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Possible Benefits of ADR Issuance:
Evidence from Developing Countries

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ABSTRACT

By calculating cumulative abnormal returns immediately after the new ADR issues, this paper analyzes the markets' feedback to the issues and finds that the issues positively impact the performance of foreign firms. With the continually internationalization of securities, ADRs, especially those from developing countries, provide advantages that might surpass other types of foreign investments and have become more popular and attractive to American investors.

I. Introduction

The benefits associated with international diversification are well known by the market. International diversifications can reduce systematic risk of a portfolio or gain considerable short-term returns from speculation. However, direct foreign investment (DFI) is generally difficult. Unfamiliar administration procedures and unfamiliar types of risks are major obstacles. The benefits of DFI will be reduced by economic, institutional, and financial factors beyond the fluctuation in prices on foreign exchanges. For example, investors have to convert US dollars into another currency when buying and selling foreign securities, thus incurring extra transaction costs and exchange rate risk.

American depository receipts (ADRs) are a convenient way for United States investors to achieve international diversification of their equity portfolios using US Dollars without any of the administrative problems associated with direct ownership of foreign securities. Normally, ADRs are issued by United States banks, called depositories, that certify that a specific number of foreign shares have been deposited with the bank's overseas branch or custodian and will be held on deposit as long as the ADRs remain outstanding. In short, these depositories take physical possession of foreign securities through their foreign correspondent banks, and then issue receipts on those securities.

Some of the advantages of ADRs are: decent liquidity, smaller position size, lower transaction costs, stronger regulations, and trading convenience (ADRs can be traded during US market hours). Moreover, probably the most attractive character of ADRs is the improvement of information environment caused by the issue of ADRs. Listed ADRs - those registered with the SEC and subject to US accounting rules - must file quarterly results, so there is more investor information available than with DFI. Both the depository banks and the regulatory organizations force the foreign firms to provide more information when issuing ADRs, thus dispersing the credit risks associated with the firms.

ADRs from developing countries are among the most attractive foreign investments. One of the reasons is that the advantages of ADRs that surpass DFI are even more obvious for developing countries' ADRs. Those firms from emerging markets are even harder to be invested through foreign exchanges because the administrative problems become more serious: worse information sharing, higher transaction costs, and higher credit risks. However, these shortcomings of developing countries' investment opportunities can be weakened greatly by issuing ADRs. With the support of depository banks and the regulation by SEC, the operation status, financial results, and managerial features would be more legible to United States investors and the transaction costs of foreign investment would be reduced substantially.

Perhaps more importantly, there is a potential to gain from the investment of developing countries' ADRs. Most firms from developed countries have the same features as large US companies, while some of the developing countries' firms have specialties that can be extremely difficult to find among current US markets. Some of those companies from emerging markets are just like the industrial innovators in the US market 50 years ago. For instance, many developing countries are currently experiencing the transformation from planned-economy to market-economy. Under such a transformation, opportunism can produce substantial benefits rapidly, partially because they already have lots of successful precedents from developed countries.

The motivation of foreign firms to issue ADRs is essential. Potential benefits from issuing ADRs are: 1) foreign investors' risk premium reduction, 2) opportunity to access to more developed capital markets, 3) information disclosure, 4) significant demands for external capital due to rapid growth, and 5) bonding and monitoring. There are lots of examples about successful ADRs from developing countries' firms. On August 5, 2005, Baidu (NASDAQ: Bidu) issued an ADR, which was the most successful ADR/IPO on NASDAQ in that year. With an issuing price of US$ 27.00, the shares opened at US$ 66.00 and closed at US$ 122.54. Table 1 is a list of some of the fastest growing companies in China and all of them issued ADRs as their IPOs.

Fastest-growing Chinese companies (past 10 years)

TICKER	Mkt. Cap.	Company Name	Industry
TOMO	0.3B	Tom.com	Technology
SINA	3.78B	SINA Corporation	Technology
SOHU	2.51B	Sohu.com Inc.	Technology
SNDA	1.4B	Shanda Interactive Entertainment	Technology
NTES	8.42B	NetEase, Inc.	Technology
JOBS	1.82B	51job Inc.	Services
BIDU	33.95B	Baidu, Inc.	Technology
HMIN	1.23B	Home Inns & Hotels Management Inc.	Services

Table 1

These firms all issued ADRs in their growing-stage and achieved successful afterwards. However, US investors might be more concerned about the overall profitability, or efficiency, of the firms in the developing countries. Since the benefits of the investors are related to the performance of the firms, I will examine the impact of ADR issues to the issuing firms. By using a set of data of developing countries' ADRs, I calculated 6 days and 31 days cumulative abnormal return (CAR) with the effective date of an ADR as the base point. The overall results are affirmative to the attraction of ADR investments. For example, I show positive abnormal returns in the period immediately after the ADR issuance for a cross-sectional sample of ADRs. I also find some evidence that domestic firms' stock returns are abnormally high in the post-issuance period. This is particularly true for those domestic firms in developing countries.

II. Data

There are three sources of my data. In the website of the Bank of New York Mellon Corporation, there is a directory that contains depositary receipts (DRs) from all over the world. The DRs are categorized by region, country, industry, exchange, and other characters. The database contains information on the DRs such as institutional ownership, terminated DRs since 2008, DR dividends, capital raisings, corporate actions, etc. Daily return, monthly return, volume, and shares outstanding data comes from Center for Research on Security Prices (CRSP). All of the data regarding foreign stock exchanges are from Bloomberg. I found stocks returns for the underlying companies for ADRs in Bloomberg, together with the major indexes of those foreign markets. I gathered daily stock prices data of the ADRs' domestic companies for a two-year time period beginning from the issuing date of their ADRs. For those countries' market indexes, I chose the following: for Argentina, I chose the Argentina Merval Index; for Brazil, I chose the Ibovespa Index; for India, I chose the CNX Nifty; for Japan, I chose the Nikkei-225 Stock Average; and for China, since my sample ADRs issued stocks in stock exchanges of China, Hongkong, and Taiwan before in America, I chose the CSI 300 Index for china, the Hang Seng China Enterprises Index for Hongkong, and the TWSE Index for Taiwan.

Table 2 demonstrates the summary statistics of the ADRs data. I collect daily stock data for 419 ADRs from CRSP with a time period beginning from January 2000 to December 2012. The mean turnover of 18.57 indicates that on average 18.57% of ADR shares are traded each day. This implies decent liquidity and attractiveness of ADRs. However, the standard deviation is 51, which showed high volatility of liquidity among the ADRs. The mean spread of 3% is higher than the mean spread of non-ADR stocks (researchers found that the average mid-size firms in the US have a spread close to 1.043% in Nasdaq and NYSE). This result suggests that ADRs may be less liquid than non-ADRs. However, less liquidity relative to non-ADRs does not rule out ADRs superiority over other foreign investment channels.

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
size	419	11.40361	2.26061	7937	3.02824	17.92995	Size
prc	419	2.51793	1.1144	1752	-1.7807	5.2862	Price
vol	419	351096	961521	244714195	0	11981578	Volume
turn	419	18.57143	51.00543	12944	0	1090	Turnover
sprd	419	0.02942	0.06331	20.50871	0.0005387	0.72269	Spread

Table 2

Size is the logged market equity; prc is the price; turn is the turnover (trading volume scaled by shares outstanding); vol is the trading volume (in hundreds); and sprd is the bid-ask spread (in percentage).

III. Empirical results

Now let's look at the American market's feedback to the issuing of ADRs. To do so, I calculated the abnormal returns based on the CAPM model:

$$R_i - R_f = \alpha_i + \beta_i (R_M - R_f) + e_i$$

Where R_i is the stock return, R_M is the market return, R_f is the risk free rate, and residual term e_i is the abnormal return. The base point of my CAR calculation is the effective date of an ADR and thus CAR (0, 5) represents the cumulative abnormal return for the first 6 days since issuance and CAR (0, 30) represents the cumulative abnormal return for the 31 days since issuance. The results are shown in Table 3.

Significance test for CARs			
CAR (0, 5)		**CAR (0, 30)**	
Mean	0.0371	**Mean**	0.0569
Std Dev	0.1403	**Std Dev**	0.2322
T-value	6.95	**T-value**	6.65
P-value	<.0001	**P-value**	<.0001

Table 3

Both the CAR (0, 5) and CAR (0, 30) showed positive means. The CARs in this table are economically significant (156% return in annual terms for CAR (0, 5) and 46% return in annual terms for CAR (0, 30)). These results represent the positive feedback from the American market to the ADRs. Also, these positive CARs indicate the conservative pricing of ADRs at the issuing. Researches showed that the average initial returns for IPOs in developing countries are generally higher than in developed countries.

The statistical significance of the American market's reaction is high as well. Table 3 shows the t-tests on the CARs. As seen in the table, the P-values for both calculations are less than 0.0001 indicating that the CARs are statistically significant.

Now let's see if the issuance of ADRs benefit the companies in their domestic markets as well. I collect the ADRs' domestic stock market data from Bloomberg with a time period of two years beginning from the issue date of their ADRs. This data contains the stock's returns in their domestic markets and the domestic markets' returns. Again I calculate CARs with the effective date of the ADR issuance set as the base point but with the stock returns of the domestic companies. I select ADRs from five countries. Four of them are developing countries: China, Argentina, India, and Brazil. The last one is Japan, a developed country.

The results are showed in table 4. Results show that Japan's companies do not have abnormal returns during the post-issuance period. This might be because Japan is a developed country and thus its economy and financial market is already very efficient. So the benefits of ADR issuance are less effective.

	Individual stocks' performance			Countries' overall performance			
	TICKER	**CAR (0, 5)**	**CAR (0, 30)**	**CAR (0, 5)**		**CAR (0, 30)**	
Argentina	BMA	0.053415691	0.147499	**Mean**	0.0552	**Mean**	0.1066
	EDN	0.024130299	0.113791	**Std Dev**	0.2024	**Std Dev**	0.0842
	PAM	0.060633548	-0.01336	**T-value**	4.57	**T-value**	2.53
	TEO	0.082588044	0.178318	**P-value**	0.0196	**P-value**	0.0853
Brazil	BAK	0.098758488	0.129518	**Mean**	0.0128	**Mean**	0.00741
	BRF	0.011815642	-0.11209	**Std Dev**	0.064	**Std Dev**	0.1161
	BSB	0.040799113	0.031702	**T-value**	0.7	**T-value**	0.22
	CPL	0.03339289	-0.02325	**P-value**	0.5015	**P-value**	0.8291
	ERJ	0.027992158	-0.02306				
	FBR	-0.001262899	0.052161				
	GFA	-0.087004848	-0.06458				
	GOL	-0.047688966	0.137331				
	PBR	-0.054619011	0.176257				
	SBS	0.038812909	-0.23413				
	UGP	0.133057867	0.063493				
	VAL	-0.039880214	-0.04442				
China	ACH	0.07138104	0.144484	**Mean**	0.0653	**Mean**	0.0588
	ASX	-0.048183642	-0.3176	**Std Dev**	0.2455	**Std Dev**	0.2644
	AUO	-0.000058844	-0.29696	**T-value**	0.96	**T-value**	0.8
	CEO	0.056840533	0.110062	**P-value**	0.3563	**P-value**	0.4383
	CHA	0.000398669	-0.08194				
	CHL	0.11411973	0.184912				
	CHU	0.094454118	0.296826				
	HKT	-0.22582445	0.255295				
	LFC	-0.075261925	-0.05944				
	PTR	0.828198349	0.616504				
	SPI	0.050364975	0.122225				
	TSM	-0.030811997	-0.25819				
	UMC	0.013681906	0.048032				
India	HDB	0.040301822	0.134697	**Mean**	-0.0634	**Mean**	0.0326
	IBN	-0.030771768	-0.033	**Std Dev**	0.1176	**Std Dev**	0.1163
	RDY	-0.266338841	-0.03641	**T-value**	-1.21	**T-value**	0.63
	SLT	-0.023043565	0.179362	**P-value**	0.2941	**P-value**	0.5653
	WIT	-0.037382394	-0.08182				
Japan	IX	-0.072653015	-0.18456	**Mean**	-0.0534	**Mean**	-0.00471
	MT	-0.008640822	0.096313	**Std Dev**	0.0504	**Std Dev**	0.1243
	NJ	-0.115750119	0.05376	**T-value**	-2.12	**T-value**	-0.08
	TM	-0.01648242	0.015636	**P-value**	0.1244	**P-value**	0.9443

Table 4

The CAR (0, 5) and CAR (0, 30) of the firms from developing countries (except India) show positive means, indicating that the issuing of ADRs make their stocks more popular in their domestic markets. The most economically significant result is the mean CARs of China, which are 0.0653 and 0.0588 that indicates a 274% annualized return on CAR (0, 5) and a 48% annualized return on CAR (0, 30). The results of Argentine firms are also significant with a 232% annualized return on CAR (0, 5) and a 87% annualized return on CAR (0, 30).

The benefits of cross-listing are well known and apparently those foreign firms gain extra attention by issuing ADRs. The ADR's domestic investors seem to be building confidence in their investments since the issuing of the ADRs. However, because of the large variation (i.e. the large standard deviation) among the CARs, the statistical significance is low for the mean CARs, except for those of Argentina who has a P-value of 0.0196 for CAR (0, 5) and 0.0853 on CAR (0, 30).

Since 1991, when India suffered a severe economic crisis, the country has been trying to change from planned-economy to market-economy. Therefore, among these four developing countries, India's economy is the most advanced and mature. And therefore those Indian companies might find it hard to benefit by issuing ADRs. Perhaps this is the reason why Indian companies show a negative mean of CAR (0, 5) of -0.0634. Nevertheless, it still shows a positive mean of CAR (0, 30) of 0.0326.

Now let's look at the CAR calculation for all of the countries' firms.

All countries' performance			
CAR (0, 5)		**CAR (0, 30)**	
Mean	0.0182	**Mean**	0.0375
Std Dev	0.1578	**Std Dev**	0.1765
T-value	0.71	**T-value**	1.31
P-value	0.4805	**P-value**	0.1988
All developing countries' performance			
CAR (0, 5)		**CAR (0, 30)**	
Mean	0.0267	**Mean**	0.0424
Std Dev	0.1643	**Std Dev**	0.1824
T-value	0.95	**T-value**	1.36
P-value	0.3507	**P-value**	0.1843

Table 5

Note that "all developing countries" are all countries excluding Japan.

We can see that, because of the negative influence on the CARs by Japan, the means of CARs are higher for the group that consists only by the developing countries. Nevertheless, the overall means of both the scenarios are still positive for both the CAR (0, 5) and CAR (0, 30). For all the countries, the results showed a 76% annual return for 6-day CARs and a 31% return on 31-day CARs; for all the developing

countries, where the CARs are higher on average, the results showed a 112% annual return on 6-days CARs and a 35% return on 31-day CARs. There is low statistical significance for the results of CAR (0, 5). However, after obtaining more data, we might be able to gain more power in the tests and find statistical significance.

The 31-day CARs are more statistically significant than the 6-day CARs. The difference in the significance between the two measures could be caused by a slower reaction by the foreign investors to the ADR's issuance. Emerging markets in developing countries might be less efficient than the US market, which leads to a longer responding time span for the investors in the foreign markets. Therefore, these markets might use up to a month to fully absorb the understanding of the new ADR's issuing announcements, thus the CARs for the 31-day period are more statistically significant.

IV. Conclusion

With the internationalization of securities, ADRs, especially those from developing countries, might have many advantages that surpass other types of foreign investments. ADRs have become more and more popular and attractive to American investors. By calculating the cumulative abnormal returns (CARs) immediately after the issuance of ADRs, this paper analyzed the markets' feedback to the issues and finds that the issues generally have a positive impact on the foreign firms who are trying to seize capital from the American market. I find positive means for CARs in both the 6-day and 31-day period after the ADR issue. The results imply at least some (short-term) evidence that firms in developing countries' benefit from ADR issuance. Future research might provide more information about the benefits to issuing firms.

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