# MARKET BREAKDOWN OF THE REACTION OF INITIAL ADR ISSUERS TO SUBSEQUENT ADRS

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## ABSTRACT

*Previous research has shown that new ADR programs affect the market from which the program originates as well as the initial ADR issuer from the market. While previous research analyzed the effect of each subsequent ADR issuance on the initial ADR issuer, this paper focuses on the effect on the initial ADR issuer for specific markets. Mixed but significant results are found for six of the nine markets studied. Results are reported for various event windows using listing and announcement dates.*

## INTRODUCTION AND LITERATURE REVIEW

The purpose of this study is to assess the reaction of the first firm offering an ADR program to subsequent ADR programs in the same country. Blaylock (2014b) reports that, in aggregate, the initial ADR is both positively and negatively affected by subsequent ADR issuances. This study is similar but reports reactions at the country level for nine emerging markets.

ADRs offer benefits to investors seeking international diversification as well as for the issuing companies. According to Jiang (1998) benefits to investors include fewer complications and costs of directly investing in the foreign market. Specifically, there are no custodian safekeeping charges, they provide greater liquidity, are easily executed, U.S. clearing systems are used for trading, clearing, and settlement, and currency is converted at wholesale rates. Companies issuing ADRs benefit by using them to facilitate U.S. investment, raise capital, make acquisitions, and improve name recognition. ADRs also broaden the shareholder base, may increase demand for shares, and potentially lower the cost of financing in the U.S. See Sundaram and Logue (1996) and Foerster and Karolyi (1993, 1999) for additional benefits for investors and companies.

The benefits of international diversification are clear. Early studies demonstrate that the variance of a purely domestic portfolio is reduced when indices of international equity markets are added (Grubel, 1968; Levy and Sarnat, 1970; and Speidell and Sappenfield, 1992) and later studies confirm the benefits of diversifying internationally (Fouquau, Kharoubi, and Spieser, 2018; Rim and Setaputra, 2012). However, international markets may become segmented due to investment barriers resulting in higher risk premiums in the more restricted markets (Errunza and Losq, 1985; Foerster and Karolyi, 1993). The barriers between securities markets restrict information flow and asset pricing to within distinct and separate markets so that the same level of risk in the segmented markets may not be compensated by the same level of returns. In other words, two assets with the same level of risk in different markets offer different risk premiums. Direct and indirect barriers to international investment include regulatory barriers to capital flows such as ownership restrictions (Miller, 1999; Foerster and Karolyi, 1993; Domowitz, Glen, and Madhavan, 1997; Bailey, Chung, and Kang 1999; Sundaram and Logue, 1996), transactions cost (Foerster and Karolyi, 1993; Sundaram and Logue, 1996), information availability and costs (Miller, 1999; Foerster and Karolyi, 1993; Sundaram and Logue, 1996), poor liquidity (Miller, 1999), different

tax rules (Miller, 1999; Foerster and Karolyi, 1993; Sundaram and Logue, 1996), different accounting standards (Miller, 1999), and fear of expropriation (Adler and Dumas, 1983).

Removing international investment barriers, a process called market liberalization, would reduce the cost of capital in formerly segmented markets due to increased market integration. Since market segmentation and the resulting heterogeneous risk premiums result from investment barriers, bypassing or removal of those barriers such as dual-listing a company's shares (Stapleton and Subrahmanyam, 1977) or regulatory change (Henry, 2000) would tend to integrate international markets resulting in risk premiums that are more homogeneous. Risk premiums and the cost of capital in the restricted markets would tend to fall (Bekaert and Harvey, 2000). Indicators listed by Bekaert and Harvey are the introduction of depositary receipts and country funds, regulatory changes, and breakpoints in capital flows. Regulatory changes are official liberalizations that reduce direct barriers to investment such as foreign ownership restrictions. Breakpoints in capital flows would indicate when the presence of foreign investors is significantly increased. However, despite market liberalizations, Bekaert, Hodrick, and Zhang (2009) do not find a significant increase in market correlations during the 1980-2005 period. Correlations seem to increase during market downturns (Longin and Solnik, 2001; Ang and Bekaert, 2002; Ang and Chen, 2002).

Depository receipts, specifically American Depository Receipts (ADRs), are addressed in this study. Yuan, Gupta, and Roca (2016) find ADRs are beneficial diversifying vehicles. Miller (1999) and Blaylock and Duett (2004) find that ADR issuers experience positive abnormal returns around the time of ADR issuance. They interpret this reaction as a reduction in the cost of capital (i.e., risk premiums) due to the liberalizing event of issuing ADRs. Chakraborty and Holani (2011) find ADR issuers experience positive returns on the ADR listing day but experience an adverse reaction during the post listing period.

Liberalization and cost of capital reductions happen gradually. As markets are integrated the reductions in the cost of capital decrease in magnitude with each additional liberalization (Bekaert and Urias, 1999; Bekaert and Harvey, 1997). Cho and Rhee (1999) imply that marginal gains of international diversification are small after markets have liberalized. Madura and Whyte (1991) find that international diversification benefits may have decreased through time due to increased correlations between credit risk premiums. More integrated markets characterized by a greater number of ADRs and country funds have a lower average cost of capital (Bekaert, 1995). However, market segmentation and diversification gains still exist. Christoffersen, Errunza, Jacobs, and Langlios (2012) find correlations have increased in the 1973-2009 period, especially among developed markets, but emerging markets sill provide diversification benefits (see also, Boamah, 2017). According to Switzer and Tahaoglu (2015) investors can benefit from diversification by investing in portfolios with both developed and emerging markets.

The diminishing marginal effects of liberalizations are notably addressed in Bekaert and Harvy (2000) and Blaylock and Duett (2004). The cost of capital in liberalizing emerging markets decrease at a decreasing rate for each marginal liberalization (Bekaert and Harvey, 2000). Initiating an ADR program is one of the market liberalizations they studied. The key to Bekaert and Harvey's study is that such reductions in the cost of capital decrease with subsequent liberalizations. Similarly, Blaylock and Duett (2004) find that the abnormal returns decrease for each subsequent ADR issuer in the same market. In other words, the abnormal returns experienced by the fifth ADR issuer are smaller than the abnormal returns experienced by the fourth ADR issuer. Blaylock (2007) isolates the first ten ADR issuances in the South Korean market and find that ADR issuances both positively and negatively affect the cost of capital of previous ADR issuances.

Blaylock (2014b) focuses on the reaction of the first ADR issuance to the subsequent five ADR issuances in the same country. The paper reports that initial ADR issuers are affected by subsequent ADR programs from the same market. However, the results are aggregated across countries. Blaylock finds that the initial ADR issuer for a country predominately experiences negative returns when subsequent ADRs are issued from the same country. His findings are examined more closely in the Empirical Results and Analysis section. This paper seeks to build on Blaylock (2014b) by analyzing by country the effects subsequent ADR issuances have on the country's initial ADR.

## DATA AND METHODOLOGY

This study seeks to expand on Blaylock (2014b) by measuring by country the reaction to the market's first ADR issuer to subsequent ADRs from the same market. From the nine emerging markets in Blaylock (2014b) 37 ADR programs have listing dates, and 39 ADR programs have announcement dates. The nine countries are Chile, Colombia, Greece, India, Korea, Portugal, Taiwan, and Venezuela. This final sample results from an initial sample of emerging markets studied in Bekaert and Harvey (2000).

ADR programs are identified from directories from the Bank of New York, Citibank, and J.P. Morgan. The Citibank directory is the most comprehensive of the three and is used as the primary directory in selecting the list of ADRs for this study. NYSE and NASDAQ also provide a directory of foreign securities traded on their respective exchanges. A country must have more than one ADR program to be included in the study. As in Blaylock (2014b) only the first six ADR programs in a country are examined. Daily returns are computed from underlying stock and index prices obtained from Datastream International. In instances where data is not available from Datastream, data from foreign exchanges are used.

Both announcement dates and listing dates are used as event dates. Announcement dates from Lexis/Nexis are used, and SEC filing dates are used in cases where dates from Lexis/Nexis cannot be found. The listing dates are those dates reported by NASDAQ, NYSE, AMEX, and the Citibank directory. Given the difficulties experienced by Blaylock (2014a) with privately placed ADRs, these ADRs are not used. Also, as Blaylock (2014a), given the ambiguity of listing dates provided by the exchanges, announcement dates are used as listing dates when the announcement date occurs after the reported listing date.

The event windows around each of the announcement and listings dates need to be large enough to capture the cost of capital effect yet small enough so as not to include other effects. Henry (2000) notes that an initial market reaction may accompany a liberalization announcement followed by a gradual price appreciation as the imminence of the actual risk sharing draws closer as well as information and the certainty of the liberalization becomes public knowledge.

Foerster and Karolyi (1999) report a mean difference between the announcement and listing dates of 70 days. They find, using the common residual approach, average daily abnormal returns at the 5 percent significance level from 100 to 10 days before the date of announcement as well as before the date of listing. Finding similar results in their dummy variable regression approach, they define a pre-announcement period of 52 weeks and a post-announcement period of 52 weeks with an event window around the announcement date of one week. Miller (1999), finding the time between the announcement date and the listing date to be 77 days, uses a pre-announcement period of 125 days, an announcement period of 51 days, and a post-announcement period of 125 days. Lau, Diltz, and Apilado (1994) use an eleven-day event window around each of the three event days they study.

Multiple event windows are used in this study to better assess the market reaction. As in Miller (1999) and Blaylock (2014a, 2014b) a 51-day event window is used for both announcement dates and listing dates. The 51-day window incorporates days -25 to +25. An 11-day window is also used. The 11-day window is divided into two smaller windows: a 6-day window from 5 days before the event up to the event day itself, and a 5-day window from the first day after the event to 5 days after the event. Miller (1999) finds significant results immediately around the event date only. For the first ADR issuer only the 51-day window is also segmented into two smaller windows: a 25-day window from day -25 to -1 and a 25-day window from day +1 to +25. An estimation window of 100 days is used prior to and following the event windows. For example, the 51-day window uses return data from 126 days before the event to 126 days after the event.

The following hypothesis is tested:

$H_0$: The first firm to list an ADR is not affected by subsequent ADR listings/announcements by other firms in the same country.

$H_1$: The first firm to list an ADR in a country experiences positive abnormal returns during subsequent listings/announcements of ADRs by other firms in the same country.

A multivariate regression model (MVRM) using dummy variables is used. The dummy variables capture the abnormal returns. This is the model used in Foerster and Karolyi (1999), Henry (2000), Blaylock and Duett (2004), Blaylock (2014a), and Blaylock (2014b). Returns of market indices are used to control for systematic risks.

The equation estimated using the 51-day event window is

$$R_t = \alpha_i + \gamma_k^{ADR} ADR_{kt} + \beta_1^{a} R_M^{a} + \beta_1^{US} R_M^{US} + \varepsilon_{1t}$$

and the equation estimated for the 11-day event window is

$$R_t = \alpha_i + \gamma_k^{PRE} PRE_{kt} + \gamma_k^{POST} POST_{kt} + \beta_1^{a} R_M^{a} + \beta_1^{US} R_M^{US} + \varepsilon_{it}$$

where

- $R_t$ is the daily return for time t of the first ADR issuer,
- $ADR_{kt}$ is a dummy variable that equals 1 during the 51-day event window (-25 to +25) for the kth ADR,
- $PRE_{kt}$ is a dummy variable that equals 1 during the 6-day event window leading up to the event (-5 to 0) for the Kth ADR,
- $POST_{kt}$ is a dummy variable that equals 1 during the 5-day event window after the event (+1 to +5) for the Kth ADR,
- $R_M^{US}$ is the daily return of the S&P 500,
- $R_M^a$ is the daily return of the home (foreign) market index.

Each equation is estimated across all subsequent ADR events separately by country. The criterion for testing is the coefficient $\gamma$ for the event parameters in the panel regressions. The coefficient $\gamma$ measures the average daily abnormal returns for the first ADR issuer over the event window due to subsequent ADR events. The null hypothesis is rejected in favor of the alternative hypothesis if $\gamma$ has a value that is significantly positive.

## EMPIRICAL RESULTS AND ANALYSIS

Results are presented in Table 1. For listing dates, six of the nine countries show negative average abnormal daily returns over the 51-day event window. None of these are significant. Six of the nine show negative returns in the 6-day pre-listing window, but only two show negative returns in the post-listing window. Of those with negative returns in the pre-listing window only two, Chile and Colombia, are significant. Only one of the two showing negative returns in the post-listing window, Colombia, is significant. Interestingly, Venezuela shows significant positive returns in the post-listing window.

For announcement dates, six of the nine countries show negative average abnormal daily returns over the 51-day event window, but no returns are significant. Six of the nine show negative abnormal returns in the 6-day pre-announcement window, but only three show negative returns in the post-announcement window. Only Colombia and Greece show significant negative abnormal returns in the pre-announcement window while only Portugal shows significant negative returns in the post-announcement window. Another interesting market is Korea that shows significant positive abnormal returns in the post-announcement window.

Five of the nine countries show significant abnormal returns across event types and event windows. Note the consistency in the sign of the returns across event windows. For both listing dates and announcement dates, the 51-day and 6-day pre-event windows have more countries containing negative returns than positive. In fact, in each of the windows, there are only three out of nine countries containing positive returns although the signs for each country are not consistent across windows. Colombia is unique in that significant negative abnormal returns are shown for both listing and announcement dates. The signs of the returns are predominately positive in the 5-day post event window. For listing dates, seven of the nine returns are positive compared to six for the returns for announcement dates.

**Table 1**
**RESULTS**

The coefficient $\gamma_k^{ADR}$ from equation $R_t = \alpha_i + \gamma_k^{ADR}ADR_{kt} + \beta_1{}^aR_M{}^a + \beta_1{}^{US}R_M{}^{US} + \varepsilon_{1t}$ is reported in panel A, and the coefficients $\gamma_k^{PRE}$ and $\gamma_k^{POST}$ from equation $R_t = \alpha_i + \gamma_k^{PRE}PRE_{kt} + \gamma_k^{POST}POST_{kt} + \beta_1{}^aR_M{}^a + \beta_1{}^{US}R_M{}^{US} + \varepsilon_{it}$ are reported in panel B. $R_t$ is the daily returns at time t for the first firm to issue an ADR, and $ADR_{kt}$ is a dummy variable that equals 1 during the event window (-25 to +25) around the $k^{th}$ ADR event after the initial ADR issuance. $\gamma_k^{ADR}$ measures the average daily abnormal return of the first ADR issuer due to a subsequent event actuated by another firm. $PRE_{kt}$ is a dummy variable that equals 1 during the 6-day window leading up to the event (-5 to 0), and POST is a dummy variable that equals 1 during the 5-day window after the event (+1 to +5), $\gamma_k^{PRE}$ measures the average daily abnormal return for the five days leading up to and including the event and $\gamma_k^{POST}$ measures the average daily abnormal return for the five days after the event.

| | Listing Dates | | | Announcement Dates | | |
|---|---|---|---|---|---|---|
| | A | B | | A | B | |
| | 51-Day | 11-Day | | 51-Day | 11-Day | |
| | -25, +25 | -5, 0 | +1, +5 | -25, +25 | -5, 0 | +1, +5 |
| Chile | -0.00042 | -0.00361 | 0.00155 | 0.00078 | 0.00305 | 0.00284 |
| | 0.5888 | 0.0059*** | 0.4695 | 0.3133 | 0.1215 | 0.2084 |
| Colombia | -0.00258 | -0.00658 | -0.00902 | -0.00140 | -0.00693 | 0.00601 |
| | 0.1069 | 0.0903* | 0.0676* | 0.7242 | 0.0397** | 0.2405 |
| Greece | 0.00198 | 0.00605 | 0.01191 | 0.00544 | -0.01771 | 0.00131 |
| | 0.6508 | 0.5382 | 0.1412 | 0.3565 | 0.0716* | 0.8740 |
| India | 0.00083 | -0.00853 | 0.00454 | -0.00202 | -0.00120 | -0.00345 |
| | 0.7629 | 0.1146 | 0.3185 | 0.4037 | 0.7498 | 0.6159 |
| Korea | -0.00182 | -0.00160 | 0.00366 | -0.00000 | 0.00446 | 0.00543 |
| | 0.2289 | 0.6212 | 0.4630 | 0.9992 | 0.2312 | 0.0682* |
| Portugal | 0.00031 | -0.00358 | 0.00137 | -0.00008 | 0.00103 | -0.00325 |
| | 0.6316 | 0.1773 | 0.3915 | 0.8890 | 0.2715 | 0.0071*** |
| Taiwan | -0.00070 | 0.00474 | -0.00332 | -0.00021 | -0.00210 | 0.00109 |
| | 0.7498 | 0.2643 | 0.5954 | 0.9024 | 0.7239 | 0.8223 |
| Turkey | -0.00033 | 0.00148 | 0.01269 | 0.00095 | -0.00238 | 0.00185 |
| | 0.9205 | 0.8477 | 0.2993 | 0.8000 | 0.7433 | 0.8327 |
| Venezuela | -0.00131 | -0.00141 | 0.00876 | -0.00138 | -0.00180 | -0.01085 |
| | 0.5513 | 0.7116 | 0.0296** | 0.6193 | 0.8145 | 0.3696 |

Note: p-values are located underneath the coefficients with *, **, *** indicating significance at the 10%, 5%, and 1% levels, respectively.

Of the seven significant return measures only one is positive, for Venezuela in the post listing period. The negative returns are surprising in that positive abnormal returns would be expected given ADRs are considered liberalizing events. However, the results are not surprising since they agree with the findings of Blaylock (2014b). Blaylock finds that initial ADR issuers are predominately negatively impacted by subsequent ADR listings in the 51-day listing period and the 6-day pre-listing period. He partially attributes the negative reactions to the time-varying degrees of market segmentation described in Bekaert and Harvey (1995) and Francis, Hasan, and Hunter (2002).

## SUMMARY

This study adds to the findings of Blaylock (2014b) by examining at the country level the reaction of a country's first ADR issuer to subsequent ADRs. This was also examined by Blaylock (2007) but only for Korea. Negative returns dominate the 51-day window and the 6-day pre-event window. Significant negative returns are found in the pre-listing window. This indicates the cost of capital predominately increases for the initial ADR-issuing firm in a country leading up to subsequent ADR listings.

## REFERENCES


Adler, M., & Dumas, B. (1983). International Portfolio Choice and Corporation Finance: A Synthesis. *Journal of Finance*, 38(3), 925-984.

Ang, A., & Bekaert, G. (2002). International Asset Allocation With Regime Shifts. *The Review of Financial Studies*. 15(4), 1137–1187.

Ang, A., & Chen, J. (2002). Asymmetric correlations of equity portfolios. *Journal of Financial Economics*. 63(3), 443-494.

Bailey, W., Chung, Y.P., & Kang, J. (1999). Foreign Ownership Restrictions and Equity Price Premiums: What Drives the Demand for Cross-Border Investments? *Journal of Financial and Quantitative Analysis*, 34(4), 489-511.

Bekaert, G. (1995). Market integration and investment barriers in emerging equity markets. *The World Bank Economic Review.* 9, 75-107.

Bekaert, G. & Harvey, C.R. (1995). Time-varying World Market Integration. *Journal of Finance*. 50(2), 403-444.

Bekaert, G. & Harvey, C.R. (1997). Foreign Speculators and Emerging Equity Markets. *NBER, Working Paper*. No. W6312.

Bekaert, G. & Harvey, C.R. (2000). Foreign Speculators and Emerging Equity Markets" *The Journal of Finance*. 55(2), 565-613.

Bekaert, G., Hodrick, R.J., & Zhang, X. (2009). International Stock Return Comovements. *The Journal of Finance*. 64(6). 2591-2626.

Bekaert, G. & Urias, M.S. (1999). Is there a free lunch in emerging market equities? *The Journal of Portfolio Management*. 25, 83-95.

Blaylock, A. (2007). Reaction of Korean ADR Issuers to New Korean ADRs. *International Journal of Business Disciplines*, 18(3), 35-39.

Blaylock, C.A. (2014a). Market Breakdown of the Declining Marginal Reaction to ADR Issuers. *Academy of Accounting and Financial Studies Journal*. 18(2), 39-49.

Blaylock, C.A. (2014b). Reaction of Initial ADR Issuers to Subsequent ADRs. *Academy of Accounting and Financial Studies Journal*. 18(3), 21-28.

Blaylock, A. & Duett, E.H. (2004). The Declining Market Reaction to ADR Issuers in Emerging Markets. *Global Business and Finance Review*. 9(2), 1-13.

Boamah, N.A. (2017). The global financial market integration of selected emerging markets. *International Journal of Emerging Markets.* 12(4), 683-707.

Chakraborty, A., & Holani, U. (2011). International Listing and Stock Returns: Evidence from Emerging Economies. *International Journal of Financial Management*. 1(2), 61-73.

Cho, Y.J. & Rhee, C. (1999). The Gains From International Investment Diversification: The Korean Case. *Journal of Economic Theory and Econometrics*. 5(1), 23-41.

Christoffersen, P., Errunza, V., Jacobs, K., & Langlois, H. (2012). Is the Potential for International Diversification Disappearing? A Dynamic Copula Approach. *The Review of Financial Studies*. 25(2), 3711-3751.

Domowitz, I., Glen, J., & Madhavan, A. (1997). Market Segmentation and Stock Prices: Evidence From an Emerging Market. *Journal of Finance*. 52(3), 1059-1085.

Errunza, V. & Losq, E. (1985). International Asset Pricing Under Mild Segmentation: Theory and Test. *The Journal of Finance*. 40(1), 105-124.

Foerster, S.R., & Karolyi, A.G. (1993). International Listings of Stocks: The Case of Canada and the U.S. *Journal of International Business Studies*. 24(4), 763-784.

Foerster, S.R. & Karolyi, A.G. (1999). The Effects of Market Segmentation and Investor Recognition on Asset Prices: Evidence from Foreign Stocks Listing in the United States. *The Journal of Finance*. 54(3), 981-1013.

Fouquau, J., Kharoubi, C., & Spieser, P. (2018). International and temporal diversifications: the best of both worlds? *Journal of Risk*. 20(4), 27-54.

Francis, B., Hasan, I., & Hunter, D. (2002). Emerging Market Liberalization and the Impact on Uncovered Interest Rate Parity. *Journal of International Money and Finance*. 21, 931-956.

Grubel, H.G. (1968). Internationally diversified portfolios: Welfare Gains and Capital Flows. *The American Economic Review*. 58(5), 1299-1314.

Henry, P.B. (2000). Stock Market Liberalization, Economic Reform, and Emerging Market Equity Prices. *The Journal of Finance*. 55(2), 529-564.

Jiang, C.X. (1998) "Diversification with American depository receipts: The dynamics and the pricing factors. *Journal of Business Finance and Accounting*. 25, 683-699.

Lau, S.T., Diltz, D.J., & Apilado, V.P. (1994). Valuation Effects of International Stock Exchange Listings. *Journal of Banking and Finance*. 18(4), 743-755.

Levy, H., & Sarnat, M. (1970). International Diversification of Investment Portfolios. *The American Economic Review*. 60(4), 668-675.

Longin, F., & Solnik, B. (2001). Extreme Correlation of International Equity Markets. *The Journal of Finance*. 56(2), 649-676.

Madura, J., & Whyte, A.M. (1991). International Linkage of Credit Risk Among Countries. *Rivista Internazionale di Scienze Economiche e Commeriali*. 38(3), 255-265.

Miller, D.P. (1999). The Market Reaction to International Cross-listings: Evidence from Depositary Receipts. *Journal of Financial Economics*. 51(1), 103-123.

Rim, H., & Setaputra, R. (2012). Studies on the International Diversification. *International Journal of the Academic Business World*. 6(1), 105-110.

Speidell, L.S., & Sappenfield, R. (1992). Global Diversification in a Shrinking World *Journal of Portfolio Management*. 19(1), 57-67.

Stapleton, R.C., & Subrahmanyam, M.G. (1977). Market Imperfections, Capital Market Equilibrium and Corporation Finance. *Journal of Finance*. 32(2), 307-319.

Sundaram, A.K., & Logue, D.E. (1996). Valuation Effects of Foreign Company Listings on U.S. exchanges. *Journal of International Business Studies*. 67-88.

Switzer, L.N., & Tahaoglu, C. (2015). The benefits of international diversification: market development, corporate governance, market cap, and structural change effects. *International Review of Financial Analysis*. 42, 76-97.

Yuan, T., Gupta, R., & Roca, E. (2016). Why Not Diversify into Emerging Equity Markets via ADRs? *Journal of Investing*. 25(2), 18-27.