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THE EFFECTS OF AMERICAN DEPOSITARY RECEIPT ANNOUNCEMENT ON THE  
UNDERLYING SHARE PRICE OF EMERGING ASIAN CORPORATIONS

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## **Abstract**

The purpose of the following study is to investigate the effect the announcement of an American Depositary Receipt (ADR) program has on the price of the underlying shares of an Emerging Asian corporation. The paper includes a background on emerging market structure, in particular, Emerging Asian corporate governance practices; a description of ADR programs, specifically their structure and the possible positive and negative effects associated with sponsorship; and an analysis of the data collected. For the purpose of the study, ADRs were taken from the JP Morgan's Depositary Receipt Universe and narrowed based on level and country. Announcement date was found using the LexisNexis online database, and average abnormal returns and cumulative abnormal returns were calculated from the narrowed data pool. Overall, the announcement of an ADR program negatively affected the underlying share price.

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## **Introduction**

As capital markets become more integrated with the rapid rise of globalization, various financial instruments have grown popular among both investors and corporations interested in raising foreign capital. In particular, American Depositary Receipts (ADRs) are playing an increasingly important role within the realm of capital flow across international borders. For example, by the end of 1994, more than 800 companies had sponsored depositary receipt programs, resulting in an increase of 756% since 1986 (Miller, 1999). Most notably, the greatest increase has come from emerging markets where barriers to capital flows have been the most impenetrable.

The purpose of this paper is to explore the fluctuation in pricing of the underlying stock once an ADR program has been announced for a particular corporation, specifically Emerging Asian firms. First, the study reviews emerging market structure, including a corporate governance overview with detail on Emerging Asian practices. Next, the paper contains a brief description of ADRs, their structure, and potential benefits and drawbacks associated with sponsorship of an ADR for both the corporation and the holder. The following two sections explain the methodology in data collection and provide a data analysis. The analysis includes testing the sample as a whole, then separately by country and ADR level to isolate any significant differences among these variables.

The analysis shows generally negative abnormal and cumulative abnormal returns for the underlying stock surrounding the announcement of an ADR program. Regardless of origination country or level, the stock price is negatively affected by the announcement of an ADR. Previous studies demonstrate a positive reaction associated with ADR sponsorship which researchers associate with increased visibility, liquidity, and transparency, all potential benefits of ADR programs. The evidence in this study, however, suggests that Emerging Asian corporations suffer a negative return upon announcement of an ADR sponsorship, which can be a quite costly endeavor. Furthermore, Level III ADR announcements, or public offering announcements, tend to have a more pronounced effect on the underlying stock, further suggesting that the pre-existing shareholders fear share dilution.

## 2. Market Structure

### 2.1 Emerging Markets

With the continuing integration of capital markets, emerging markets act as a bridge between developed, integrated economies and undeveloped, segmented economies. Integrated economies or markets are generally well developed structurally, including a strong regulatory framework with transparent corporate business practices, with low barriers to trade and capital flows. Whereas, emerging markets may not be up to par on all of these standards. According to the World Bank, a country may be deemed as an emerging market if its per capita gross domestic product (GDP) falls below a certain hurdle, which fluctuates over time (Bekaert, 2002). Thus, the GDP must fall below the classification of developed nations, such as the United States. As of January 2011, MSCI Barra counts 21 emerging market nations across the world, with eight coming from Asia (Global Equity Indices, 2011).

While greater returns and higher volatility in segmented economies correlate with local market risk premiums, integrated economies tend to produce lower expected returns as they become more highly correlated with the world market portfolio and risk premium. As an economy becomes more liberalized and integrated with global markets, returns correlate more highly with the world portfolio and depend less on local market variances. An emerging market in transition from completely segmented to highly integrated plays an intermediate role, where returns are higher than fully integrated markets but present a certain degree of risk for foreigners, such as liquidity, due to barriers to investment in the local market. Bekaert and Harvey (2002) detail three categories of barriers to emerging market investment: “(1) legal barriers, (2) barriers created by information asymmetry, and (3) variance in accounting standards, investor protection, and other risk such as liquidity, political, and economic policy and currency risk” (Bekaert, 2002).

Emerging markets have varying degrees of financial liberalization. In extremely closed or undeveloped countries, the government may legally limit the ability of foreigners to introduce financial assets into the capital market. Once a country legally liberalizes its market to the extent that foreigners have the ability to invest, however, other barriers limit the likelihood of foreign investment. Most importantly, information asymmetry or lack of transparency can create reluctance in foreign investors. For instance, take a multi-million dollar hedge fund manager who wishes to invest in foreign stocks in order to diversify his portfolio. If important information regarding various companies within an emerging market is unavailable, he will be unable to distinguish good companies, or good investments, from bad companies, or bad investments. Furthermore, he may be concerned that even if he were to find a legitimate company to invest in, the capital may be misappropriated following the agency or moral hazard problems common to emerging markets (Henry, 2003). On average, developing countries have a weaker regulatory framework to foster transparency and establish investor protection. Moreover, some corporations in emerging markets may be subject to fluctuating economic policy and currency risk, especially if the government is unstable.

While the above barriers often present challenges for foreign investors, countries with returns that have a low correlation in respect to the world market may offer opportunities for portfolio diversification, especially in the case of less integrated economies. For example, a U.S. investor with a portfolio of completely domestic stocks may increase his returns by introducing foreign assets to his holdings. In theory, the efficient frontier will move to the left, meaning the

possibility of increased returns and less risk exists. Depending on correlation variation, an emerging market may be an extremely good asset for diversification. It is important to note however, that as economies become more integrated and respective market correlations increase, the benefits of diversification decrease.

Besides providing portfolio diversification for investors, foreign investments often can be a positive driver for economic growth in emerging markets. Because foreign investors are particularly concerned with volatility in both the companies and the markets in which they invest, they often exert positive pressure for developing strong market structure and transparent business practices within the particular emerging market (Haulser, 2003).

## ***2.2 Corporate Governance***

Corporate Governance practice is an important investment criterion that varies from country to country. In simple terms, it is the decision making structure of corporations. Every country has a different set of standards which define the specific way its companies are expected to run. Corporate decision making structures can most broadly be confined to two configurations: the outsider model and the insider model. Regardless of variances in structure, corporations with more transparent, inclusive procedures perform better and are valued more highly (Nam, 2001).

Corporations in the United States and the United Kingdom practice the outsider model which advocates “(1) dispersed equity ownership with large institutional holdings; (2) the recognized primacy of shareholder interests in the company law; (3) a strong emphasis on the protection of minority investors in securities law and regulation; (4) and relatively strong requirements for disclosure” (Nestor, 2001). U.S. and British investors expect companies to uphold and protect shareholder interests while maintaining a high level of transparency, making investment decisions easier for stock investors.

On the other hand, other countries practice the insider models where “ownership and control are relatively closely held by identifiable and cohesive groups of insiders who have longer-term stable relationships with the company (Nestor, 2001).” These insiders usually have more than just a financial stake in the company, and often consist of family members, suppliers, and banks. Historically, insider systems have been bank-centered and less prone to regulatory control and public disclosure (Nestor, 2001). With the insider model, there is less emphasis on shareholder rights, especially for minority holders. In some cases, the one-share, one-vote standard is violated in preference for closely held control. Because of these shareholder rights, transparency, and liquidity issues, outside investment is limited in companies controlled by blocks of shareholders following the insider method.

U.S. investors may demonstrate a home bias, or preference for investing in domestic stocks, as opposed to foreign equity, because of the differences in corporate governance across countries, especially in emerging markets. First, it may be difficult for an investor to purchase equity in a foreign company which practices the insider model because a majority of the shares may be held by a controlling block within a particular interest group, such as a family, presenting a liquidity problem. Secondly, the lack of protection for shareholders, especially minority holders, may further ward off foreign investors. Furthermore, the lack of transparency, through limited governmental requirement of disclosure, creates confusion and concern among outside investors. Without transparent business practices, the foreign investor is left to guess whether the company is a good or bad investment.

### 2.3 Corporate Governance in Emerging Asia

Corporate governance structures across all of East Asia have traditionally consisted of a high concentration of ownership, especially of small family groups, following the insider model. Among individual countries, however, other factors vary widely. For example, while Indonesia, Korea, Thailand, and Philippines maintain a “low level of property rights protection and weak enforcement, loose operation of lending institutions, and ineffective regulation of the financial sector,” Hong Kong, Singapore, and Malaysia demonstrate stronger frameworks in these particular areas of investor concern (Nam, 2001).



Ownership concentration varies widely between the U.S. and Asia. Committed to the insider model, many corporations in Asian countries are held by small, differentiable groups of investors. On the other hand, in the U.S., ownership is distributed more equitably among individuals and institutions that lack intrinsic ties to the corporation. More specific examples of concentration of ownership include Korea, where *chaebols*, or conglomerates, control a majority of shares among cross-ownership affiliations. In 1998, foreign ownership accounted for only 18% of total market capitalization (Nam, 2001). Ownership concentration is even more prevalent in Thailand where holding companies, comprised of individual and family shareholders, own more than 60% of corporations. Moreover, in the Philippines and Indonesia, at least one-sixth of ownership can be traced back to only two respective families. (Nam 2001). Such concentration of ownership lends itself to the development of unfavorable corporate governance structures for outside investment, particularly from foreigners. Such barriers to outside investment can result in a devaluation of the firm. According to a study of 3,000 Asian corporations, mismatching cash flow and voting rights is associated with lower firm valuation. Additionally, investors are less inclined to invest in corporations which violate traditional western corporate structure of “one-share, one-vote.” (Henry, 2003).

After the 1997 Asian financial crisis, a widespread effort was made among affected countries to reform their economic systems, including the standardization of corporate governance structures, in order to prevent a similar financial catastrophe. Established in 1999, The Asian Roundtable on Corporate Governance acts as a forum for dialogue on proper corporate governance practices in the region (OECD, 2007). In 2003, the group compiled the White Paper on Corporate Governance in Asia where common policy objectives were spelled out for improving corporate governance. While the 1997 financial crisis may have catalyzed corporate governance reform, the benefits of good governance, including economic growth, the desire of countries to remain competitive, globalization, international capital flows, and the growth of integrated markets, has continued to foster development of corporate structure in Asia (OECD, 2007). Asia’s continued commitment to corporate structure reform has increasingly attracted foreign investment over the last several years

### **3. History and Structure of the American Depositary Receipt Market**

As market integration becomes more effusive, corporations based in emerging markets must find ways to enter the global marketplace. More specifically, the competition among stock exchanges and corporations has fostered demand for cross border equity flows. As of 1995, cross-border equity financing had replaced bank loans, bonds and foreign direct investment as the primary form of external financing (Karolyi, 1998).

Corporations have realized that raising foreign capital reduces their exposure to local risk by diversifying their concentration of ownership and reducing illiquidity, thereby reducing their cost of capital. The most likely method for equity financing is to directly list shares abroad, which has the benefit of fostering a positive relationship between the company and the foreign market, especially in regards to regulators (Karolyi, 1998).

Foreign companies wishing to list directly on U.S. exchanges must surpass various regulatory hurdles. For example, if a Korean car company, X Auto, wants to directly list shares on the NYSE, it must first prove that it is able to pass U.S. exchange standards, including accounting, disclosure, and taxation requirements. X-Auto must pass one of four quantitative standards before listing. For instance, as presented in appendix A, standard two requires a \$15 million public float value, \$4 million worth of shareholders equity, a \$3 minimum share price, and an operating history of at least one year. (NYSE, 2011). More difficultly, the company must be able to exceed hurdles regarding corporate governance, including disclosure of accounting records. According to the NYSE Amex company guide, a company must have a majority of independent seats on the board of directors, must be audited by an independent accounting firm, and must hold an annual shareholders' meeting where voting is required. (NYSE Company Guide, 2011).

As discussed in the Emerging Market section, many foreign companies do not adhere to U.S. corporate governance standards, especially in Asia. While Asian companies are slowly becoming more transparent, there remains a lot of discrepancy between their governance practices and those in the U.S. For many Asian corporations, it is impossible to list directly on a U.S. exchange. Companies unable to sponsor a direct listing still may be able to raise foreign equity through another channel, by sponsoring an American Depositary Receipt program.

#### ***3.1 History and Description of ADRs***

An American Depositary Receipt (ADR) is a certificate issued by a depositary which represents ownership of one or more American Depositary Shares (ADS), similar to the way a stock certificate verifies ownership of a share in a corporation. An ADS, however, does not actually exist; it merely acts as a measuring unit to quantify a particular amount of interest in a certain deposited foreign security (Murray, 1995). More simply, an ADR trades either on a U.S. exchange or OTC market and simulates ownership of foreign securities which are not directly listed on U.S. exchanges.

ADRs first came to market in 1927 to give U.S. investors the opportunity to invest in foreign securities without the hassle of illiquidity problems and dividend conversion expenses associated with direct foreign share ownership. Originally, ADRs were produced in order to resolve the timing issues related to owning foreign shares. For example, "time differences between markets, delays in transporting stock certificates, delays in settlement and registration of securities, and differences in market handling of securities between the market where the issuer



was located and the U.S. market” all contributed to the inconvenience of directly owning shares (Murray, 1995). ADRs provided a solution.

Once the Great Depression struck, interest in creating new ADR programs diminished and did not resume until some thirty years later with the introduction of sponsored programs in the 1960s and 1970s (Murray, 1995). During that time, a robust U.S. capital market began to attract foreign companies. Yet, as mentioned earlier, because SEC regulation, including disclosure requirements, made it difficult to list directly on U.S. exchanges, many corporations turned to ADR programs.

ADRs programs are classified in two ways: sponsorship and level. First, an ADR can be facilitated in one of two ways; when first produced, a particular ADR program is either sponsored or unsponsored. A sponsored ADR program is created when the issuer of the underlying foreign security and a U.S. depository institution collaborate to establish a deposit agreement with U.S. investors of the ADR. Unsponsored ADR programs are created when a depository institution creates an ADR program without assistance from the underlying corporation. An unsponsored ADR program is often replicated by other depository institutions, where the ADRs become interchangeable on the U.S. market. On the other hand, sponsored ADR facilities are exclusive to one depository institution, where the foreign firm compensates the depository for the cost of the program (Field, 2010). Costs of the ADR for the foreign firm include initial set up and expenses incurred in distributing dividends, which ultimately translates into a financial savings or benefit for the sponsored ADR holder because ADR holders of unsponsored facilities bear the disbursement expense. Because of the differences in benefits and costs to the ADR holder, a sponsored ADR program cannot coexist with an unsponsored ADR program of the same underlying foreign security as the two types of ADRs would trade at a price differential (Murray, 1995). If both types of facilities for the same underlying security were to coexist in the market, the sponsored ADR would trade at premium and the unsponsored ADR at a discount.

Besides sponsorship, ADR programs are categorized into four groupings or levels: Level I, Level II, Level III, and 144A. Level I ADR programs are the most rudimentary depository receipt facility in which the sponsoring foreign firm buys secondary shares in the local market to give to the depository institution for the basis of the ADRs. Level I ADRs are only traded in OTC markets and require no SEC disclosure (Sanford, 1995). Because of the lack of regulatory requirements, Level I ADRs are the easiest and least costly to sponsor and often considered a first step into U.S. markets.

Level II ADRs are sponsored by foreign firms that want to list on a U.S. exchange without directly listing or raising new capital. While Level II ADRs have higher visibility and are more liquid than Level I ADRs, they must commit to full SEC disclosure and reporting requirements. Thus, the costs associated with aligning current business practices with U.S. exchange standards, in conjunction with the ongoing expenses of reporting, are much greater for Level II ADR programs. This type of sponsorship is ideal for foreign firms wishing to increase their visibility in the U.S., while also enhancing the liquidity of their current outstanding equity (Sanford 1995).

A foreign firm wishing to make a public offering on a U.S. exchange sponsors a Level III ADR program. While Level III ADRs are the most costly to set up, they raise new capital for foreign firms while also providing the benefits of better liquidity and visibility that Level II and Level I ADRs afford. Level III ADR programs must abide by all SEC disclosure and reporting

requirements. Additionally, the foreign firm must pay an underwriter for the public offering (Sanford, 1995).

Lastly, companies may also privately raise capital in the United States by utilizing Rule 144A. Rule 144A allows foreign firms to issue restricted securities to qualified institutional investors without SEC review (Davidson, 2008).

### 3.2 Benefits and Drawbacks of ADRs

Benefits to Foreign Corporation	Benefits to ADR Holder
<ul style="list-style-type: none"> <li>• Reduction in local exposure risk</li> <li>• Reduced cost of capital</li> <li>• Less stringent listing requirements than direct listing</li> <li>• Increased market visibility</li> </ul>	<ul style="list-style-type: none"> <li>• Diversified Portfolio</li> <li>• Simplified Trading</li> <li>• Faster Dividends</li> <li>• Reduced Cost and Risk</li> <li>• Reduced Investor Barriers</li> <li>• Enhanced Communication</li> <li>• Improved Investor Protection</li> </ul>

With the growing mutual interest between foreign security issuers and U.S. investors, ADRs provide an alternative for both parties. For foreign corporations wishing to raise capital in the U.S., setting up an ADR program imparts the benefits of additional foreign capital without the inconveniences of directly listing on a U.S. exchange. Similarly, by holding ADRs, U.S. investors may diversify their portfolios with foreign equity without suffering the troubles of purchasing shares abroad.

First, and perhaps most importantly, ADRs simplify trading between parties. Without an ADR, an investor wishing to buy or sell shares from a foreign issuer, a single overseas trade may well entail settlement delays, registration impediments, among other inconveniences (Murray, 1995). Moreover, because of legal barriers on either side, it may be impossible for a U.S. investor to engage in equity markets in particular region. ADRs also standardize inconsistent security practices across borders; ADRs are easily transferable between parties and have well established clearing procedures, thereby improving the liquidity of the security (Murray, 1995).

In a variety of ways, ADRs reduce risk and cost for U.S. shareholders wishing to invest in foreign corporations. Instead of having to find a foreign broker or a U.S. broker willing to execute overseas trades, ADR holders benefit from having a quick and easy settlement that is much less likely to fail. Also, ADR holders receive dividends faster and incur less expense than holders of actual foreign shares. While investors holding foreign securities are responsible for determining when dividends are disbursed, and possibly encountering delays in payment and currency transaction costs, ADR holders enjoy the benefit of the depository institution collecting dividends from the foreign issuer, converting the currency to dollars, and promptly paying their investors.

Also, ADRs assist foreign corporations in communicating more effectively with their shareholders. Depository institutions disseminate annual and interim reports in English, on behalf of the issuing corporation. Most importantly, ADRs are registered U.S. securities, meaning ADR holders enjoy U.S. ownership protection and rights, including voting privileges (Murray, 1995).

Lastly, ADRs eliminate some of the barriers to investment in non-U.S. equity, thereby attracting a more robust group of shareholders. For example, pension fund, bank and other money management institution charters often contain constraints which prohibit holding foreign equity. In trading on U.S. exchanges, ADRs provide an alternative for these organizations looking to internationally diversify their portfolios. While diversifying the portfolios of its holders, an ADR program also imparts diversification benefits for the sponsoring foreign firm. As mentioned earlier, corporations with a high ownership concentration limited to the local market suffer from illiquidity issues.

While the benefits are numerous for both the foreign institution wishing to sponsor an ADR program and the U.S. investor looking to conveniently diversify his portfolio, it is important to note that certain difficulties may arise for the sponsoring institution and the pre-existing shareholders of the underlying equity in the home market. First, it may cost the foreign corporation a great deal of time, effort, and money to align its standards with stringent U.S. regulatory requirements for creating an ADR program. The cost very well could outweigh the benefits of doing so, especially when a variety of other cross-listing opportunities exist in a multitude of other markets. Also, the creation of new shares in the ADR program, specifically Level III public offerings, may also cause share dilution for the pre-existing underlying shareholder, thereby decreasing the value of the existing equity. Thus, it is important for foreign corporations to carefully weigh the benefits with the possible negative consequences of creating an ADR program.

## 4. The Data

Because of both the positive and negative effects ADR programs have on the overall valuation and success of a firm in both the home and foreign markets, the purpose of the study was to find a significant link between the announcement of an ADR program from an Emerging Asian market and the concurrent movement of the underlying stock in the home market. While ADRs typically have produced positive results for foreign firms, prior studies look at both emerging market and developed market ADR programs; this study aims at separating Emerging Asian ADRs to isolate any abnormalities unique to this particular market. The following section provides an overview of the data collection methodology in order to test for significant movements in underlying share prices.

### 4.1 Depositary Receipt Universe

The ADR pool used in the analysis originated from JP Morgan's Depositary Receipt (DR) Universe on ADR.com. The data download supplied information on 2,246 ADR programs coming from companies all over the world. From the overall pool of ADRs, 1,165 were sponsored. Because sponsored and unsponsored ADR programs are facilitated in distinct manners, their interaction with market variables is unique. As previously mentioned, the two types of ADRs trade at different prices because in a sponsored program the underlying issuer reimburses the depositary for converting dividends to US dollars and disbursing them. Holders of unsponsored ADRs must cover the cost themselves (Murray, 1995). The survey looks only at sponsored ADRs to reduce variability in the results.

Besides company name, the DR universe contained the following information: ticker, exchange, level, depositary institution, region, country, sector name, underlying ticker, underlying exchange, currency, AO ratio (ADR to Outstanding), effective date, and company webpage, among other things. After filtering for sponsored ADRs, the database was narrowed by region, specifically ADRs coming from Emerging Asian markets. The following table depicts the number of ADRs coming from each country classified as Emerging Asian and also breaks the receipts into levels.

*Figure 4.1.1: Emerging Asia ADRs by country and level*

Country	Type and Quantity of Listing				Total
	Level I	Level II	Level III	144A	
China	28	1	87	6	122
India	4	6	8	1	19
Indonesia	2	0	2	0	4
Malaysia	8	0	0	0	8
Papua New Guinea	1	1	0	0	2
Philippines	5	1	0	0	6
South Korea	7	4	5	1	17
Taiwan	0	2	6	1	9
Thailand	13	0	0	0	13
<b>Grand Total</b>	<b>68</b>	<b>15</b>	<b>108</b>	<b>9</b>	<b>200</b>

For the purpose of the study, only Level II and Level III ADRs were surveyed because they trade on an open exchange, where data is widely available. Filtering for sponsored, Level II and III, Emerging Asian ADRs limited the data pool to 52 points. At least thirty of the companies, however, sponsored the ADR in the United States before having an initial public offering in the home market. Without domestic publicly traded shares, the ADR program was irrelevant to the study which focuses on the effects of the announcement on underlying share price. This narrowed the pool further to 20 data points. Figure 4.1.2 exhibits the number of ADRs in the five emerging Asian countries by level. Figure 4.1.3 lists the company names by country and includes data on exchange, level, and sector.

Figure 4.1.2: Final ADR count

Country	Level II	Level III	Total
China	0	1	1
India	2	6	8
Philippines	1	0	1
South Korea	2	3	5
Taiwan	1	4	5
<b>Total</b>	<b>6</b>	<b>14</b>	<b>20</b>

Figure 4.1.3 Sponsoring Corporation by Country

Country & Company Name	Exchange	Level	Sector
<b>China</b>			
China Life Insurance Co Ltd	NYSE	Level III	Insurance (Life/Health)
<b>India</b>			
Infosys Technologies Ltd	NASDAQ	Level II	Computer Services
Tata Motors Ltd	NYSE	Level II	Automobiles
Dr Reddys Laboratories Ltd	NYSE	Level III	Health Care (Drugs/Pharms)
HDFC Bank Ltd	NYSE	Level III	Banks (Money Center)
ICICI Bank Ltd	NYSE	Level III	Banks (Major Regional)
Satyam Computer Services Ltd	NYSE	Level III	Computer Services
Sterlite Industries India Ltd	NYSE	Level III	Metals Mining (other)
Wirpo Ltd	NYSE	Level III	Multi-Industry
<b>Philippines</b>			
Philippine Long Distance Telephone Co	NYSE	Level II	Integrated Telecom
<b>South Korea</b>			
KB Financial Group Inc	NYSE	Level II	Banks (Major Regional)
Shinhan Financial Group Co Ltd	NYSE	Level II	Banks (Major Regional)
Korea Electric Power Corp	NYSE	Level III	Electric Companies
Posco	NYSE	Level III	Steel
SK Telecom Co Ltd	NYSE	Level III	Cellular/Wireless Telecomms
<b>Taiwan</b>			
Siliconware Precision Industries Co	NASDAQ	Level II	Semiconductors
Advanced Semiconductor Engineering Inc	NYSE	Level III	Semiconductors
AU Optronics Corp	NYSE	Level III	Computers (Peripherals)
Chunghwa Telecom Co Ltd	NYSE	Level III	Integrated Telecom
United Microelectronics Corp	NYSE	Level III	Semiconductors

## 4.2: Announcement Date

Next, LexisNexis - Academic News Source database was used to search for the first time that plans of an ADR program were mentioned in a publication with sufficient clarity. This was considered the ADR announcement date. To find the announcement data, the company name was entered into the search criteria. In order to reduce the number of articles retrieved (which can be in the thousands), results were filtered for “depository” or “depository,” and in some instances, the date range was narrowed to approximately the six weeks leading up to the effective date listed in the DR universe. After reducing the number of articles, the contents of each article were manually processed in order to pin point the first mention of an ADR program sponsored by the company. In order to promote consistency in the research, earlier articles which mention merely the possibility of an ADR in the U.S. were eliminated and only the first concrete listing of future programs was considered the announcement date. For example, HDFC Bank Ltd out of India began an ADR program effective July 20<sup>th</sup> 2001. On March 26<sup>th</sup> 2001, *The Asian Wall Street Journal* reported the following:

“Heard in New Delhi column reports that a small class of agile new banks in India is riding a wave of mergers; focuses on HDFC Bank, which is considering tapping the US market with American depository receipts to support its growth”

This is not considered an announcement because it is only a rumor of an ADR program. A more valid and clear example of an actual announcement comes from *Business India* in a May 28<sup>th</sup> 2001 article:

“...the proposal of HDFC Bank Ltd for issue of American Depository Receipts/GDRs worth Rs823 crore was approved by the ministry.”

The article from *Business India* was a better source because it concretely stated the plan to issue of ADRs and their value. Most of my sources, however, list the amount of capital to be raised (for Level III ADRs), the depository institution, and the A: O ratio, which provides solid evidence of an ADR program and adequate information for investors.

## 4.3 Share and Market Returns

Once the announcement date had been recorded, the underlying stock prices and the respective market levels were found either on Yahoo finance or DataStream. Figure 4.3.1 shows which index corresponds to each country. In order to calculate abnormal returns, market data was taken in addition to stock price.

To facilitate better understanding of the interaction between stock price and the respective home country index, stock price and index levels were taken for a 40-day window surrounding the announcement date.

Figure 4.3.1: Country and Index

Country	ADR Count	Market Index
China	1	TSEC WEIGHTED INDEX
India	8	BSE SENSEX
Philippines	1	PSEi
South Korea	5	KOREA COMPOSITE INDEX
Taiwan	5	TSEC WEIGHTED INDEX

## 5. Stock Price Response to ADR announcement

*Figure 5.1.1 Average Abnormal Return and CAR of Entire Sample*

\* indicates significance of the t-statistic at  $\alpha$  level 0.05;  
 \*\* indicates significance of the t-statistic at the  $\alpha$  level 0.01

Event Day	Average Abnormal Return	Percent Non-negative	Cumulative Abnormal Return
-20	-0.0076	40%	-0.0076
-19	0.0068	65%	-0.0008
-18	-0.0227 *	30%	-0.0235
-17	0.0050	55%	-0.0185
-16	-0.0040	45%	-0.0226
-15	-0.0011	40%	-0.0236
-14	0.0176	45%	-0.0060
-13	0.0110	65%	0.0050
-12	-0.0135	35%	-0.0084
-11	0.0012	35%	-0.0072
-10	0.0092	55%	0.0020
-9	0.0154 **	80%	0.0174
-8	-0.0013	55%	0.0161
-7	-0.0061	45%	0.0100
-6	0.0011	65%	0.0110
-5	0.0107	70%	0.0218
-4	0.0109	70%	0.0326
-3	-0.0086	20%	0.0240
-2	<b>-0.0068</b>	<b>45%</b>	<b>0.0173</b>
-1	<b>-0.0038</b>	<b>50%</b>	<b>0.0135</b>
0	<b>-0.0064</b>	<b>45%</b>	<b>0.0071</b>
1	<b>-0.0071</b>	<b>40%</b>	<b>0.0000</b>
2	<b>-0.0113 *</b>	<b>30%</b>	<b>-0.0113</b>
3	0.0008	60%	-0.0105
4	0.0004	50%	-0.0101
5	-0.0020	40%	-0.0121
6	0.0118	65%	-0.0003
7	-0.0008	45%	-0.0011
8	0.0006	45%	-0.0005
9	0.0042	45%	0.0037
10	0.0017	45%	0.0054
11	-0.0050	45%	0.0004
12	0.0035	45%	0.0039
13	-0.0081	45%	-0.0042
14	0.0092	55%	0.0049
15	-0.0150	40%	-0.0100
16	-0.0077	30%	-0.0178
17	-0.0016	55%	-0.0194
18	0.0164	75%	-0.0029
19	0.0014	40%	-0.0015

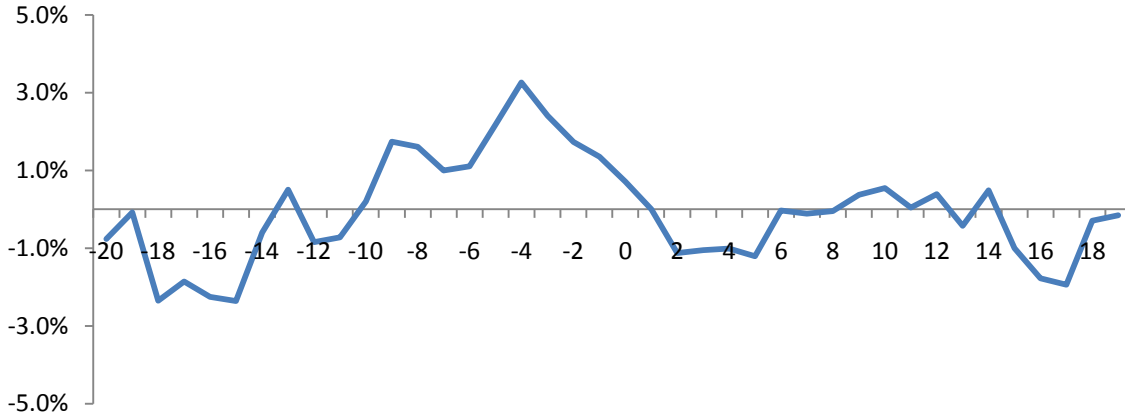
After collecting stock price and index movement for the 40-day event window, the data was analyzed in several perspectives by calculating average abnormal returns and cumulative abnormal returns for the time period, with special interest taken on the five-day event window. First, the entirety of the sample was analyzed together, and then further dissected by country and level in order to uncover any anomalies within the distinct variables.

### 5.1 Total Emerging Asian Stock Price Response Analysis

In the initial analysis of the data, the entire sample of 20 underlying stocks was considered, regardless of level or originating country. The underlying stock price of the ADR, as well as the respective home market index level, was collected for a 40-day event window surrounding the announcement date. In order to simplify calculating the abnormal return, the stock was assumed to have a beta of one. Thus, abnormal return was found by deducting the respective market return from the stock price return for the event day. In this analysis, the average abnormal return for the entire sample of 20 data points for each day is considered.

Also, in order to see which direction the companies tend to move on a particular event day, the percentage of non-negative returns for the sample was calculated. If a specific stock return was greater than or equal to zero, it was considered non-negative. In order to find the percentage, the total number of non-negative data points for each day was divided by the total number of data points for the entire sample. From this statistic, the portion of positive versus negative returns can be determined.

Figure 5.1.2: CAR for Total Sample



Last, cumulative abnormal return was found by taking the sum of the previous average abnormal returns for the prior event days. For example, on event day -17, the average abnormal returns for event days -20 (-0.0076), -19 (0.0068), and -18 (-0.0227) were summed with the average abnormal return for event day -17 (0.0050), for a CAR on event day -17 of -0.0185, or -1.85%. On the previous page, Figure 5.1.1 lists the average abnormal returns, the percent non-negative, and the CAR for event day -20 to 19 surrounding the announcement date, or event day 0, of the entire sample. According to the t-statistic, there are two days where the abnormal return is significant at the 0.05  $\alpha$  level, and one day where the abnormal return is significant at the 0.01  $\alpha$  level. Two out of three days, however, exhibit a negative abnormal return. Also, it is interesting to note that the CAR is nearly zero by the end of the 40-day period.

Figure 5.1.3: CAR by Event Day

Event Day	t = -20 to -3	t=-2 to 2	t=3 to 19
CAR	0.0240	-0.0353	* 0.0098

To better illustrate abnormalities in average abnormal returns, Figure 5.1.2 plots the movement of the CAR throughout the 40-day event window. Drawing from the graph, the CAR follows an expected trend of a slightly increasing

positive return until day -3. From day -2 to day 2, there is a dramatic decrease in CAR. To further illustrate the disparity in CAR during the 5-day event window from the 40-day summation, Figure 5.1.3 divides the CAR into three sections based on event day timing. The first section includes days -20 to -3; the second, days -2 to 2; and the third, days 3 to 19. Evidently, the 5-day event window is completely negative, with a t-test statistic showing a significantly negative CAR, as compared to the positive CARs of the time period before and after the event.

One might expect a positive CAR within the 5-day event window due to a number of reasons discussed in earlier sections, such as an assurance of good business practices and a boost in confidence in the value and stability of the company and its management. Furthermore, previous research and analysis conducted on ADRs shows significantly positive CARs surrounding the announcement date for both developed and emerging market ADRs (Miller, 1999). The CAR in the 5-day event window of this sample of Emerging Asian corporations, however, is significantly negative. While the ability of a foreign firm to list a depositary receipt in the United States demonstrates increased transparency and alignment with favorable corporate governance practices, a firm may spend a great deal of time and money aligning their practices with the requirements of the SEC. The premium with listing is costly and may even reduce the value of the firm, causing share price to drop. Also, investor concern regarding future dilution of



shares when the ADR becomes available in the U.S. may cause the share price to drop on or around the announcement date.

## 5.2 Results by country

Next, the data was broken down into four groupings based on the country of origination of the underlying stock, namely India, Taiwan, South Korea, and Other, which included the Philippines and China because of the limited amount of data from those two particular countries. Figure 5.2.1 has an abbreviated list of event days, listing every five days, excepting the 5-day event window, which includes each day. In looking at the table, most of the average abnormal returns are not statistically significant, especially within the 5-day event window, probably due to the limited number of samples for each individual country.

Figure 5.2.1: Average Abnormal Return and CAR by Country

\* indicates significance of the t-statistic at  $\alpha$  level 0.05; \*\* indicates significance of the t-statistic at the  $\alpha$  level 0.01

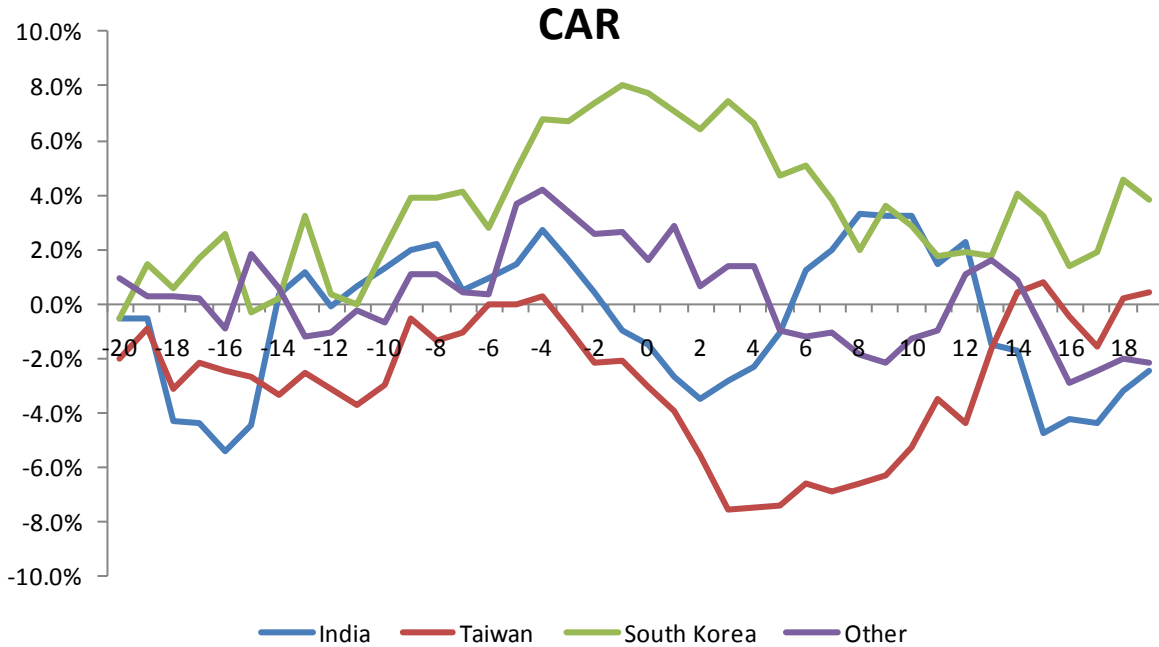
Event Day	India			Taiwan		
	Average Abnormal Return	Percent Non-negative	Cumulative Abnormal Return	Average Abnormal Return	Percent Non-negative	Cumulative Abnormal Return
-20	-0.0052	38%	-0.0052	-0.0201 **	0%	-0.0201
-15	0.0096	50%	-0.0448	-0.0022	40%	-0.0269
-10	0.0069	38%	0.0129	0.0069	60%	-0.0302
-5	0.0052	63%	0.0148	0.0004	60%	-0.0002
-2	<b>-0.0115</b>	<b>50%</b>	<b>0.0043</b>	<b>-0.0123</b>	<b>40%</b>	<b>-0.0217</b>
-1	<b>-0.0140</b>	<b>50%</b>	<b>-0.0097</b>	<b>0.0004</b>	<b>20%</b>	<b>-0.0213</b>
0	<b>-0.0056</b>	<b>63%</b>	<b>-0.0153</b>	<b>-0.0096</b>	<b>40%</b>	<b>-0.0309</b>
1	<b>-0.0114</b>	<b>38%</b>	<b>-0.0267</b>	<b>-0.0084</b>	<b>20%</b>	<b>-0.0393</b>
2	<b>-0.0085</b>	<b>25%</b>	<b>-0.0352</b>	<b>-0.0162</b>	<b>20%</b>	<b>-0.0555</b>
5	<b>0.0125</b>	<b>63%</b>	<b>-0.0109</b>	0.0006	60%	-0.0743
10	-0.0001	25%	0.0320	0.0103	40%	-0.0531
15	-0.0302	38%	-0.0478	0.0041	60%	0.0081
19	0.0073	38%	-0.0249	0.0023	40%	0.0043

Event Day	South Korea			Other	
	Average Abnormal Return	Percent Non-negative	Cumulative Abnormal Return	Average Abnormal Return	Cumulative Abnormal Return
-20	-0.0057	60%	-0.0057	0.0091 *	0.0091
-15	-0.0283	20%	-0.0030	0.0273	0.0180
-10	0.0206	80%	0.0202	-0.0044	-0.0068
-5	0.0209 **	100%	0.0490	0.0331	0.0368
-2	<b>0.0067</b>	<b>60%</b>	<b>0.0736</b>	<b>-0.0078</b>	<b>0.0259</b>
-1	<b>0.0066</b>	<b>80%</b>	<b>0.0802</b>	<b>0.0006</b>	<b>0.0265</b>
0	<b>-0.0027</b>	<b>40%</b>	<b>0.0775</b>	<b>-0.0104</b>	<b>0.0161</b>
1	<b>-0.0068</b>	<b>40%</b>	<b>0.0707</b>	<b>0.0127</b>	<b>0.0288</b>
2	<b>-0.0065</b>	<b>60%</b>	<b>0.0642</b>	<b>-0.0222</b>	<b>0.0065</b>
5	-0.0190	0%	0.0474	<b>-0.0241</b>	<b>-0.0102</b>
10	-0.0069	60%	0.0287	<b>0.0090</b>	<b>-0.0127</b>
15	-0.0080	40%	0.0322	-0.0191 **	-0.0102
19	-0.0075	40%	0.0383	-0.0019	-0.0220

On the other hand, figure 5.2.2 plots the country specific CAR, with time on the horizontal axis and return on the vertical. From the graphs, it is easy to see that the CAR moves differently from country to country. While the scope of this study does not include country specific market or corporate governance analysis, because each country does demonstrate its own movement with regard to CAR, there may be country specific factors which contribute to the cause and effect relationship between the announcement of an ADR program and underlying stock price fluctuations.

Figure 5.2.2: CAR by Country



Also, figure 5.2.3, compares the four country groupings by the CAR for three separate time periods during the 40-day event window, highlighting the 5-day event window around the announcement date. All four groupings show a negative CAR for the 5-day event window. At the same time, they all demonstrate the expected positive CAR prior to the announcement, except for South Korea which shows a very slightly negative CAR prior to the 5-day event window. Like the total sample analysis, again, a negative abnormal return trend becomes evident even when the origination country is isolated as an independent variable. Thus, while certain trends regarding average abnormal returns and CAR may be determined by country, it is possible to conclude that underlying share price is negatively affected surrounding the announcement of an ADR program, regardless of origination country.

Figure 5.2.3: CAR by Event Day

Event Window	t= -20 to -3	t= -2 to 2	t= 3 to 19
CAR India	0.0158	-0.0510	0.0103
CAR Taiwan	-0.0094	-0.0461	0.0599
CAR South Korea	0.0669	-0.0027	-0.0259
Car Other	0.0337	-0.0271	-0.0285

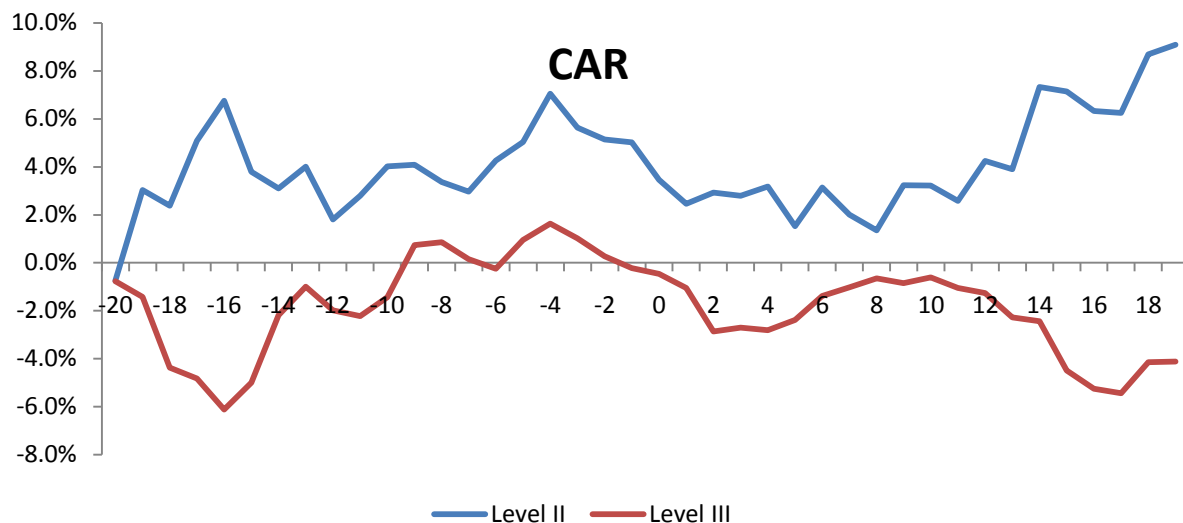
### 5.3 Results by ADR Level

Finally, the data was looked at from the perspective of level given that different regulatory compliances and costs apply to Level II and Level III ADR program. Level II is slightly less stringent, while a company sponsoring a Level III ADR program undergoes the most regulatory scrutiny. Furthermore, a Level III ADR is a public offering of additional shares, where Level II is not. Like the previous two subdivisions in section 5, Figure 5.3.1 is comprised of a table comparing average abnormal returns, percent non-negative, and cumulative abnormal return for underlying stock prices of Level II and Level III ADR programs. The data shows no statistically significant points for abnormal returns of Level II underlying stocks, most likely because the pool is limited to only five data points. Similarly, Level III has only one statistically significant, negative data point on event day 2.

Figure 5.3.1 Average Abnormal Return and CAR by Level

Event Day	Level II			Level III		
	Average Abnormal Return	Percent Non-negative	Cumulative Abnormal Return	Average Abnormal Return	Percent Non-negative	Cumulative Abnormal Return
-20	-0.0074	50%	-0.0074	-0.0077	36%	-0.0077
-15	-0.0296	17%	0.0380	0.0112	50%	-0.0500
-10	0.0122	50%	0.0402	0.0079	57%	-0.0144
-5	0.0078	67%	0.0504	0.0120	71%	0.0095
-2	<b>-0.0050</b>	<b>33%</b>	<b>0.0514</b>	<b>-0.0075</b>	<b>50%</b>	<b>0.0027</b>
-1	<b>-0.0012</b>	<b>50%</b>	<b>0.0502</b>	<b>-0.0049</b>	<b>50%</b>	<b>-0.0022</b>
0	<b>-0.0155</b>	<b>17%</b>	<b>0.0346</b>	<b>-0.0024</b>	<b>57%</b>	<b>-0.0047</b>
1	<b>-0.0100</b>	<b>33%</b>	<b>0.0247</b>	<b>-0.0059</b>	<b>43%</b>	<b>-0.0105</b>
2	<b>0.0046</b>	<b>50%</b>	<b>0.0292</b>	<b>-0.0181 **</b>	<b>14%</b>	<b>-0.0286</b>
5	-0.0166	17%	0.0153	0.0042	50%	-0.0239
10	-0.0001	33%	0.0322	0.0025	50%	-0.0060
15	-0.0019	50%	0.0715	-0.0205	36%	-0.0450
19	0.0041	67%	0.0910	0.0003	29%	-0.0412

Figure 5.3.2 Cumulative Abnormal Return by Level



Again, for comparative purposes, figure 5.3.2 graphs the CAR of underlying stock prices from Level II and Level III ADR programs separately. While at the beginning and end of the 40-day event window, the CARs of Level II and Level III underlying stocks move in opposite directions on average, from event day -8 to 2, the CARs move almost in perfect unison. Both categories are increasing until around day -4, and then both begin to decrease until a few days after the announcement date. Figure 5.3.3 also demonstrates the negative impact the announcement of an ADR program has on the price of the underlying stock, most notably in the 5-day window. The impact is greater for Level III shares, supporting the notion that pre-existing shareholders either fear share dilution or a detraction in value from the high costs associated with a firm sponsoring an ADR. Level III ADR programs are initial public offerings of stock in the United States, and are the most stringently regulated by the SEC and the most costly to set up, thus if the announcement of an ADR has a negative effect on the underlying stocks of Emerging Asian corporations for the aforementioned reasons, it should be more pronounced with Level III ADRs.

Figure 5.3.3 CAR by Event Day

Event Window	t= -20 to -3	t= -2 to 2	t= 3 to 19
Level II	0.0564	-0.0272	0.0618
Level III	0.0102	-0.0388	-0.0125

## Conclusion

As financial markets become increasingly interconnected, the complexities of market movements also become more and more intricate. Many companies are looking to widen their investor base on an international level. Expanding equity into international markets may lower the cost of capital, increase liquidity, and boost visibility. This is especially true of emerging markets where barriers to foreign investment may have previously limited opportunities for outsiders to enter. With the liberalization of financial markets, many emerging countries around the globe have become hot spots for foreign investment. Recent liberalization of many markets provides opportunities for companies within these markets to expand their investor base, and also provides similar opportunities for investors wanting to reap the benefits of portfolio diversification by investing in foreign assets. By internationally diversifying their portfolios, investors may increase their returns while limiting risk.

While many options exist for corporations wishing to expose themselves to foreign financial markets, the American Depositary Receipt market has become increasingly robust. For many foreign firms it is a way to first enter the U.S. marketplace without creating a direct listing on an exchange, which can be extremely costly and time consuming. Because Level II and III ADRs trade on exchanges, they promote liquidity and visibility, much like a direct listing. While ADRs require various levels of disclosure to the SEC, it is generally a less daunting task for a foreign company to create an ADR program than a direct listing. For a U.S. investor, ADRs also provide an alternative to the hassle of purchasing foreign shares.

The purpose of this study was to examine the effect the announcement of plans to sponsor an ADR by a foreign firm, particularly one from an Emerging Asian market, has on the price of pre-existing, or underlying stocks in the home market. The study looked at 20 Level II and Level III ADRs sponsored from corporations in Emerging Asian countries, namely India, Taiwan, South Korea, China, and the Philippines. The analysis of the data shows that regardless of country of origination or ADR level, Emerging Asian stock prices decline within the 5-day event window of the announcement of a company's plans to sponsor an ADR program. Often, because of increased visibility, liquidity, transparency and other improved corporate governance practices, ADRs have a positive effect on the underlying stock price. On the other hand, ADR programs can be quite costly and bring about share dilution, specifically in the case of Level III ADRs, or IPOs. In the case of Emerging Asian corporations, the evidence suggests that pre-existing share holders fear that the costs will outweigh the benefits in creating an ADR program or the program may cause share dilution, thus causing the share price to drop upon announcement.

## Appendix A

Quantitative Standards				
Criteria	Listing Standards			
	Standard 1	Standard 2	Standard 3	Standard 4
Pre-tax income <sup>1</sup>	\$750,000	N/A	N/A	N/A
Market capitalization	N/A	N/A	\$50 million	\$75 million <b>OR</b> At least \$75 million in total assets and \$75 million in revenues
Market value of public float	\$3 million	\$15 million	\$15 million	\$20 million
Minimum price	\$3	\$3	\$2	\$3
Operating history	N/A	2 years	N/A	N/A
Shareholders' equity	\$4 million	\$4 million	\$4 million	N/A
Public shareholders/Public float (shares) <sup>2</sup>	Option 1: 800/500,000 Option 2: 400/1,000,000 Option 3: 400/500,000 <sup>3</sup>			

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## Academic Vita

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## Education

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**The Pennsylvania State University**, University Park, PA                      May 2011

Smeal College of Business, *Bachelor of Science, Finance*

- *Schreyer Honor's College* – studies include smaller, more challenging classes and an original research thesis on Emerging Markets and ADRs prior to graduating with honors in the area of Finance
- *Sapphire Program* – Accelerated business program which offers smaller class sizes, allows participants to complete junior core and study abroad during the sophomore year
- *Minor in International Business*

College of Liberal Arts, *Bachelor of Science, International Studies*

- *Minor in Spanish Language*

**The Institute at Palazzo Rucellai**, Florence, Italy                      Spring 2009

- Studies included studio art, art history, business and Italian classes in the art capital of the world

**abccollege**, Barcelona, Spain                      Summer 2009

- Intensive Spanish language courses five days a week for six weeks in order to improve fluency

## Experience

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**Bank of America – US Trust**, New York, NY                      Summer 2010

*Financial Analyst Intern -*

- Owned the process of producing weekly financial reports for the presidents and CFOs of US Trust and Global Wealth and Investment Management
- Contributed to analysis and reporting of US Trust's Northeast division, working on special projects for senior management, which included attrition analysis and a quarterly financial package for distribution among the entire division
- Spearheaded the compilation of four 25-page monthly divisional financial reports, while working directly with the CFO of US Trust and other top of the house teammates to complete the project in an efficient and timely manner

## Activities

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### Gamma Phi Beta Sorority

- *New Member Educator* – promoted from Assistant New Member Educator in 2009 to take on full responsibility in 2010; oversaw new member period and assisted in transitioning new members toward initiation; organized bid day activities with a budget of \$500
- *Homecoming Chair*- in charge of over \$1000 budget for homecoming 2008; organized involvement in events, designed float, ordered and distributed event clothing

### Community Service

- Served as a volunteer in various community activities, including participation in Penn State's Dance Marathon and service at State College's local retirement home

## Honors

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Golden Key International Honour Society	Fall 2009 – Spring 2011
Beta Gamma Sigma International Honor Society	Fall 2009 – Spring 2011
Dean's List	Fall 2007 – Fall 2010
President's Freshman Award	Spring 2008
Banks' Scholarship	Fall 2007 – Spring 2011