.66*	-0.10	0.68	-0.15	0.66*	0.17	-0.17
Asia Pacific	0.71*	0.05	0.01	0.71*	0.74*	0.03	0.00	0.75*	0.56	0.27*
Japan	0.74*	-0.77	-0.18	0.50*	0.69*	-0.72	-0.17	0.46*	0.23	2.23*
Emerging Markets	1.40*	-0.99	0.32	0.95*	2.01*	-1.64	0.34	0.87*	0.63*	-0.34*

ii. Prices of Covariance Risk

	$\hat{\lambda}_0^L$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^L$	$\hat{\lambda}_{Size}^L$	$\hat{\lambda}_{B/M}^L$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
North America	0.68*	0.08	4.78*	4.10*	0.48	1.57	4.54*	4.89*	6.91*	-2.60
Europe	0.17	2.09	-2.62	9.87*	-0.10	3.28	-2.64	10.11*	-0.62	-17.74
Asia Pacific	0.71*	0.53	-0.93	7.42*	0.74*	0.55	-1.10	7.95*	0.98	31.51*
Japan	0.74*	-0.88	-0.34	6.09*	0.69*	-0.76	-0.39	6.08*	-0.04	7.33*
Emerging Markets	1.40*	-2.79	4.71	6.63*	2.01*	-4.43	5.06*	6.28*	3.34	-20.49

Internet Appendix Table 12A, continued

Panel B reports statistics for global regression tests when the partial segmentation model consists of the local externality factor and the perfect integration model as the base model.

Panel B.1. Test Diagnostics and Kan, Robotti, and Shanken (2013) Test

Test Assets	Test Diagnostic					Kan, Robotti, and Shanken (2013) tests					
						OLS			*GLS*		
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	ρ^2_{PS}	$\Delta\,\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\,\rho^2$	*p-Value*
					Perfect Segmentation						
Global	0.87	3.28	0.18	0.25	0.77						
Developed Only	0.84	2.66	0.18	0.23	0.69						
Global excl. NA	0.79	1.84	0.24	0.21	0.58						
Developed excl. NA	0.74	2.24	0.31	0.24	0.63						
					Partial Segmentation						
Global	0.87	2.49	0.13	0.17	0.70	0.68	0.35	***(0.00)***	0.26	0.13	***(0.00)***
Developed Only	0.85	1.96	0.13	0.19	0.63	0.53	0.24	***(0.02)***	0.18	0.06	***(0.03)***
Global excl. NA	0.81	1.65	0.17	0.18	0.55	0.66	0.17	***(0.03)***	0.29	0.11	***(0.01)***
Developed excl. NA	0.76	1.90	0.22	0.20	0.60	0.75	0.19	***(0.07)***	0.21	0.08	***(0.01)***

Panel B.2.Estimates of Zero-Beta Rate, Risk Premia, and Prices of Covariance Risk

	Perfect Integration				*Partial Segmentation*				
i. Risk Premia									
	$\hat{\gamma}^L_0$	$\hat{\gamma}^L_{vw}$	$\hat{\gamma}^L_{Size}$	$\hat{\gamma}^L_{B/M}$	$\hat{\gamma}^{PS}_0$	$\hat{\gamma}^L_{vw}$	$\hat{\gamma}^L_{Size}$	$\hat{\gamma}^L_{B/M}$	$\hat{\gamma}_{EX\_L}$
Global	0.88*	-0.40	0.18	0.54*	0.49	-0.01	0.18	0.54*	0.83*
Developed Only	1.11*	-0.64	0.22	0.45*	0.88*	-0.41	0.20	0.45*	0.67*
Global excl. NA	0.71*	-0.37	0.03	0.63*	0.46	-0.13	0.06	0.62*	0.71*
Developed excl. NA	0.61*	-0.33	-0.08	0.62*	0.41	-0.15	-0.05	0.61*	0.65*
ii. Prices of Covariance Risk									
	$\hat{\lambda}^L_0$	$\hat{\lambda}^L_{vw}$	$\hat{\lambda}^L_{Size}$	$\hat{\lambda}^L_{B/M}$	$\hat{\lambda}^{PS}_0$	$\hat{\lambda}^L_{vw}$	$\hat{\lambda}^L_{Size}$	$\hat{\lambda}^L_{B/M}$	$\hat{\lambda}_{EX\_L}$
Global	0.88*	-1.19	4.79	8.63*	0.49	1.23	4.75	10.31*	11.06*
Developed Only	1.11*	-2.67	5.66	6.70*	0.88*	-1.18	5.27	7.88*	6.21*
Global excl. NA	0.71*	-0.70	2.28	9.91*	0.46	0.67	2.72	10.72*	7.82*
Developed excl. NA	0.61*	-0.44	0.21	9.55*	0.41	0.63	0.72	10.19*	6.63*

Internet Appendix Table 12A, continued

The regressions use the Fama-French three-factor model to explain the returns on five sets of regional portfolios on North America ("NA" in the table), Europe, Japan, Asia Pacific (excluding Japan), and Emerging Markets (in Panel A), and four sets of global portfolios include Global portfolios, Developed Markets portfolios, Global portfolios excluding North America, Developed Markets portfolios excluding North America (in Panel B). The models are estimated using monthly returns on the 25 Fama-French size and B/M ranked portfolios and ten industry portfolios. Please see Internet Appendix Table 4C for details on the model specification in Panel A and Internet Appendix Table 4D for details on the model specification in Panel B.

The table presents regression results of the benchmark of the perfect segmentation model (in Panel A) and the perfect integration model (in Panel B) and the partial-segmentation model. Please see Internet Appendix Table 4C for details on the regression tests.

Internet Appendix Table 13A, Summary Statistics for Regression Tests Using Monthly Excess Returns on Alternative Test Asset Portfolios

Panel A reports statistics for regional regression tests using monthly excess returns on 20 Size/B/M (Size/Momentum) Portfolios and Industry Portfolios

Panel A.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Fama-French for 20 Size/B/M + 10 industry						Carhart for 20 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
North America	0.73	0.19	***(0.09)***	0.25	0.12	*(0.12)*	0.91	0.02	***(0.60)***	0.39	0.14	*(0.21)*
Europe	0.72	0.10	*(0.13)*	0.32	0.14	***(0.05)***	0.77	0.22	***(0.06)***	0.33	0.24	***(0.01)***
Asia Pacific	0.45	0.12	***(0.02)***	0.31	0.11	***(0.06)***	0.83	0.11	***(0.08)***	0.46	0.22	***(0.03)***
Japan	0.80	0.15	*(0.13)*	0.42	0.22	***(0.05)***	0.73	0.04	*(0.51)*	0.28	0.09	*(0.23)*
Emerging Markets	0.64	0.23	*(0.14)*	0.35	0.15	***(0.06)***	0.85	0.11	***(0.05)***	0.26	0.11	***(0.05)***

Panel A.2. Estimates of Zero-beta Rate, Risk Premia, and Prices of Covariance Risk

	Fama-French for 20 Size/B/M + 10 industry						Carhart for 20 Size/Momentum + 10 industry						
i. Risk Premia													
	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{D}$	$\hat{\gamma}_{Size}^{D}$	$\hat{\gamma}_{B/M}^{D}$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{D}$	$\hat{\gamma}_{Size}^{D}$	$\hat{\gamma}_{B/M}^{D}$	$\hat{\gamma}_{Mom}^{D}$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
North America	0.23	0.50	0.34	0.27	0.58*	-0.12	0.61	0.16	0.51*	-0.14	0.31	0.09	0.16
Europe	0.62	-0.02	-0.09	0.57*	0.16	0.29	0.65	0.01	-0.05	0.07	0.72*	0.75*	-0.67*
Asia Pacific	0.72*	0.02	-0.09	0.68*	0.56	1.01	0.29	0.56	-0.18	0.31	1.28*	0.82	-0.72*
Japan	0.69*	-0.70	-0.19	0.48*	0.16	2.11*	0.83*	-0.81*	-0.18	-0.04	-0.47	-0.24	0.21
Emerging Markets	1.30	-0.90	0.34	0.59	1.07*	0.01	0.81	-0.34	0.63*	-0.77	0.97*	1.71*	-0.25
ii. Prices of Covariance Risk													
	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{D}$	$\hat{\lambda}_{Size}^{D}$	$\hat{\lambda}_{B/M}^{D}$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{D}$	$\hat{\lambda}_{Size}^{D}$	$\hat{\lambda}_{B/M}^{D}$	$\hat{\lambda}_{Mom}^{D}$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
North America	0.23	2.89	3.42	4.58*	5.15*	-9.26	0.61	0.00	5.00*	0.90	0.48	4.13	21.51
Europe	0.62	0.44	-1.63	8.96*	8.87*	47.90*	0.65	1.13	-0.51	2.20	3.99	0.10	-25.16*
Asia Pacific	0.72*	0.72	-1.93	7.70*	2.94*	10.26	0.29	2.85	-3.50	4.58	5.53*	-2.46	-34.22*
Japan	0.69*	-0.56	-0.53	6.74*	-0.36	9.19*	0.83*	-3.00	-1.70	-3.34	-2.41	2.27	18.84
Emerging Markets	1.30	-2.51	4.59	4.56*	3.72*	-2.95	0.81	-0.93	5.67*	-4.09	2.14*	2.70*	-3.34

Panel A.3. Test Diagnostics

Test Assets	Fama-French for 20 Size/B/M + 10 industry					Carhart for 20 Size/Momentum + 10 industry				
	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*	R^2	GRS	$\lvert\alpha\rvert$	*std(α)*	*SR(α)*
Perfect Segmentation										
North America	0.82	1.41	0.13	0.16	0.46	0.82	1.13	0.12	0.16	0.41
Europe	0.85	1.73	0.15	0.20	0.51	0.85	2.48	0.21	0.28	0.63
Asia Pacific	0.79	1.41	0.27	0.34	0.47	0.80	1.78	0.23	0.27	0.54
Japan	0.83	2.14	0.14	0.21	0.56	0.84	2.76	0.22	0.28	0.64
Emerging Markets	0.63	1.46	0.44	0.25	0.47	0.61	2.12	0.55	0.31	0.57
Partial Segmentation										
North America	0.83	1.61	0.11	0.13	0.52	0.82	1.13	0.15	0.18	0.46
Europe	0.86	1.52	0.13	0.19	0.49	0.85	1.91	0.17	0.22	0.59
Asia Pacific	0.81	1.30	0.26	0.32	0.46	0.81	2.00	0.24	0.27	0.58
Japan	0.84	1.87	0.10	0.16	0.54	0.85	2.59	0.18	0.24	0.64
Emerging Markets	0.70	1.17	0.19	0.28	0.43	0.64	2.02	0.38	0.30	0.57

Internet Appendix Table 13A, continued

Panel B reports statistics for global regression tests using monthly excess returns on 20 Size/B/M (Size/Momentum) Portfolios and Industry Portfolios

Panel B.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Fama-French for 20 Size/B/M + 10 industry						Carhart for 20 Size/Momentum + 10 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
Global	0.77	0.40	***(0.00)***	0.34	0.23	***(0.00)***	0.84	0.29	***(0.00)***	0.26	0.16	***(0.01)***
Developed Only	0.59	0.22	***(0.06)***	0.23	0.14	***(0.01)***	0.78	0.31	***(0.03)***	0.22	0.15	***(0.04)***
Global excl. NA	0.72	0.28	***(0.02)***	0.34	0.16	***(0.00)***	0.79	0.37	***(0.00)***	0.19	0.16	***(0.00)***
Developed excl. NA	0.74	0.11	***(0.08)***	0.22	0.10	***(0.01)***	0.79	0.40	***(0.06)***	0.22	0.13	***(0.03)***

Panel B.2. Estimates of Zero-beta Rate, Risk Premia, and Prices of Covariance Risk

	Fama-French for 20 Size/B/M + 10 industry					Carhart for 20 Size/Momentum + 10 industry					
i. Risk Premia											
	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{W}$	$\hat{\gamma}_{Size}^{W}$	$\hat{\gamma}_{B/M}^{W}$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{W}$	$\hat{\gamma}_{Size}^{W}$	$\hat{\gamma}_{B/M}^{W}$	$\hat{\gamma}_{Mom}^{W}$	$\hat{\gamma}_{EX\_L}$
Global	0.44	0.05	0.22	0.44*	1.09*	0.35	0.19	0.23	-0.07	0.44	0.71*
Developed Only	0.52	-0.05	0.14	0.39*	0.83*	0.14	0.44	0.15	-0.01	0.32	0.56*
Global excl. NA	0.52	-0.15	0.12	0.57*	0.99*	0.49	-0.04	-0.04	0.17	0.26	1.04*
Developed excl. NA	0.33	-0.05	-0.12	0.55*	0.74*	0.21	0.19	-0.19	0.32	0.31	0.72*
ii. Prices of Covariance Risk											
	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{W}$	$\hat{\lambda}_{Size}^{W}$	$\hat{\lambda}_{B/M}^{W}$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{W}$	$\hat{\lambda}_{Size}^{W}$	$\hat{\lambda}_{B/M}^{W}$	$\hat{\lambda}_{Mom}^{W}$	$\hat{\lambda}_{EX\_L}$
Global	0.44	1.48	5.32	9.38*	13.40*	0.35	1.53	3.39	1.13	2.61	9.02*
Developed Only	0.52	0.77	3.76	7.81*	10.03*	0.14	2.99	1.80	2.36	2.50	9.16*
Global excl. NA	0.52	0.52	3.83	10.19*	8.77*	0.49	0.88	-0.66	3.91	2.08	7.62*
Developed excl. NA	0.33	1.16	-0.83	9.42*	6.67*	0.21	2.76	-3.66	6.79	3.18	5.83*

Panel B.3. Test Diagnostics

Test Assets	Fama-French for 20 Size/B/M + 10 industry					Carhart for 20 Size/Momentum + 10 industry				
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*
Perfect Integration										
Global	0.87	2.46	0.15	0.20	0.61	0.86	2.31	0.16	0.16	0.60
Developed Only	0.84	2.20	0.17	0.22	0.57	0.84	1.95	0.17	0.17	0.55
Global excl. NA	0.79	1.95	0.25	0.21	0.54	0.78	2.51	0.24	0.24	0.62
Developed excl. NA	0.74	2.40	0.32	0.24	0.60	0.74	1.65	0.29	0.29	0.51
Partial Segmentation										
Global	0.88	1.67	0.09	0.10	0.54	0.86	1.89	0.12	0.12	0.56
Developed Only	0.85	1.44	0.11	0.15	0.50	0.84	1.57	0.13	0.13	0.50
Global excl. NA	0.81	1.49	0.12	0.16	0.49	0.78	2.17	0.17	0.17	0.59
Developed excl. NA	0.77	1.90	0.17	0.20	0.55	0.77	1.44	0.18	0.18	0.48

Internet Appendix Table 13A, continued

Panel C reports statistics for regional regression tests using monthly excess returns on 25 Size/B/M (Size/Momentum) portfolios and 33 industry portfolios

Panel C.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Fama-French for 25 Size/B/M + 33 industry						Carhart for 25 Size/Momentum + 33 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
North America	0.52	0.11	*(0.29)*	0.16	0.09	***(0.01)***	0.63	0.01	*(0.79)*	0.21	0.14	***(0.00)***
Europe	0.43	0.05	*(0.52)*	0.13	0.04	*(0.10)*	0.60	0.14	***(0.00)***	0.21	0.16	***(0.00)***
Asia Pacific	0.10	0.02	*(0.75)*	0.12	0.05	***(0.08)***	0.45	0.14	***(0.09)***	0.10	0.03	*(0.21)*
Japan	0.50	0.24	***(0.03)***	0.19	0.05	*(0.31)*	0.57	0.06	*(0.73)*	0.18	0.11	***(0.04)***
Emerging Markets	0.28	0.11	*(0.33)*	0.20	0.03	*(0.33)*	0.71	0.15	***(0.09)***	0.15	0.04	***(0.08)***

Panel C.2. Estimates of Zero-beta Rate, Risk Premia, and Prices of Covariance Risk

	Fama-French for 25 Size/B/M + 33 industry						Carhart for 25 Size/Momentum + 33 industry						
i. Risk Premia													
	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{D}$	$\hat{\gamma}_{Size}^{D}$	$\hat{\gamma}_{B/M}^{D}$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{D}$	$\hat{\gamma}_{Size}^{D}$	$\hat{\gamma}_{B/M}^{D}$	$\hat{\gamma}_{Mom}^{D}$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
North America	0.25	0.48	0.35	0.37	0.73*	-0.16*	0.11	0.64	0.36	0.13	0.41	0.59*	0.14
Europe	0.43	0.14	-0.14	0.64*	0.27	0.16	0.71*	-0.05	-0.08	-0.02	0.84*	1.20*	-0.73*
Asia Pacific	0.74*	0.03	0.03	0.69*	0.76*	0.63	0.65*	0.24	-0.16	-0.06	1.12*	0.82*	-0.22
Japan	0.04	-0.04	-0.16	0.51*	0.18	0.86	0.39	-0.31	-0.20	-0.09	-0.54	-0.14	0.26*
Emerging Markets	1.44*	-0.89	0.21	0.95*	0.62	0.01	1.44*	-0.93	0.37	0.47	0.97*	1.09	-0.02
ii. Prices of Covariance Risk													
	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{D}$	$\hat{\lambda}_{Size}^{D}$	$\hat{\lambda}_{B/M}^{D}$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{D}$	$\hat{\lambda}_{Size}^{D}$	$\hat{\lambda}_{B/M}^{D}$	$\hat{\lambda}_{Mom}^{D}$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
North America	0.25	2.97	3.87	5.54*	5.97*	-14.87	0.11	5.00	2.07	4.92*	2.38*	10.01*	29.55*
Europe	0.43	1.12	-2.43	9.89*	7.57*	30.86	0.71	1.11	-1.11	1.36	4.69*	4.80	-22.00*
Asia Pacific	0.74*	0.56	-0.79	7.57*	3.59*	6.66	0.65*	1.58	-2.39	0.61	4.61*	2.40	-4.73
Japan	0.04	1.72	-0.56	9.11*	1.23*	3.72	0.39	-1.44	-2.14	-2.39	-2.53*	4.30	26.07*
Emerging Markets	1.44*	-2.50	3.78	6.64*	2.20*	0.46	1.44*	-2.57	4.95*	3.65	1.85*	2.28*	3.15

Panel C.3. Test Diagnostics

Test Assets	Fama-French for 25 Size/B/M + 33 industry					Carhart for 25 Size/Momentum + 33 industry				
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*
Perfect Segmentation										
North America	0.71	1.66	0.19	0.25	0.74	0.71	1.54	0.18	0.25	0.72
Europe	0.78	1.99	0.20	0.28	0.82	0.78	2.69	0.24	0.32	0.98
Asia Pacific	0.70	2.04	0.34	0.48	0.84	0.71	2.33	0.34	0.52	0.92
Japan	0.76	0.80	0.19	0.27	0.51	0.77	1.30	0.27	0.35	0.66
Emerging Markets	0.56	1.62	0.50	0.37	0.73	0.55	1.87	0.60	0.37	0.80
Partial Segmentation										
North America	0.72	1.58	0.18	0.25	0.77	0.72	1.14	0.22	0.31	0.69
Europe	0.79	1.82	0.19	0.26	0.80	0.79	2.26	0.19	0.24	0.97
Asia Pacific	0.72	1.88	0.33	0.50	0.82	0.72	2.27	0.34	0.50	0.92
Japan	0.77	0.81	0.14	0.22	0.53	0.78	1.27	0.20	0.29	0.67
Emerging Markets	0.62	1.42	0.29	0.44	0.71	0.58	1.66	0.39	0.32	0.78

Internet Appendix Table 13A, continued

Panel D reports statistics for global regression tests using monthly excess returns on 25 Size/B/M (Size/Momentum) portfolios and 33 industry portfolios

Panel D.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Fama-French for 25 Size/B/M + 33 industry						Carhart for 25 Size/Momentum + 33 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
Global	0.60	0.46	***(0.00)***	0.20	0.11	***(0.00)***	0.68	0.31	***(0.00)***	0.15	0.11	***(0.00)***
Developed Only	0.49	0.41	***(0.00)***	0.17	0.10	***(0.00)***	0.46	0.21	***(0.02)***	0.08	0.05	***(0.03)***
Global excl. NA	0.55	0.32	***(0.00)***	0.21	0.11	***(0.00)***	0.65	0.29	***(0.00)***	0.08	0.07	***(0.00)***
Developed excl. NA	0.63	0.38	***(0.01)***	0.17	0.10	***(0.00)***	0.63	0.37	***(0.01)***	0.07	0.04	***(0.06)***

Panel D.2. Estimates of Zero-beta Rate, Risk Premia, and Prices of Covariance Risk

	Fama-French for 25 Size/B/M + 33 industry					Carhart for 25 Size/Momentum + 33 industry					
i. Risk Premia											
	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{W}$	$\hat{\gamma}_{Size}^{W}$	$\hat{\gamma}_{B/M}^{W}$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{W}$	$\hat{\gamma}_{Size}^{W}$	$\hat{\gamma}_{B/M}^{W}$	$\hat{\gamma}_{Mom}^{W}$	$\hat{\gamma}_{EX\_L}$
Global	0.77*	-0.31	0.16	0.56*	0.86*	0.76*	-0.21	0.21	0.01	0.49	0.85*
Developed Only	0.77*	-0.30	0.18	0.43*	0.86*	0.31	0.26	0.19	0.01	0.46	0.51*
Global excl. NA	0.48*	-0.06	0.08	0.56*	0.87*	0.63*	-0.06	0.00	-0.10	0.25	0.88*
Developed excl. NA	0.27	0.07	-0.02	0.56*	0.86*	0.34	0.17	-0.05	0.07	0.48	0.51
ii. Prices of Covariance Risk											
	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{W}$	$\hat{\lambda}_{Size}^{W}$	$\hat{\lambda}_{B/M}^{W}$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{W}$	$\hat{\lambda}_{Size}^{W}$	$\hat{\lambda}_{B/M}^{W}$	$\hat{\lambda}_{Mom}^{W}$	$\hat{\lambda}_{EX\_L}$
Global	0.77*	-0.23	4.81	10.25*	10.67*	0.76*	0.00	0.04	0.02	0.03	0.11*
Developed Only	0.77*	-0.47	4.89	8.17*	10.43*	0.31	-0.41	3.61	1.63	2.53	10.70*
Global excl. NA	0.48*	0.96	3.05	10.09*	7.79*	0.63*	2.16	2.62	2.54	3.02	8.44*
Developed excl. NA	0.27	1.76	0.97	10.08*	7.82*	0.34	-0.07	-0.32	-0.97	1.33	6.29*

Panel D.3. Test Diagnostics

Test Assets	Fama-French for 25 Size/B/M + 33 industry					Carhart for 25 Size/Momentum + 33 industry				
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*
Perfect Integration										
Global	0.78	2.66	0.22	0.31	0.94	0.77	2.40	0.23	0.32	0.91
Developed Only	0.76	2.25	0.22	0.30	0.87	0.76	2.30	0.22	0.30	0.89
Global excl. NA	0.74	1.46	0.27	0.27	0.70	0.73	2.43	0.27	0.29	0.92
Developed excl. NA	0.69	1.79	0.33	0.29	0.78	0.69	1.65	0.30	0.27	0.76
Partial Segmentation										
Global	0.79	2.03	0.15	0.19	0.88	0.77	2.12	0.19	0.27	0.88
Developed Only	0.77	1.63	0.14	0.19	0.79	0.76	2.05	0.18	0.25	0.86
Global excl. NA	0.75	1.22	0.17	0.21	0.66	0.74	2.26	0.21	0.24	0.90
Developed excl. NA	0.71	1.52	0.19	0.21	0.74	0.71	1.53	0.20	0.21	0.74

Internet Appendix Table 13A, continued

Panel E reports statistics for global regression tests using monthly excess returns on 33 industry portfolios

Panel E.1. Kan, Robotti, and Shanken (2013) Test

Test Assets	Fama-French for 33 industry						Carhart for 33 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
Global	0.44	0.42	***(0.03)***	0.09	0.06	*(0.19)*	0.46	0.41	***(0.01)***	0.13	0.09	*(0.12)*
Developed Only	0.46	0.44	***(0.02)***	0.07	0.04	*(0.31)*	0.24	0.21	*(0.11)*	0.03	0.00	*(0.83)*
Global excl. NA	0.50	0.46	***(0.01)***	0.12	0.07	*(0.11)*	0.54	0.21	***(0.07)***	0.16	0.04	*(0.24)*
Developed excl. NA	0.66	0.60	***(0.02)***	0.18	0.13	***(0.06)***	0.58	0.24	*(0.11)*	0.20	0.01	*(0.65)*

Panel E.2. Estimates of Zero-beta Rate, Risk Premia, and Prices of Covariance Risk

	Fama-French for 33 industry					Carhart for 33 industry					
i. Risk Premia											
	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{W}$	$\hat{\gamma}_{Size}^{W}$	$\hat{\gamma}_{B/M}^{W}$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{W}$	$\hat{\gamma}_{Size}^{W}$	$\hat{\gamma}_{B/M}^{W}$	$\hat{\gamma}_{Mom}^{W}$	$\hat{\gamma}_{EX\_L}$
Global	0.45*	0.09	-0.04	-0.03	0.48	0.47	0.08	-0.02	-0.02	0.51	0.60
Developed Only	0.37	0.21	-0.09	-0.04	0.35	0.40	0.18	-0.14	-0.07	-0.09	0.06
Global excl. NA	0.31	0.25	-0.12	-0.02	0.60	0.24	0.28	-0.14	0.07	1.02	0.43
Developed excl. NA	0.26	0.27	-0.10	0.01	0.59*	0.16	0.35	-0.17	0.08	0.91	0.12
ii. Prices of Covariance Risk											
	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{W}$	$\hat{\lambda}_{Size}^{W}$	$\hat{\lambda}_{B/M}^{W}$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{W}$	$\hat{\lambda}_{Size}^{W}$	$\hat{\lambda}_{B/M}^{W}$	$\hat{\lambda}_{Mom}^{W}$	$\hat{\lambda}_{EX\_L}$
Global	0.45*	0.68	-0.78	0.18	5.61	0.47	1.41	-1.22	1.36	3.33	7.64
Developed Only	0.37	1.25	-1.75	0.02	4.07	0.40	0.93	-2.85	-1.08	-0.17	0.96
Global excl. NA	0.31	1.51	-2.32	0.29	5.13	0.24	3.60	-4.30	3.97	6.85	3.40
Developed excl. NA	0.26	1.71	-2.00	0.92	5.12*	0.16	3.83	-4.91	3.96	6.30	1.17

Panel E.3. Test Diagnostics

Test Assets	Fama-French for 33 industry					Carhart for 33 industry				
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*
Perfect Integration										
Global	0.67	2.16	0.27	0.36	0.60	0.68	2.02	0.25	0.34	0.59
Developed Only	0.66	2.13	0.28	0.37	0.60	0.66	2.05	0.26	0.35	0.60
Global excl. NA	0.67	1.85	0.30	0.33	0.56	0.68	1.60	0.27	0.29	0.53
Developed excl. NA	0.63	1.44	0.32	0.34	0.49	0.63	1.20	0.30	0.29	0.46
Partial Segmentation										
Global	0.68	1.34	0.17	0.21	0.51	0.68	1.63	0.21	0.29	0.54
Developed Only	0.67	1.39	0.17	0.23	0.52	0.67	1.71	0.21	0.29	0.56
Global excl. NA	0.69	1.46	0.20	0.24	0.51	0.68	1.38	0.22	0.24	0.50
Developed excl. NA	0.65	1.10	0.22	0.25	0.44	0.66	1.08	0.22	0.24	0.44

Internet Appendix Table 13A, continued

The regressions use the Fama-French three-factor model (*left in the panels*) and the Carhart four-factor model (*right the panels*) to explain the returns on five sets of regional portfolios on North America ("NA" in the table), Europe, Japan, Asia Pacific (excluding Japan), and Emerging Markets. Panels A and C present regression results of the benchmark of the perfect segmentation model and the partial-segmentation model. Please see Internet Appendix Table 4C for details on the model specification.

Panel B, D, and E reports the results on four sets of global portfolios. Here four sets of global portfolios include Global portfolios, Developed Markets portfolios, Global portfolios excluding North America, Developed Markets portfolios excluding North America. The table presents regression results of the benchmark of the perfect integration model and the partial-segmentation model. Please see Internet Appendix Table 4D for details on the model specification.

The models are estimated using monthly returns on the 25 Fama-French size and B/M ranked portfolios and ten industry portfolios (*left in the panels*) and those on size and momentum and ten industry portfolios (*right in the panels*). Please see Internet Appendix Table 4C for details on the regression tests.

Internet Appendix Table 14A, Summary Statistics for Regression Tests Using Monthly Excess Returns on 25 Size/B/M (Size/Momentum) Portfolios and 10 Industry Portfolios When Japan and Switzerland are added into the List of Target Exchanges

Panel A. Kan, Robotti, and Shanken (2013) Test

Test Assets	Fama-French for 25 Size/B/M + 33 industry						Carhart for 25 Size/Momentum+ 33 industry					
	OLS			*GLS*			*OLS*			*GLS*		
	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*	ρ^2_{PS}	$\Delta\rho^2$	*p-Value*
North America	0.77	0.19	***(0.02)***	0.25	0.14	***(0.02)***	0.89	0.05	*(0.11)*	0.31	0.21	***(0.01)***
Europe	0.73	0.07	*(0.36)*	0.25	0.09	***(0.06)***	0.83	0.28	***(0.01)***	0.32	0.24	***(0.00)***
Asia Pacific	0.63	0.26	***(0.02)***	0.39	0.22	***(0.01)***	0.75	0.10	***(0.05)***	0.20	0.06	*(0.19)*
Japan	0.80	0.17	***(0.08)***	0.36	0.17	***(0.07)***	0.73	0.06	*(0.27)*	0.30	0.13	***(0.04)***
Emerging Markets	0.59	0.10	*(0.38)*	0.35	0.08	***(0.09)***	0.86	0.13	***(0.02)***	0.27	0.09	***(0.02)***

Panel B. Estimates of Zero-beta Rate, Risk Premia, and Prices of Covariance Risk

	Fama-French for 25 Size/B/M + 10 industry						Carhart for 25 Size/Momentum+ 10 industry						
i. Risk Premia													
	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{D}$	$\hat{\gamma}_{Size}^{D}$	$\hat{\gamma}_{B/M}^{D}$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$	$\hat{\gamma}_0^{PS}$	$\hat{\gamma}_{vw}^{D}$	$\hat{\gamma}_{Size}^{D}$	$\hat{\gamma}_{B/M}^{D}$	$\hat{\gamma}_{Mom}^{D}$	$\hat{\gamma}_{EX\_L}$	$\hat{\gamma}_{EX\_G}$
North America	0.49	0.25	0.36	0.34	0.76*	-0.14*	0.61	0.15	0.47*	-0.12	0.39	0.47	0.18
Europe	-0.24	0.81	-0.15	0.64*	0.81*	-0.17	0.51	0.14	-0.10	0.21	0.84*	1.30*	-0.69*
Asia Pacific	0.81*	-0.07	-0.02	0.73*	0.96*	1.24*	0.53	0.31	-0.04	0.34	1.18*	0.97*	-0.38
Japan	0.70*	-0.73	-0.17	0.47*	-0.22	1.28*	0.92*	-0.91*	-0.05	-0.20	-0.53	-0.70	0.30*
Emerging Markets	1.54*	-1.13	0.31	0.90*	0.90*	-0.03	1.25*	-0.86	0.62*	0.19	0.97*	1.50*	-0.07
ii. Prices of Covariance Risk													
	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{D}$	$\hat{\lambda}_{Size}^{D}$	$\hat{\lambda}_{B/M}^{D}$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$	$\hat{\lambda}_0^{PS}$	$\hat{\lambda}_{vw}^{D}$	$\hat{\lambda}_{Size}^{D}$	$\hat{\lambda}_{B/M}^{D}$	$\hat{\lambda}_{Mom}^{D}$	$\hat{\lambda}_{EX\_L}$	$\hat{\lambda}_{EX\_G}$
North America	0.49	1.51	4.54*	4.90*	6.60*	-12.83	0.61	0.55	4.56	1.38	0.97	9.12*	32.93*
Europe	-0.24	3.93	-2.79	10.40*	10.06*	-6.59	0.51	2.28	-1.55	5.35	5.27*	6.41	-20.57
Asia Pacific	0.81*	0.45	-1.26	8.34*	4.69*	12.65*	0.53	1.91	-1.89	4.66	5.10*	1.70	-12.56
Japan	0.70*	-0.75	-0.39	6.13*	-3.14	9.84*	0.92*	-3.98*	-0.94	-6.60	-2.44	0.43	22.71*
Emerging Markets	1.54*	-3.15	4.75*	6.48*	3.36*	-8.85	1.25*	-2.43	7.09*	2.23	1.98*	2.93*	2.53

Panel C. Test Diagnostics

Test Assets	Fama-French for 25 Size/B/M + 33 industry					Carhart for 25 Size/Momentum+ 33 industry				
	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*	R^2	GRS	$\|\alpha\|$	*std(α)*	*SR(α)*
Perfect Segmentation										
North America	0.83	1.83	0.15	0.19	0.57	0.83	1.79	0.15	0.21	0.57
Europe	0.86	1.99	0.15	0.20	0.60	0.86	3.08	0.23	0.32	0.77
Asia Pacific	0.78	1.56	0.30	0.39	0.54	0.80	2.52	0.26	0.32	0.70
Japan	0.85	2.00	0.14	0.20	0.59	0.85	3.13	0.22	0.27	0.75
Emerging Markets	0.62	1.79	0.45	0.28	0.56	0.61	2.13	0.62	0.35	0.62
Partial Segmentation										
North America	0.84	1.68	0.12	0.15	0.58	0.84	1.17	0.15	0.18	0.51
Europe	0.87	1.76	0.14	0.18	0.58	0.86	2.16	0.18	0.23	0.69
Asia Pacific	0.80	1.31	0.27	0.33	0.50	0.81	2.49	0.27	0.29	0.70
Japan	0.85	1.94	0.13	0.21	0.59	0.85	3.51	0.25	0.31	0.80
Emerging Markets	0.69	1.54	0.23	0.33	0.54	0.65	1.84	0.39	0.28	0.60

Internet Appendix Table 14A, continued

The regressions use the Fama-French three-factor model (*left in the panels*) and the Carhart four-factor model (*right the panels*) to explain the returns on five sets of regional portfolios on North America ("NA" in the table), Europe, Japan, Asia Pacific (excluding Japan), and Emerging Markets. The models are estimated using monthly returns on the 25 Fama-French size and B/M ranked portfolios and ten industry portfolios (*left in the panels*) and those on size and momentum and ten industry portfolios (*right in the panels*). The table presents regression results of the benchmark of the perfect segmentation model and the partial-segmentation model. Please see Internet Appendix Table 4C for details on the model specification and the regression tests.

Internet Appendix Table 15A, Summary Statistics for the Significance of the Two Externality Factors in the Partial Segmentation Version of the Fama-French Three-Factor Model Using Time-Series Regression Tests

Panel A reports the rejection rates on the *D*-test for regional regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect segmentation model as the base model.

	Different Choice on the Matrix S	Same Choice on the Matrix S
Fama-French for 25 Size/B/M + 10 industry		
North America	94%	100%
Europe	100%	100%
Asia Pacific	51%	100%
Japan	3%	100%
Emerging Markets	9%	100%
Carhart for 25 Size/Momentum+ 10 industry		
North America	63%	100%
Europe	100%	100%
Asia Pacific	40%	100%
Japan	63%	100%
Emerging Markets	57%	100%

Panel B reports the rejection rates on the other $\chi 2$ difference test for regional regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect segmentation model as the base model.

	Different Choice on the Matrix S	Same Choice on the Matrix S
Fama-French for 25 Size/B/M + 10 industry		
North America	100%	100%
Europe	89%	97%
Asia Pacific	89%	100%
Japan	83%	97%
Emerging Markets	97%	94%
Carhart for 25 Size/Momentum+ 10 industry		
North America	80%	100%
Europe	89%	97%
Asia Pacific	86%	97%
Japan	83%	97%
Emerging Markets	97%	97%

Internet Appendix Table 15A, continued

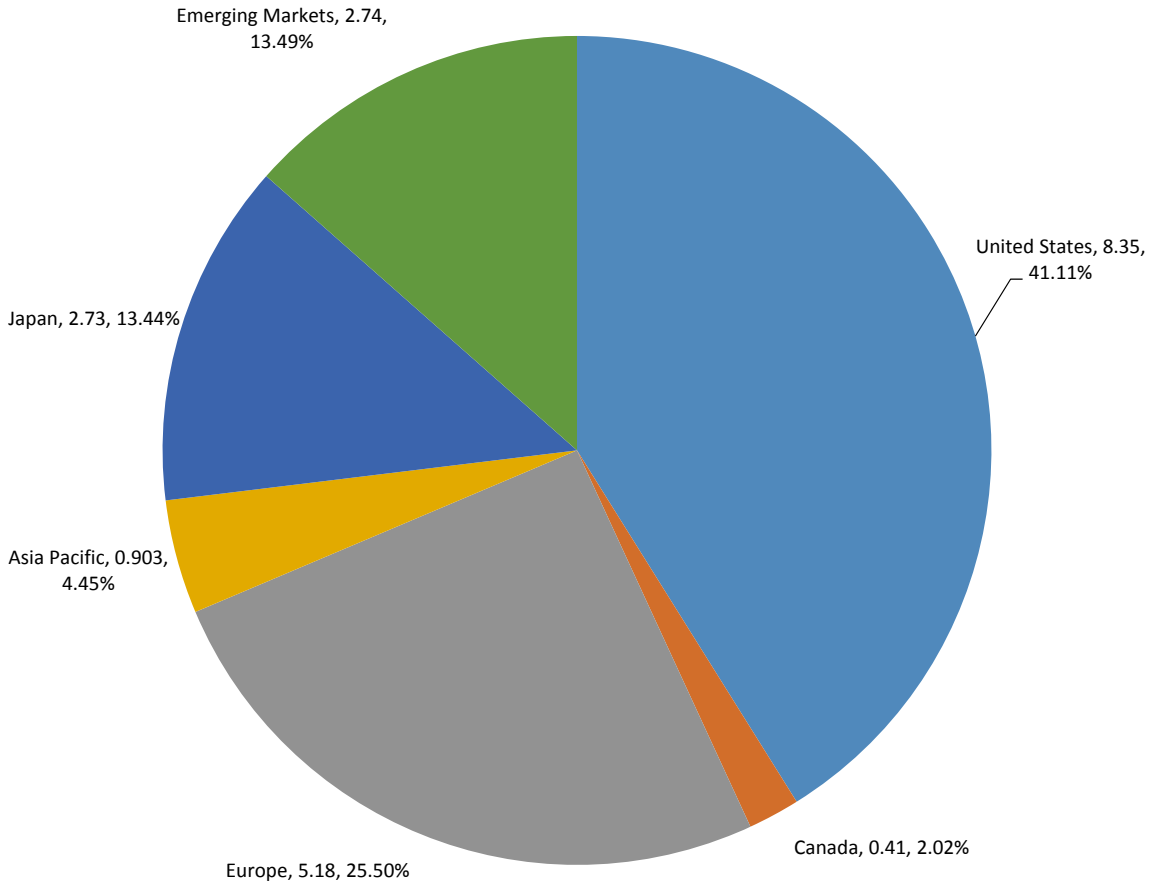
Panel C reports the rejection rates on the traditional *F* test for regional regression tests when the partial segmentation model consists of the local externality factor, the global externality factor, and the perfect segmentation model as the base model.

	Without Newey and West's Correction	**With Newey and West's Correction**
Fama-French for 25 Size/B/M + 10 industry		
North America	89%	74%
Europe	66%	49%
Asia Pacific	94%	77%
Japan	74%	66%
Emerging Markets	100%	94%
Carhart for 25 Size/Momentum+ 10 industry		
North America	77%	54%
Europe	51%	71%
Asia Pacific	77%	77%
Japan	86%	80%
Emerging Markets	80%	77%

Internet Appendix Figure

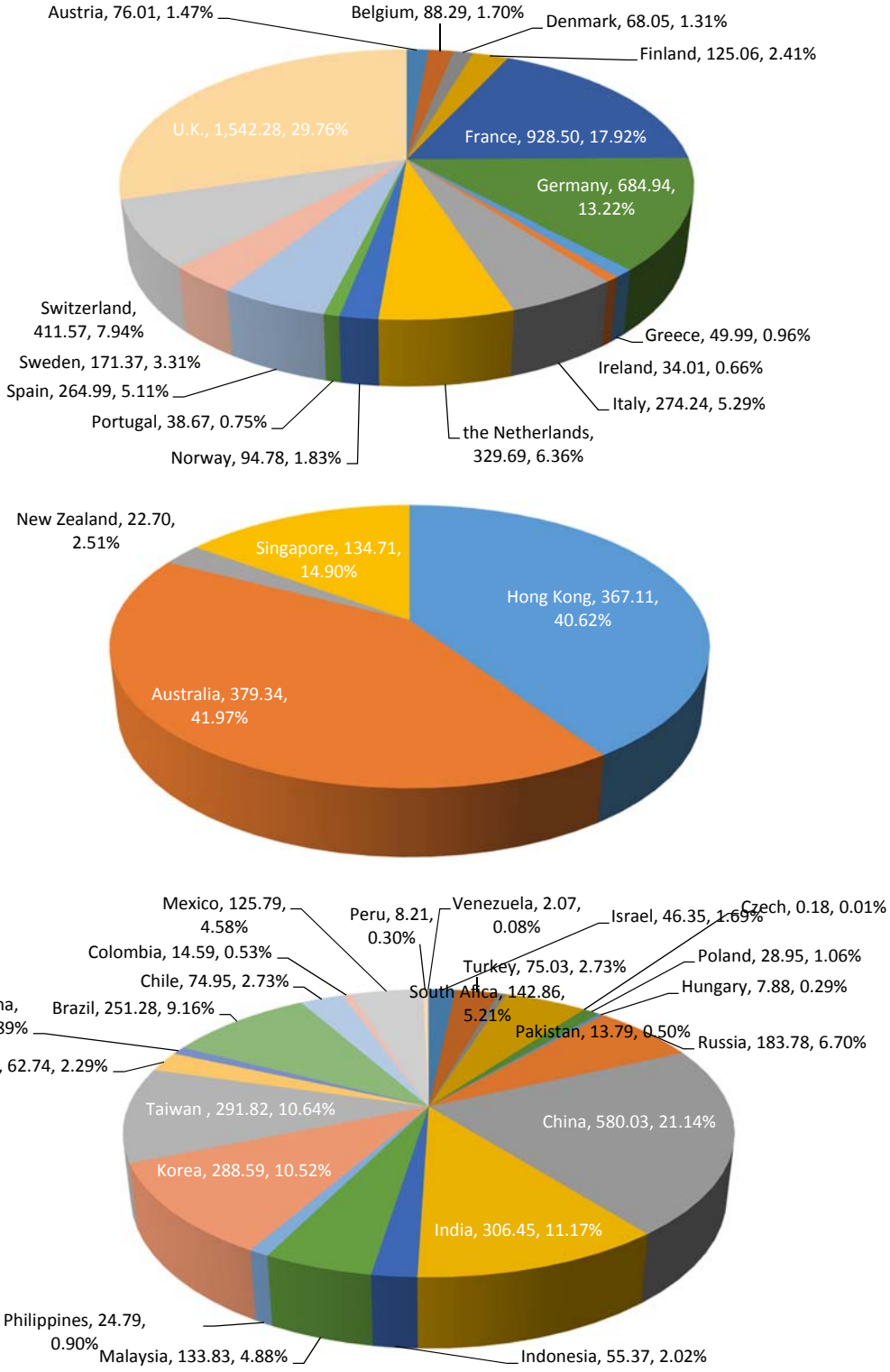
Internet Appendix Figure IA - Global Equity Universe, reported by Total Market Capitalization

Figure IA shows the distribution of the global equity universe by region. Beside each region name is the time series average market capitalization from that region that qualifies for analysis, which is in U.S. dollars trillion, and its percentage of global market capitalization. The sample selection criteria are described in Appendix A.



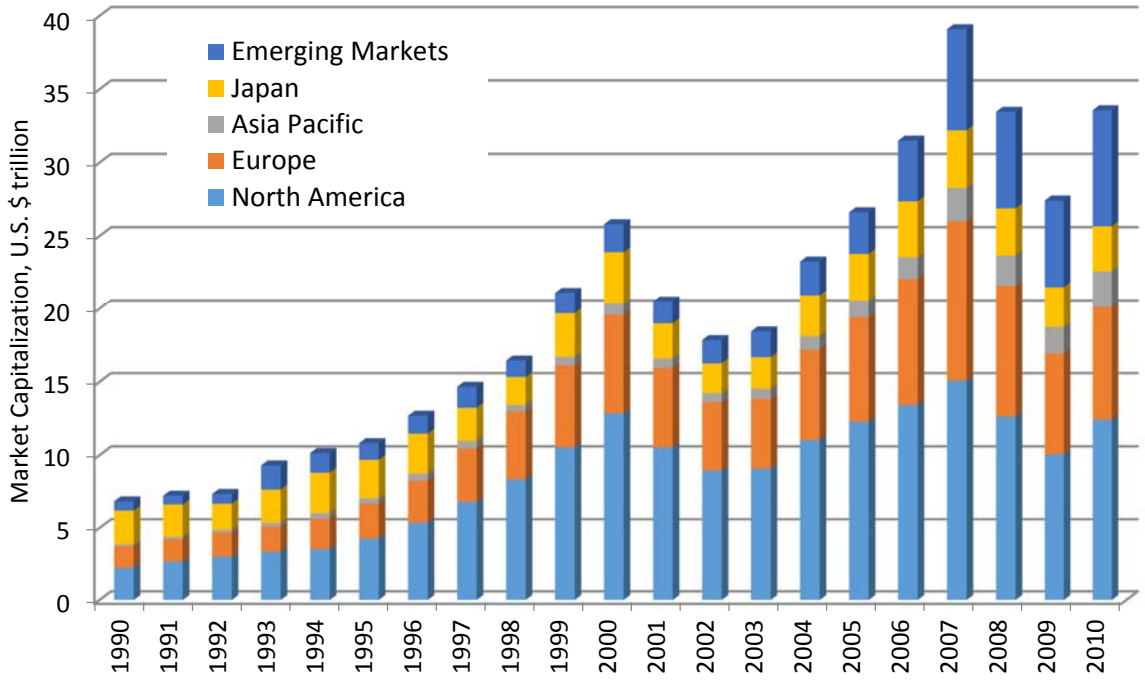
Internet Appendix Figure IA. Continued

Figure IA show the distributions of Europe, Asia Pacific and Emerging Markets equity universes by country. Beside each country name is the average market capitalization from that country, which is in U.S. dollars billion, and the percentage of regional market capitalization. The sample selection criteria are described in Appendix A.



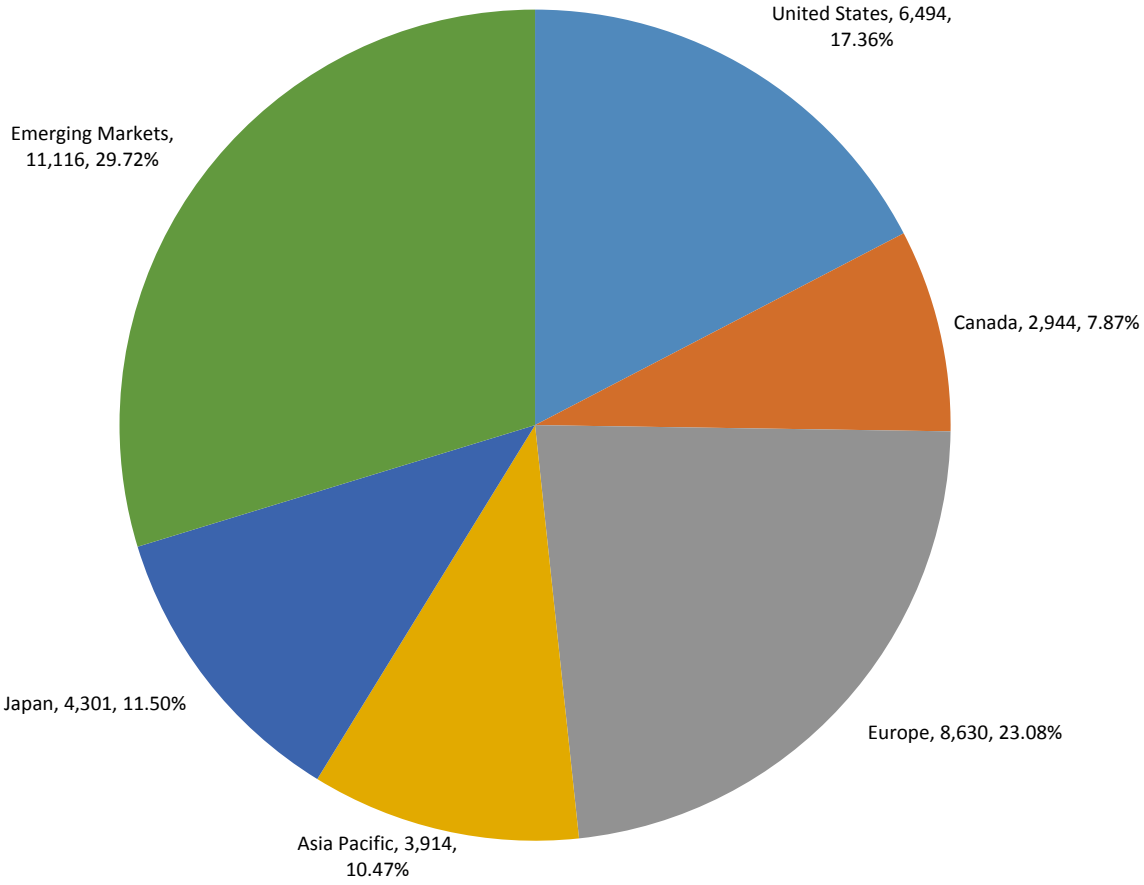
Internet Appendix Figure IB - Global Equity Universe by Year, reported by Total Market Capitalization

Figure IB show the distribution of our sample stocks from each region by year. The sample selection criteria are described in Appendix A.



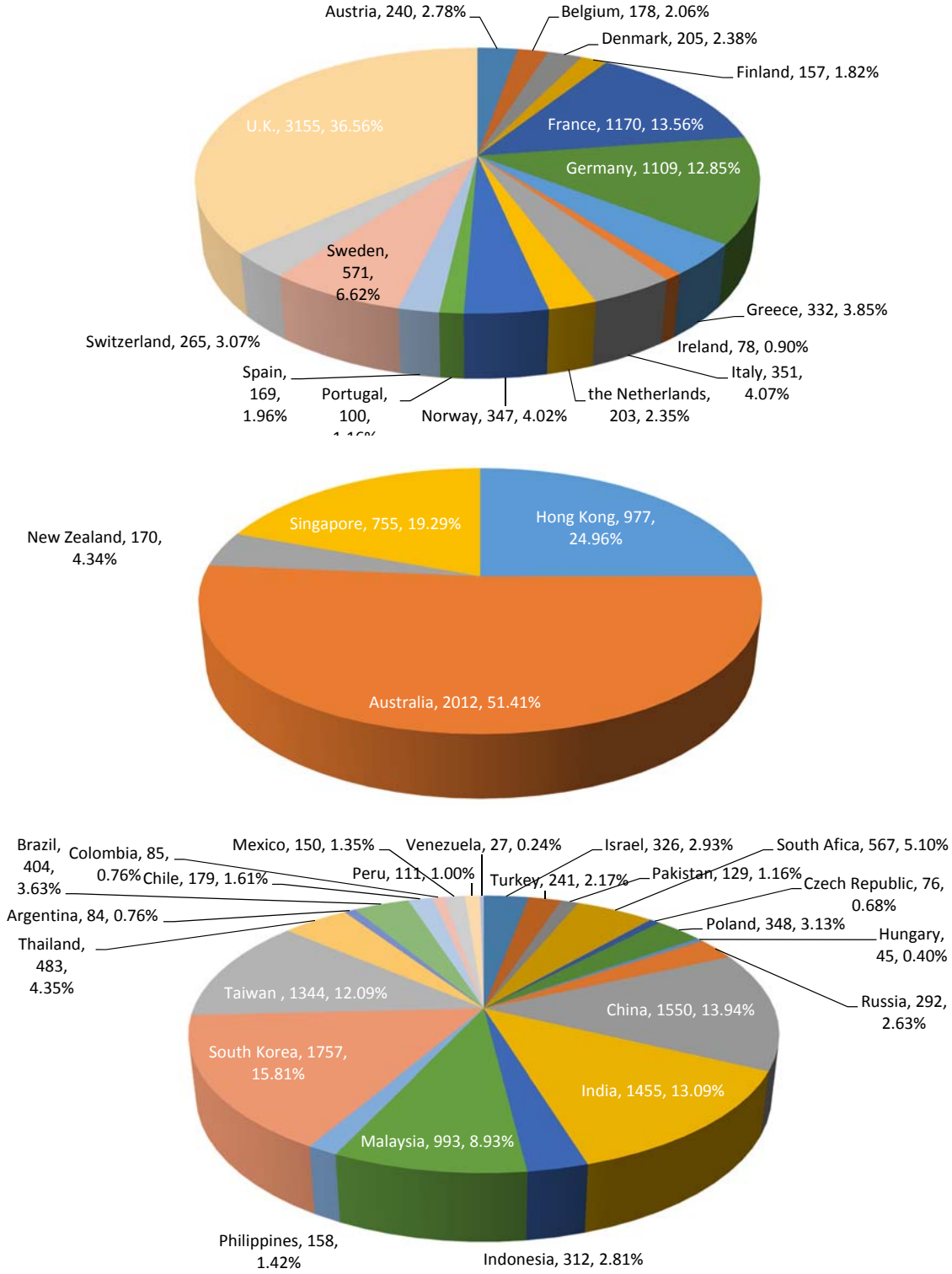
Internet Appendix Figure IC - Global Equity Universe, reported by Total Number of Stocks

Figure IC shows the distribution of the global equity universe by region. Beside each region name is the total number of sample stocks from that region that qualifies for analysis and the percentage of the total number that this count represents. The sample selection criteria are described in Appendix A.



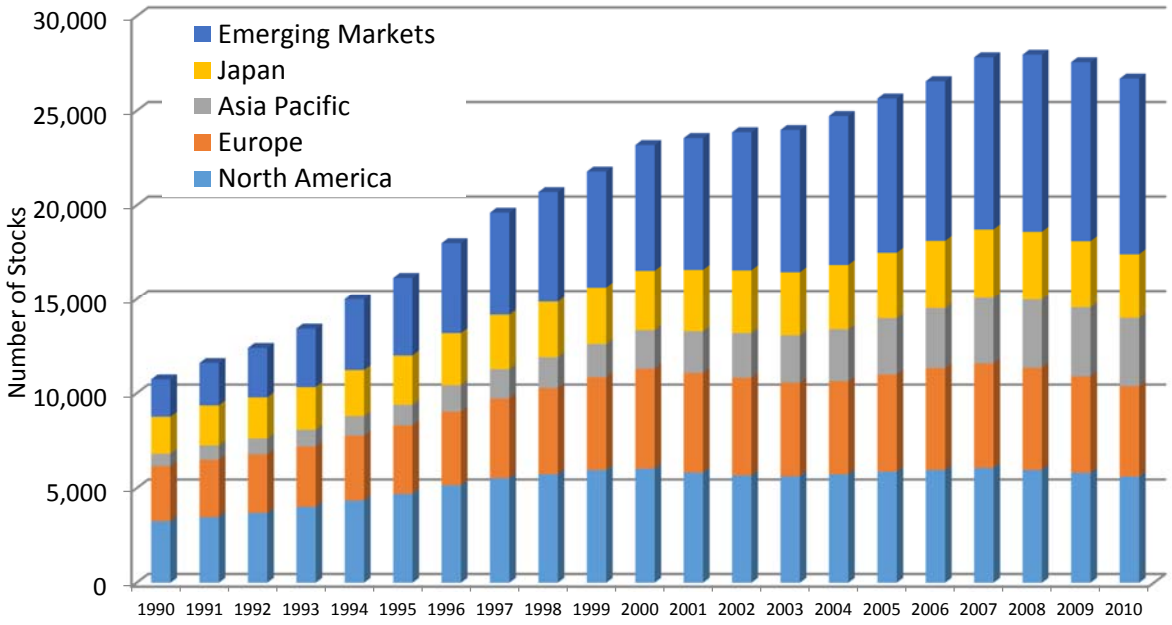
Internet Appendix Figure IC. Continued

Figure IC show the distributions of Europe, Asia Pacific and Emerging Markets equity universes by region. Beside each country name is the total number of sample stocks from that country that qualifies for analysis and the percentage of the total number that this count represents. The sample selection criteria are described in Appendix A.



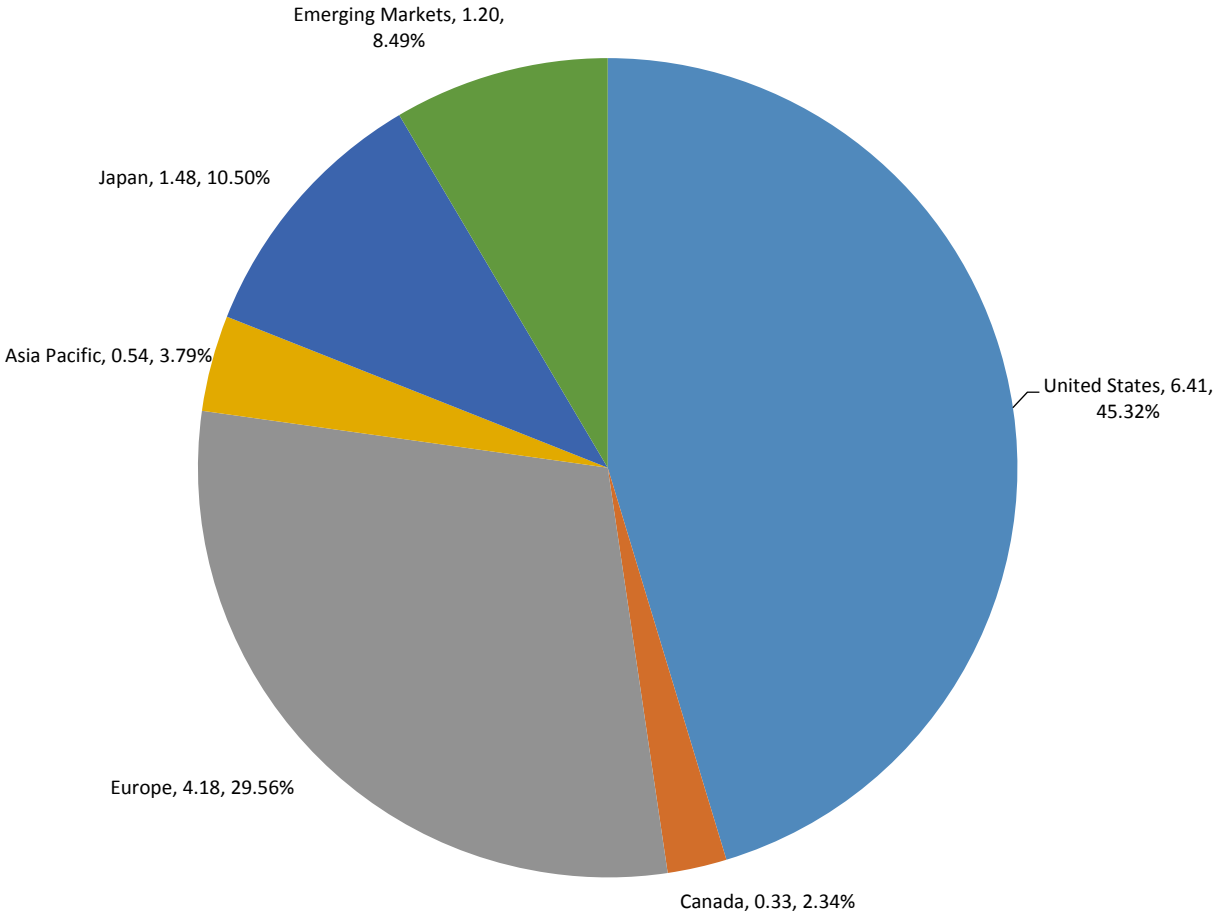
Internet Appendix Figure ID. Global Equity Universe by Year, reported by Total Number of Stocks.

Figure ID show the distribution of our sample stocks from each region by year. The sample selection criteria are described in Appendix A.



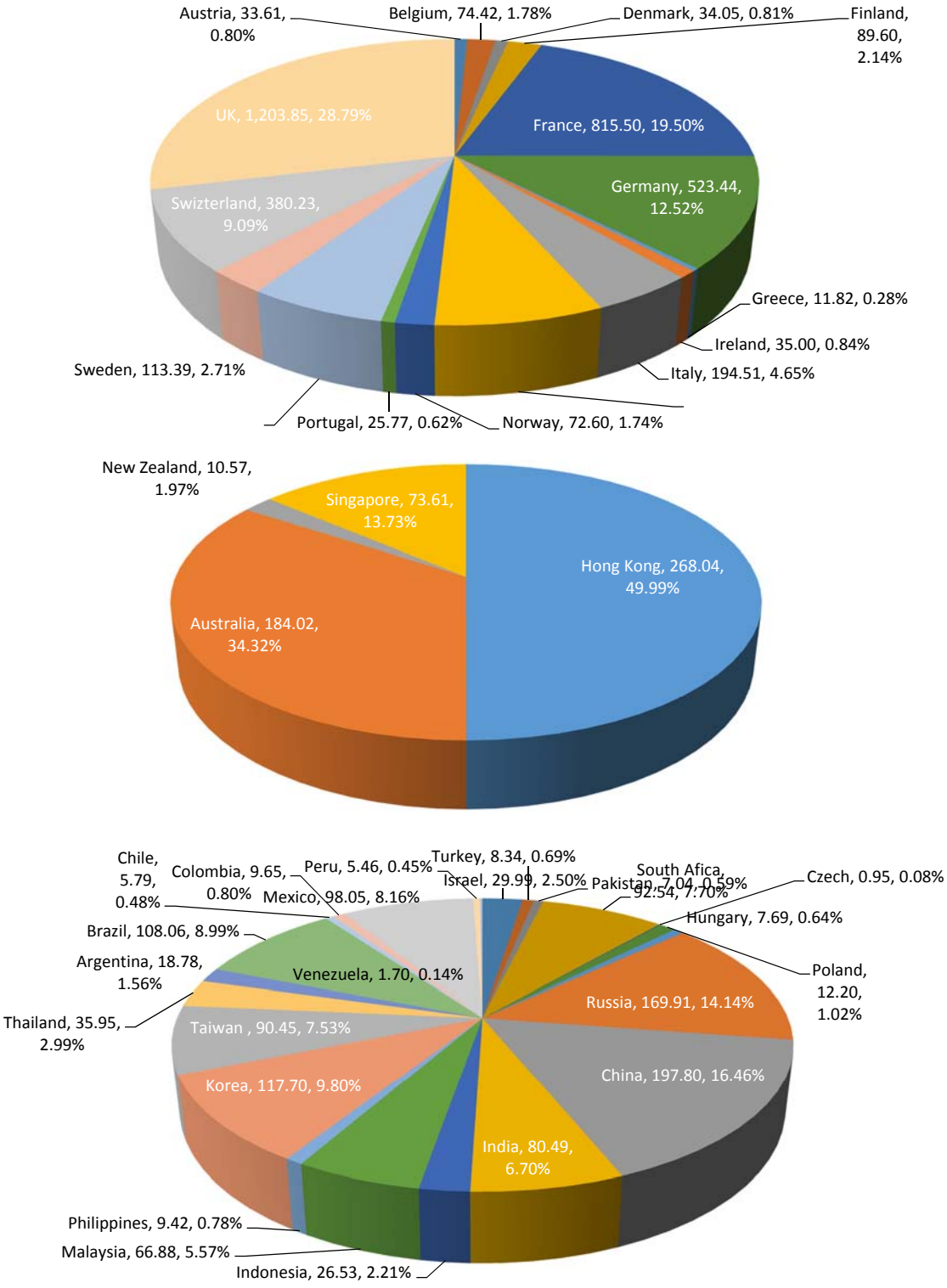
Internet Appendix Figure IIA - Globally Accessible Sample, reported by Total Market Capitalization

Figure IIA shows the distribution of the globally accessible sample by region. Beside each region name is the average market capitalization from that region, which is in U.S. dollars trillion, and its percentage of market capitalization. Here the sample is represented by the Main CL Tier and the sample selection criteria are described in the Appendix A.



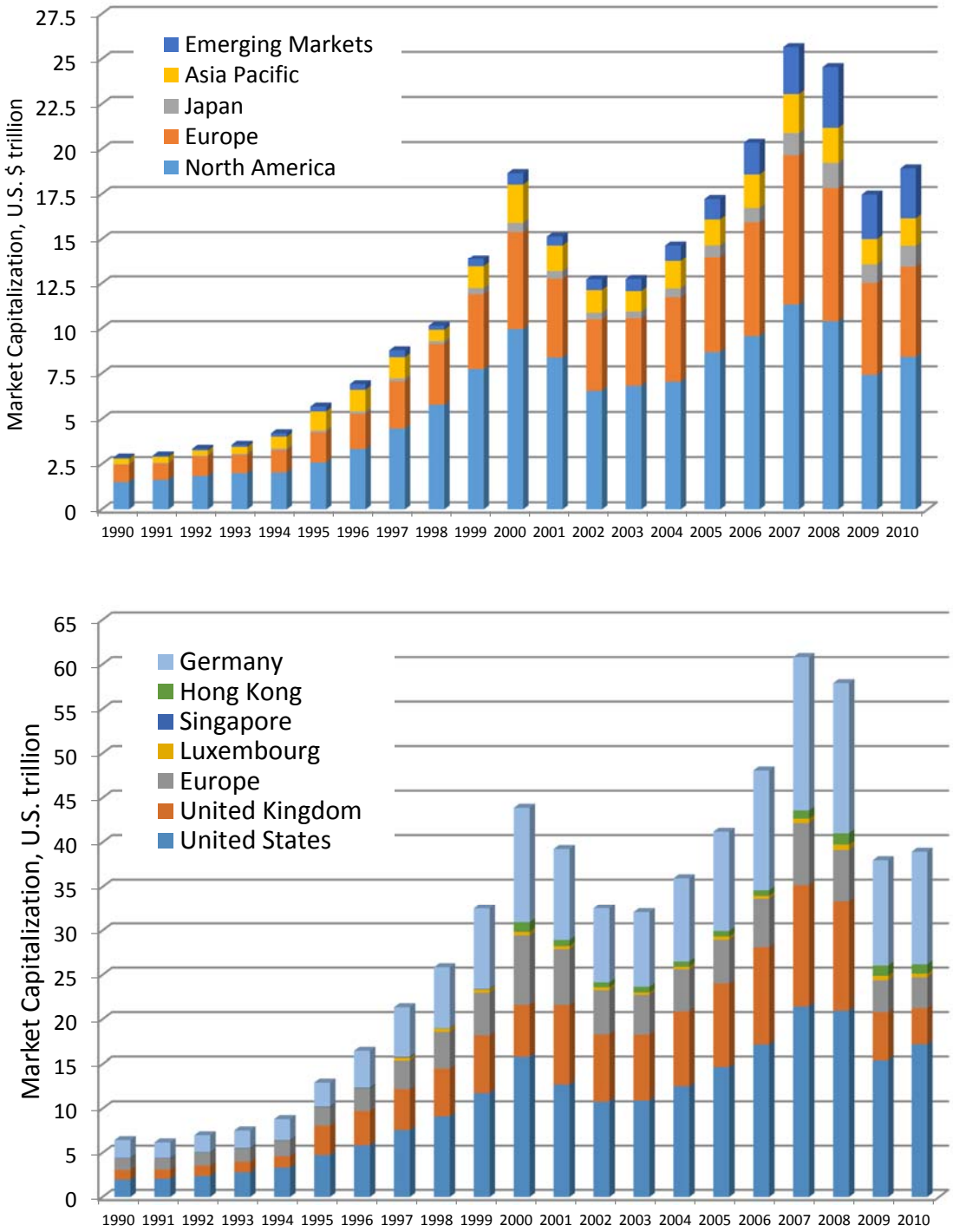
Internet Appendix Figure IIA. Continued

Figure IIA show the distributions of Europe, Asia Pacific and Emerging Markets globally accessible samples by country. Beside each country name is the average market capitalization from that country, which is in U.S. dollars billion, and its percentage of market capitalization. Here the sample is represented by the Main CL Tier and the selection criteria are described in the Appendix A.



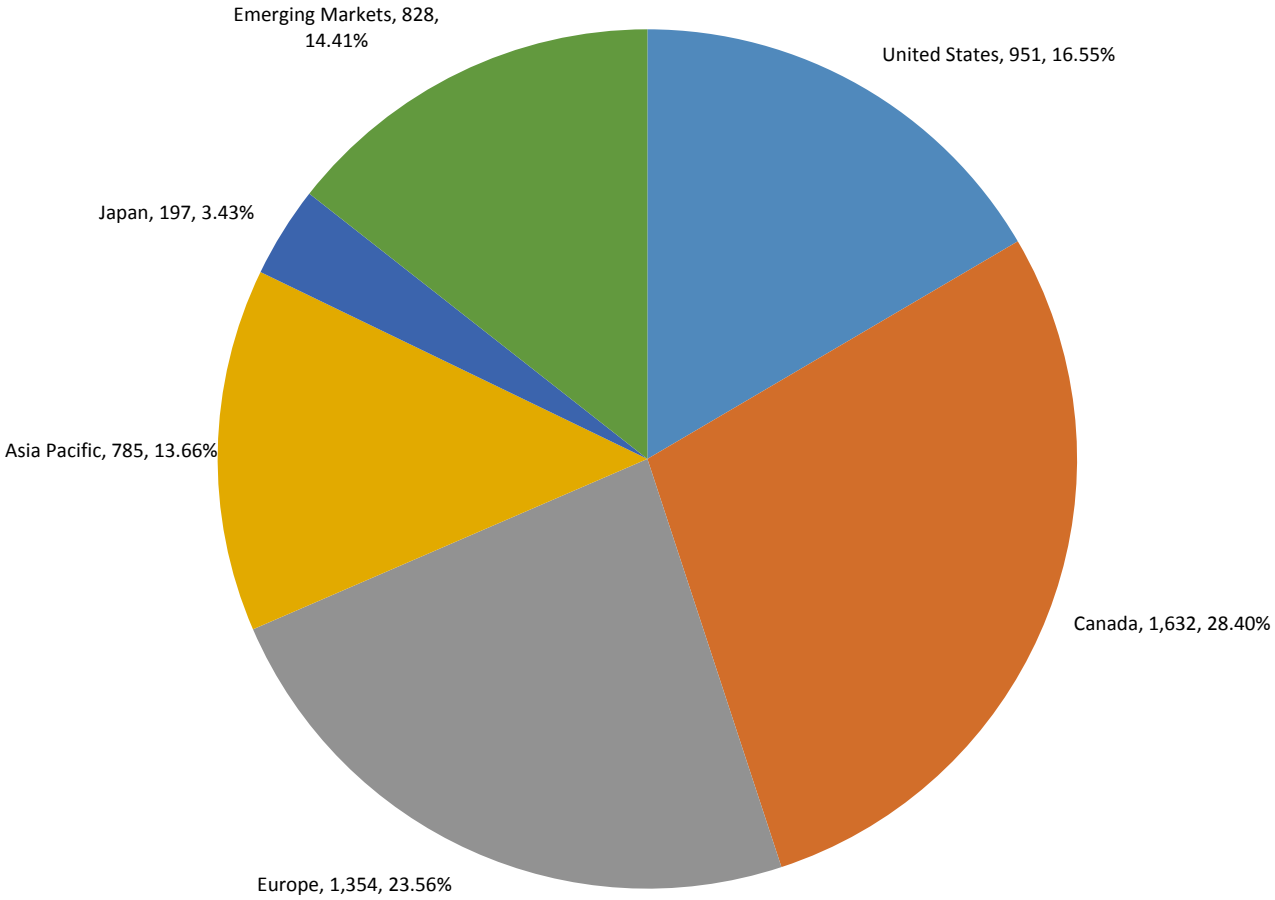
Internet Appendix Figure IIB - Globally Accessible Sample by Year, reported by Total Market Capitalization

Figure IIB show the distribution of globally accessible sample from each region (above) and from each target markets (below) by year. Here the sample is represented by the Main CL Tier and the sample selection criteria are described in the Appendix A.



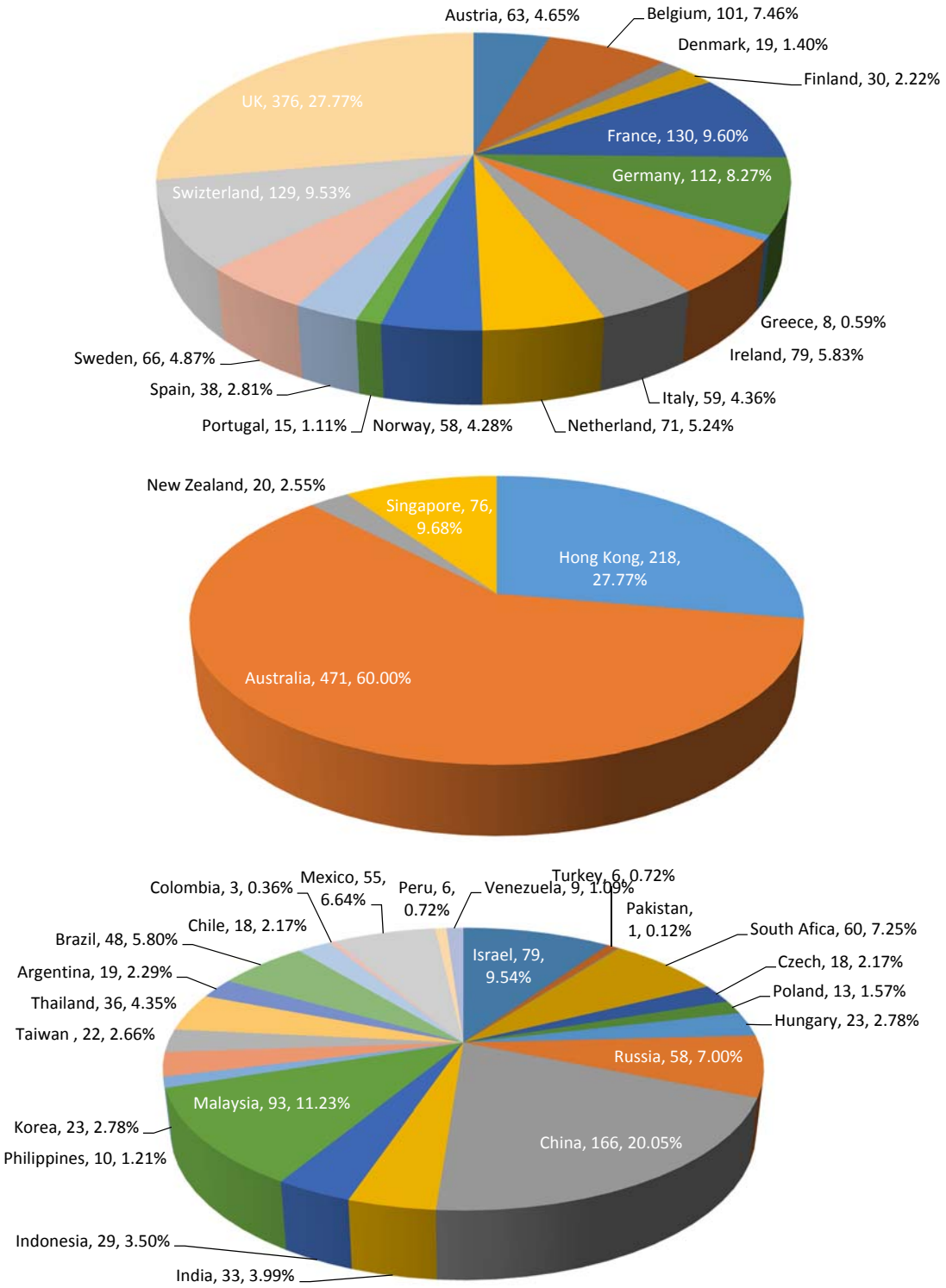
Internet Appendix Figure IIC - Globally Accessible Sample, reported by Total Number of Stocks

Figure IIC shows the distribution of the globally accessible sample by region. Beside each region name is the total number of sample stocks from that region that qualifies for analysis and the percentage of the total number that this count represents. Here the sample is represented by the Main CL Tier and the sample selection criteria are described in the Appendix A.



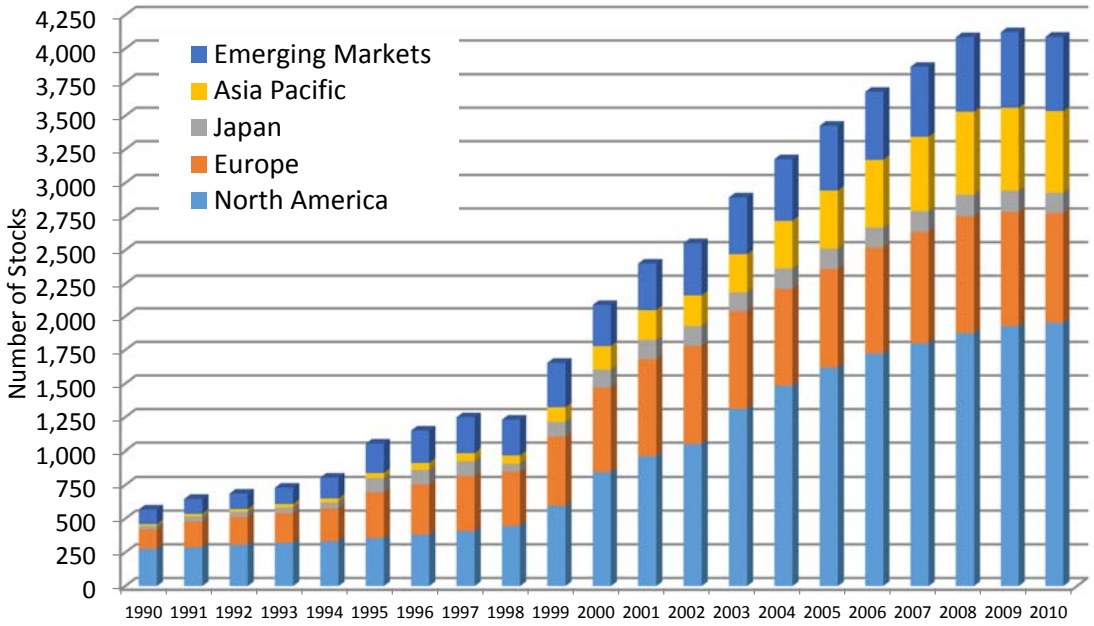
Internet Appendix Figure IIC. Continued

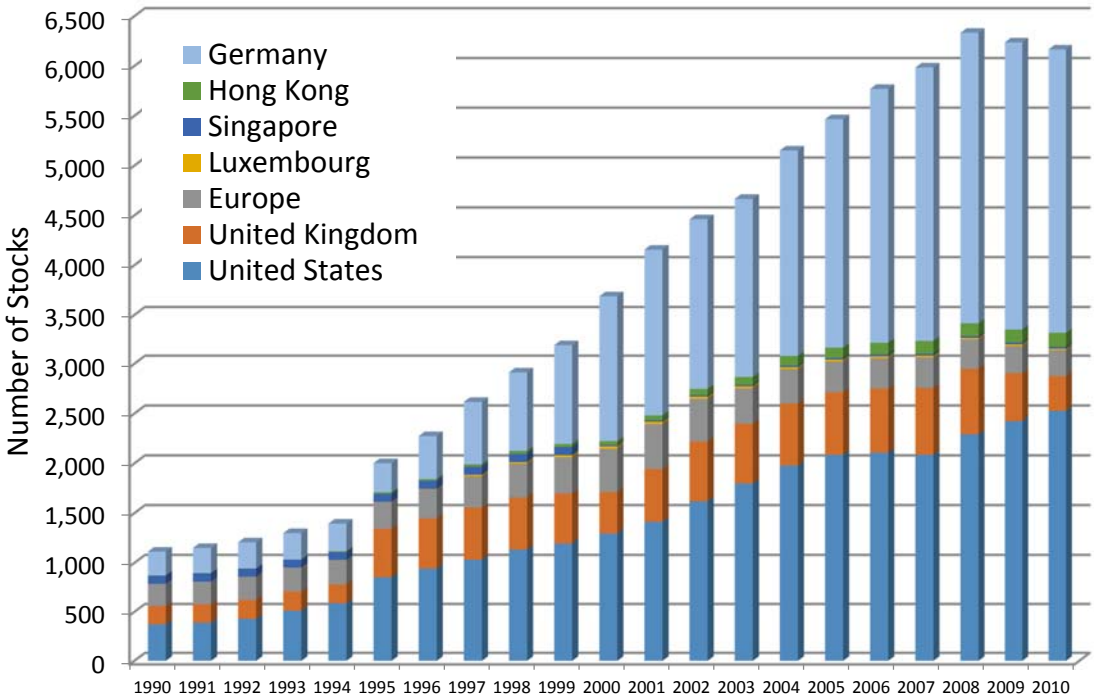
Figure IIC show the distributions of Europe, Asia Pacific and Emerging Markets globally accessible samples by country. Beside each country name is the total number of sample stocks from that country that qualifies for analysis and the percentage of the total number that this count represents. Here the sample is represented by the Main CL Tier and the selection criteria are described in the Appendix A.



Internet Appendix Figure IID - Globally Accessible Sample by Year, reported by Total Number of Stocks

Figure IID show the distribution of globally accessible sample from each region (above) and from each target markets (below) by year. Here the sample is represented by the Main CL Tier and the sample selection criteria are described in the Appendix A.





Internet Appendix Reference

Adler, M., and B. Dumas. "International Portfolio Choice and Corporation Finance: a Synthesis." *Journal of Finance*, 38 (1983), 925–984.

Alexander G. J.; C. S. Eun; and S. Janakiramanan. "Asset Pricing and Dual Listing on Foreign Capital Markets: A Note." *Journal of Finance*, 42 (1987), 151–158.

Ang, A.; J. Liu; and K. Schwarz. "Using Stocks or Portfolios in Tests of Factor Models." Working Paper, Columbia University (2010).

Baker, M.; B. Bradley; and J. Wurgler. "Benchmarks as Limits to Arbitrage: Understanding the Low Volatility Anomaly." *Financial Analysts Journal*, 67 (2011), 40–54.

Bekaert, G.; C.R. Harvey; and C.T.Lundblad. "Liquidity and Expected Returns: Lessons From Emerging Markets." *Review of Financial Studies*, 20 (2007), 1783–1831.

Bekaert, G.; C.R. Harvey; C. T. Lundblad; and S. Siegel. "What Segments Equity Markets?" *Review of Financial Studies*, 24 (2011), 3841–3890.

Bekaert, G.; R. J. Hodrick; and X. Zhang. "International Stock Return Comovements." *Journal of Finance*, 64 (2009), 2591–2626.

Bekaert, G., and M. S. Urias. "Diversification, Integration and Emerging Market Closed-End Funds." *Journal of Finance*, 51 (1996), 835–869.

Berk, J. "Sorting Out Sorts." *Journal of Finance*, 55 (2000), 407–427.

Black, F. "Capital Market Equilibrium with Restricted Borrowing." *Journal of Business*, 45(1972), 444–455.

Black, F. "Beta and Return." *The Journal of Portfolio Management*, 20 (1993), 8–18.

Black, F.; M. C. Jensen; and M. Scholes. "The Capital Asset Pricing Model: Some Empirical Tests." In *Studies in the Theory of Capital Markets*, Michael C. Jensen (ed.), New York, 79–121 (1972).

Bodurtha, J. "International Investment Restrictions and Factor Pricing." Working Paper, Georgetown University (1999).

Carhart, M. M. "On Persistence in Mutual Fund Performance." *Journal of Finance*, 52 (1997), 57–82.

Carrieri, F.; I. Chaieb; and V. Errunza. "On the Pricing of Investable Securities and the Role of Implicit Barriers." Working Paper, McGill University (2008).

Carrieri, F.; I. Chaieb; and V. Errunza. "Do Implicit Barriers Matter for Globalization?" *Review of Financial Studies*, 26 (2013), 1694–1739.

Carrieri, F.; V. Errunza; and K. Hogan. "Characterizing World Market Integration Through Time." *Journal of Financial and Quantitative Analysis*, 42 (2007), 915–940.

Chan, K., and Lakonishok. "The Risk and Return from Factors." *Journal of Financial and Quantitative Analysis*, 33(1998), 159–188.

Cochrane, J. H. Asset Pricing (Princeton University Press, Princeton and Oxford, 2005).

Dahlquist, M., and G. Robertsson. "Direct Foreign Ownership, Institutional Investors, and Firm Characteristics." *Journal of Financial Economics*, 59 (2001), 413–440.

Doidge, C.; G. A. Karolyi; and R. M. Stulz. "Has New York Become Less Competitive in Global Markets? Evaluating Foreign Listing Choices over Time." *Journal of Financial Economics*, 91(2009), 253–277.

Errunza, V., and E. Losq. "International Asset Pricing under Mild Segmentation: Theory and Test." *Journal of Finance*, 40 (1985), 105–124.

Errunza, V., and D. Miller. “Market Segmentation and the Cost of Capital in International Equity Markets.” *Journal of Financial and Quantitative Analysis*, 35 (2000), 577–600.

Errunza, V., and H. Ta. “The Impact of Investability on Asset Valuation.” Working Paper, McGill University (2011).

Eun, C. S., and S. Janakiramanan. “A Model of International Asset Pricing with a Constraint on the Foreign Equity Ownership.” *Journal of Finance*, 41 (1986), 897–914.

Falkenstein, E. “Preferences for Stock Characteristics as Revealed by Mutual Fund Portfolio Holdings.” *Journal of Finance*, 51 (1996), 111–135.

Fama, E. F., and K. R. French. “Common Risk Factors in the Returns on Stocks and Bonds.” *Journal of Financial Economics*, 33 (1993), 3–56.

Fama, E. F., and K. R. French. “Size and Book-to-Market Factors in Earnings and Returns.” *Journal of Finance*, 50 (1995), 131–155.

Fama, E. F., and K. R. French. “Value versus Growth: The International Evidence.” *Journal of Finance*, 53 (1998), 1975–1999.

Fama, E. F., and K. R. French. “Size, Value, and Momentum in International Stock Returns.” *Journal of Financial Economics*, 105 (2012), 457–472.

Ferreira, M. A., and P. Matos. “The Colors of Investors’ Money: The Role of Institutional Investors Around the World?” *Journal of Financial Economics*, 88 (2008), 499–533.

Foerster, S.R., and G. A. Karolyi. “International Listings of Stocks: The Case of Canada and the U.S.” *Journal of International Business Studies*, 24 (1993), 763–784.

Frazzini, A., and L.H. Pedersen. “Betting against Beta.” *Journal of Financial Economics*, 111 (2013), 1–25.

Gibbons, M. “Multivariate Tests of Financial Models: A New Approach.” *Journal of Financial Economics*, 10 (1982), 3–27.

Gibbons, M. R.;S. A. Ross; and J. Shanken. “A Test of the Efficiency of A Given Portfolio.” *Econometrica*, 57 (1989), 1121–1152.

Gompers, P., and A. Metrick. “Institutional Investors and Equity Prices.” *The Quarterly Journal of Economics,* 116 (2001), 229–259.

Goodman, L. A., and Y. Grunfeld. “Some Nonparametric Tests for Comovement Between Time Series.” *Journal of the American Statistical Association*, 56 (1961), 11–26.

Grauer, R. R., and J. A. Janmaat. “The Unintended Consequences of Grouping in Tests of Asset Pricing Models.” *Journal of Banking and Finance*, 28 (2004), 2889–2914.

Grauer, F. L. A.; R. H. Litzenberger; and R. E. Stehle. “Sharing Rules and Equilibrium in an International Capital Market under Uncertainty.” *Journal of Financial Economics*, 3 (1976), 233–256.

Griffin, J. M. “Are the Fama and French Factors Global or Country Specific?” *Review of Financial Studies*, 15 (2002), 783–803.

Hansen, L.P. “Large Sample Properties of Generalised Method of Moment Estimators.” *Econometrica*, 50 (1982), 1029–1054.

Hou, K.; G. A. Karolyi.; and B. C. Kho. “What Factors Drive Global Stock Returns?” *Review of Financial Studies*, 24 (2011), 2527–2574.

Ince, O., and R. B. Porter. “Individual Equity Return Data From Thomson Datastream: Handle with Care! ” *Journal of Financial Research*, 29 (2006), 463–479.

Kandel, S. “The Likelihood Ratio Test Statistic of Mean-variance Efficiency Without a Riskless Asset.” *Journal of Financial Economics*, 13 (1984), 575–592.

Kan, R. “On the Explanatory Power of Asset Pricing Models Across and Within Portfolios.” Working Paper, University of Toronto (1998).

Kan, R.; C. Robotti; and J. Shanken. “Pricing Model Performance and the Two-Pass Cross-Sectional Regression Methodology.” *Journal of Finance*, 68 (2013), 2617–2649.

Karolyi, G. A., and R. M. Stulz. “Are Assets Priced Locally or Globally?” In *The Handbook of the Economics of Finance*, G. Constantinides, M. Harris and R. Stulz, eds. North Holland (2003).

Lesmond, D. “Liquidity of Emerging Markets.” *Journal of Financial Economics*, 77 (2005), 411–452.

Lesmond, D.; J. Ogden;and C. Trzcinka. “A New Estimate of Transaction Costs.” *Review of Financial Studies*, 12 (1999), 1113–1141.

Lewellen, J.; S. Nagel; and J. Shanken. “A Skeptical Appraisal of Asset Pricing Tests.” *Journal of Financial Economics*, 96 (2010), 175–194.

Lewis, K. K. “Global Asset Pricing.” *Annual Review of Financial Economics,*3 (2011), 435–466.

Newey, W., and West, K. “Hypothesis Testing with Efficient Method of Moments Estimation.” *International Economic Review*, 28 (1987), 777–787.

Novy-Marx, R. “Understanding Defensive Equity.” Working Paper, University of Rochester (2014).

Roll, R. “A Critique of the Asset Pricing Theory’s Tests; Part I: On Past and Potential Testability of Theory.” *Journal of Financial Economics*, 4 (1977), 129–176.

Roosenboom, P., and M. A. van Dijk. “The Market Reaction to Cross-listings: Does the Destination Market Matter? ” *Journal of Banking and Finance*, 33 (2009), 1898–1908.

Sarkissian, S., and M. J. Schill. "Are There Permanent Valuation Gains to Overseas Listing?" *Review of Financial Studies*, 22 (2009), 371–412.

Sarkissian, S., and M. J. Schill ."Cross-Listing Waves." *Journal of Financial and Quantitative Analysis*, 51(2016), 259–306.

Sercu, P. "A Generalization of the International Asset Pricing Model." *Revue de l' Association Française de Finance*, 1 (1980), 91–135.

Shanken, J. "Multivariate Tests of the Zero-beta CAPM." *Journal of Financial Economics*, 14 (1985), 327–348.

Solnik, B. "An Equilibrium Model of the International Capital Market." *Journal of Economic Theory*, 8 (1974), 500–524.

Solnik, B. "Testing International Asset Pricing: Some Pessimistic Views." *Journal of Finance*, 32 (1977), 503–512.

Stehle, R. "An Empirical Test of the Alternative Hypotheses of National and International Pricing of Risky Assets." *Journal of Finance*, 32 (1977), 493–502.

Stulz, R. M. "A Model of International Asset Pricing." *Journal of Financial Economics*, 9 (1981), 383–406.