

The International Attributes and Return Performance of Newly-Listed American Depositary Receipts

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American Depositary Receipts (ADRs) have recently experienced a notable increase in significance in terms of their visibility in U.S. financial markets and their overall role in international finance. This study investigates the investment return performance of newly created ADRs listed on U.S. markets in the period immediately following their introduction. Variation in return performance between different categories of listed ADRs is marked. Those associated with worldwide IPOs have impressive first day Abnormal Returns, and an average Cumulative Abnormal Return (CAR) of 25.62% over the first 100 trading days. This pattern is particularly notable for ADRs associated with privatizations, which have first day Abnormal Returns of 21.93% and an average CAR over the first 100 days of 43.43%. Some ADR listings are IPOs for U.S. markets, but have previously traded abroad and thus have elements of being Seasoned Equity Offerings. These post smaller first day gains, but have a 100-day average CAR of 12.81%. In contrast to the above categories, ADR listings not associated with the raising of new capital have minimal Abnormal Returns.

I. INTRODUCTION

American Depositary Receipts (ADRs) have become an important class of securities traded in the U.S. In 1997, ADRs represented 5% of trading volume on the exchanges (over \$500 billion in transactions), and were used to raise \$13 billion through 75 offerings. At the end of 1997, of the 1358 ADRs traded in the U.S., 457 were listed on NYSE, AMEX or NASDAQ. In the same year 165 new sponsored ADR programs were established, compared to 52 in 1988¹. Table 1 profiles the growth of ADRs from 1990 to 1997. The total number of ADRs grew 62% from 836

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to 1,358; while listed (on the NYSE, AMEX, and NASDAQ) programs have increased 160% from 176 to 457.

Table 1
Recent pattern of growth in listed American Depositary Receipt programs in the U.S. over the interval 1990-1997.

	No. of Programs	No. of Sponsored Programs	Listed ADRs			
			Number	Listed as % of Total	Volume (Billions of Shares)	Value Trading (\$ Billions)
1990	836	352	176	21.1	3.8	75
1991	886	418	186	21.0	4.6	94
1992	924	481	215	23.3	4.3	125
1993	986	576	256	26.0	6.3	201
1994	1,124	745	317	28.2	7.3	248
1995	1,209	866	357	29.5	10.2	276
1996	1,301	992	426	32.7	10.8	341
1997	1,358	1,066	457	33.7	12.4	503

Source: 1997 Year-end Market Summary, Bank of New York.

Since 1990 an increasing percentage of ADR offerings have been from emerging markets. This is related to the opening of these markets to international investors. Although the number of emerging market offerings dropped immediately after the Mexican Peso crisis in late 1994, the number increased again starting later in 1995.

ADRs are negotiable certificates representing ownership in a foreign company's stock. There are two ways to create new ADRs. The shares can be purchased in the home market and delivered to the depository's local custodian bank, which instructs the depository in the U.S. to issue ADRs. Alternatively, additional shares can be sold and incremental capital raised at the time the ADR is created. These shares can be offered in the U.S. and/or foreign markets simultaneously.

ADRs allow U.S. based investors to invest in a foreign company without converting currency and trading in a foreign market. Other benefits include institutional arrangements that resolve potential concerns regarding the authenticity of share certificates delivered after a purchase. Dividends are paid in U.S. dollars and converted at favorable commercial exchange rates. Although the price of the ADR is quoted in dollars, the return is influenced by changes in exchange rates. Investors may benefit by saving the extra expenses of trading in a market outside the U.S. For instance, the Bank of New York estimates that elimination of custodian safekeeping charges saves 30 to 60 basis points annually. Surveys of institutional investors indicate that in terms of value of foreign securities held in portfolios, more than half consisted of ADRs as compared to shares in the home market.

The primary motivations for foreign firms in establishing a Depositary Receipt program can be divided into two broad considerations: capital and commercial. Under capital considerations, one perceived benefit is to enlarge the market for its shares, through a broadened (more liquid) and more diversified investor exposure which may increase or stabilize the share price and have positive cost of capital implications².

Firms also cite commercial goals, such as the enhancement of the image of the company's products, services or financial instruments in a marketplace outside its home country. Other considerations include providing a mechanism for U.S.-based employees to invest easily in the foreign parent company. ADRs are occasionally used as a form of consideration when acquiring U.S. firms.

ADRs can be "sponsored" in which case they are created with the company's involvement, or they can be "unsponsored". Sponsored ADRs have one depositary bank that is appointed by the issuer who pays a fee to the depositary bank. With an "unsponsored" ADR there need be no formal relationship between the depositary bank and the foreign firm, an arrangement that is increasingly unusual.

There are three levels of sponsored ADRs. A level-I ADR is not subject to full SEC reporting requirements and need not comply with U.S. GAAP criteria. These trade in the OTC market and primarily allow the firm to have a publicly traded security in the U.S.. A level-II ADR is one where the foreign firm lists its security on the NYSE, AMEX, or NASDAQ, but does not raise capital through a security offering. Sponsored level-III listings are associated with the raising of new capital. Firms with sponsored level-II and level-III ADRs are required to

file form 20-F annually. This is similar to a 10-K but allows the foreign company to report as per their domestic rules, which may be different from GAAP. However, they are required to reconcile the statements to U.S. GAAP. ADRs also include Rule 144A issues that are privately placed with qualified institutional buyers (QIBs), and do not trade in an organized market. Foreign firms frequently use Rule 144A ADRs as a precursor to the introduction of publicly traded ADRs. The ADRs examined in our study are sponsored level-II or level-III securities.

In this paper we focus on how the post-listing performance is influenced by the International context of the initiation of trading. A primary partition is between those new ADR issues that raise additional capital, and those that do not. We examine them separately as they have different implications for pricing. Newly listed ADRs that raise incremental capital include three major categories:

1. Worldwide IPOs;
2. ADRs where the underlying equity previously traded abroad; and
3. ADRs where the underlying equity previously traded on the Pink Sheets, or under a Rule 144A program.

“Pure” ADRs where the shares to support the ADR are purchased in the home market do not raise capital for the firm.

The paper is structured as follows. Section II reviews the related literature. In Section III, details of the sample, data and empirical methodology for the investigation of post-listing returns performance are provided. The findings of the investigation of post-listing investment performance are presented and interpreted in section IV. Section V summarizes and concludes the paper.

II. LITERATURE

Interpretation of our findings requires reference to the literature on international cross-listings, change of market and microstructure, IPOs, privatization, and Seasoned Equity Offerings (SEOs).

A. Investment Performance and International Cross-listing

Jayaraman, Shastri and Tandon [12] examine the impact of the listing of ADRs on the risk and return of the underlying stock in the home market. If markets are integrated across countries, listing on a foreign market should not have a significant price reaction. However, a significant return may arise if markets are even partially segmented. Examining a sample of 95 listings during 1983-88, they find an abnormal return in the home market of 0.47% on the listing day. This result is significant only for the sub-sample of 44 Japanese firms. They ascribe this increase in value on day 1 to the benefits from accessing a lower cost source of capital. They do not observe negative post-listing performance. Other studies on international listings find results that are different from Jayaraman et al. Howe and Kelm [11] find insignificant returns on listing day and in the post-listing period, and significant negative pre-listing returns.

Alexander, Eun and Jankiraman [1] examine a sample of 34 non-U.S.-domiciled companies that listed on a U.S. exchange. They find positive significant home country cumulative returns until three months prior to listing, insignificant return at listing, and a significant Cumulative Abnormal Return of -20.2% in the 36-month post-listing period. A larger post-listing decline is observed for non-Canadian firms. An implication of their study is that international listings result in integration of capital markets. Analyzing a larger sample, Foerster and Karolyi [8] found a decline of 11 percent in the year following listing of Canadian and non-Canadian firms. In a more recent study Foerster and Karolyi [9] examined a sample of 153 ordinary share and ADR listings in the U.S. and found positive abnormal returns in the year prior to listing of 19%, and 1.2% in the week of listing³. They find a post-listing decline of 14 percent over the subsequent year. The authors conclude that the post-listing decline in ADRs returns is related to company specific factors and not the listing decision itself. Miller [18] examines the impact of international dual listings of ADRs. He concentrates on the timing of announcement of the plan to create an ADR rather than the listing date. The announcement usually occurs several months prior to the listing. He observes positive abnormal returns in the home country market around the announcement date of the plan to create an ADR. Further, positive returns are noted in case the firm raises new capital in a public ADR offering, but negative returns occur in private offerings.

Lau, Diltz and Apilado [14] examine a sample of U.S. firms listing on ten different international stock exchanges. They observe positive

abnormal returns in the U.S. around the time the firm's application for listing is accepted, suggesting the existence of information effects. A negative abnormal return of -0.36% is observed on the first trading day, and significant negative returns are observed in the 125-day post-listing period for listings on the Tokyo and Basle exchanges.

B. Change of Markets and Microstructure

The listing initiation of some ADRs involves a change of market for the security from purely foreign to a combination of foreign and U.S. trading, or from the Pink Sheets to listed markets. Hence the literature on change of markets and the microstructure attributes associated with that change is part of the context for an examination of ADRs.

The post-listing declines observed in cross-border listings are similar to those observed when NASDAQ or AMEX listed firms move to the NYSE (Sanger and McConnell [21] and McConnell and Sanger [17]). McConnell and Sanger evaluated several hypotheses but argued for the existence of a life-cycle bias attributed to only mature non-growth companies qualifying for listing. Kadlec and McConnell [13] examine the impact of listing on the NYSE by OTC stocks. Their results indicate an abnormal return of 5 to 6 percent at announcement of NYSE listing. Listing is also associated with an increase in registered institutional shareholders, and a reduction in bid-ask spread. They conclude that investor recognition and increase in liquidity are the source of value increase.

Some studies have also examined the impact of listing on volatility in the home market. Jayaraman et al. [12] find a significant increase of 56% in volatility in the home market after ADRs are listed in the U.S. They ascribe this to the activities of informed traders who take advantage of more information being revealed because of increased trading time, and information differentials in the markets. Lau et al. [14] find that volatility is not affected by cross listing, suggesting that abnormal returns are not caused by changes in systematic risk. We do not examine this aspect of our empirical sample because our focus is on the investment performance of ADRs in the U.S. markets rather than the return performance of the associated underlying shares in home country markets.

C. Initial Public Offerings

Some ADR listing initiations are simultaneously IPOs for the equity of the foreign firm. This is a somewhat unique form of IPO, and we now review the literature on IPOs in particular national markets as part of the context for an examination of ADR IPOs.

A number of studies have documented that stocks have a large positive abnormal return at the initial offering (Ritter [20]). The results suggest that underwriters offer these securities at a discount to the value set in the aftermarket and that IPOs appear to be underpriced. Aggarwal and Rivoli [3] examine the intermediate-term performance of IPOs. They observe an abnormal return of -13.73% from the close of trading on the first day to 250 days after the IPO. Ritter found that IPOs underperform industry and size matched samples by 29% over a three-year period. Loughran and Ritter [16] found similar results for IPOs when examining both IPOs and Seasoned Equity Offerings (SEOs).

Similar results to those found in the U.S. have been observed in Germany (Uhlir, [25]); Brazil, Mexico and Chile (Aggarwal, Leal and Hernandez, [2]); and the U.K. (Levis, [15]). Some of the international IPOs are the results of privatization. Perotti and Guney [19] survey the extent of underpricing in privatization related IPOs. They find a significant level of underpricing in both developed and developing country privatizations, with the discount being higher than in private sector IPOs. Most countries tend to have partial, staggered sales. Between the hypotheses that staggered sales are due to limited market capacity and the alternative confidence-building rationale, studies tend to support the latter. A confidence-building rationale together with the government's inclination to have wider share ownership may explain the level of underpricing.

In a study that is quite closely related to this paper, Foerster and Karolyi [10] examine the long-run post listing performance of global equity offerings (both IPO and SEO). They find three-year negative performance of only 1.7%, in contrast to the 18 to 27% magnitudes prior studies have identified for domestic issues.

D. Seasoned Equity Offerings

Reflecting the multi-dimensional aspects of ADRs, some listing initiations are simultaneously SEOs, in that the company is issuing additional equity in the U.S. and/or home market and raising incremental capital. This makes the literature on SEOs another part of the context for ADR listing initiations.

For seasoned stock offerings, Smith [22] reports an average decrease in stock price during the two-day announcement period of 3.14% for industrials and 0.75% for utilities. Asquith and Mullins [4] report that the actual offering has an insignificant impact on stock price. Barclay and Litzenberger [6] find evidence of significant negative returns preceding issue day and statistically significant positive returns following the issue. The magnitude of recovery is 1.47% and is not significantly different from the price drop at announcement. They conclude this recovery is consistent with the hypothesis that transaction costs are partially responsible for the price drop at announcement.

Loughran and Ritter [16], and Speiss and Affleck-Graves [23] find negative long-run (three-year) performance by firms undertaking seasoned-offerings. Abnormal Returns over the three-year interval are in the order of -20%, depending on the precise methodology employed.

The literature review for this study has referenced several categories of research in finance. This reflects the multi-dimensional attributes of ADRs, and the somewhat complex context for an examination of their investment performance at, and immediately following, listing. It transpires that insights from several different bodies of financial research profiled above facilitate the interpretation of the findings in this study.

III. SAMPLE, DATA, AND METHODOLOGY

A. Sample

The sample selection process for this study started by identifying all firms listed as ADRs on the 1994 CRSP tapes. This provided a list of 368 ADRs, with some firms having multiple issues. Securities for which CRSP had returns from the first day of daily data on CRSP tapes (July 2, 1962 for NYSE/AMEX firms; Dec. 14, 1972 for NASDAQ) were eliminated as those were not the first trading days in the U.S. for those ADRs. This resulted in the elimination of 24 ADRs. Further, we eliminated firms for which we could not obtain the pre-listing status of the firm's stock. This resulted in elimination of most ADRs that were listed prior to 1984. An additional requirement was that post-listing returns for 200 days be available on the CRSP tapes. After attrition related to data availability, multiple classes of ADRs issued by a single firm, confounding events, ADRs representing securities other than common stock, and a decision to begin the analysis in 1975, our final

sample consisted of 234 newly listed ADRs.

Table 2
Breakdown by year of listing, type of country of origin, and market of listing of sample of 234 ADRs over the interval 1975-1994.

Year	Frequency	Type of Country		Market of Listing	
		Developed	Emerging	NYSE/AMEX	NASDAQ
75	1	1	0	1	0
76	2	2	0	2	0
77	1	1	0	0	1
78	0	0	0	0	0
80	1	1	0	1	0
81	4	4	0	1	3
82	2	2	0	0	2
83	8	8	0	2	6
84	9	9	0	2	7
85	4	4	0	1	3
86	11	11	0	6	5
87	24	24	0	12	12
88	13	13	0	9	4
89	11	11	0	7	4
90	12	11	1	8	4
91	9	7	2	9	0
92	18	14	4	10	8
93	43	23	20	30	13
94	61	21	40	50	11
Total	234	167	67	151	83

Table 2 provides details of the year of listing, type of country of origin, and the market in the U.S. in which the sample of ADRs is traded. While the data requirements for this study meant that not all newly listed ADRs are included, the major trends in ADRs in recent years are clearly reflected in the empirical sample. ADRs from developed countries completely dominate the earlier years of our sample, but by 1994 there were more newly listed ADRs from developing than developed countries.

We identified 7 categories of ADR listing initiations. These are shown in Table 3. The first 4 categories are for ADR initiations where the firm raised additional capital simultaneously with the ADR listing. These include:

1. Worldwide IPOs (privatizations/non-privatizations);
2. A U.S. IPO but the underlying security traded in a foreign market prior to U.S. listing;
3. An ADR listing on the NYSE/AMEX/NASDAQ where the underlying security had previously traded in the Pink Sheets in the U.S.; and
4. An ADR listing on a U.S. market where the underlying security had previously been part of a Rule 144A program in the U.S.

These 4 categories encompass quite different contexts for the introduction of a new ADR into the U.S. listed markets. The first category includes "pure" IPOs, category 2 is a combination of attributes of IPOs and Seasoned Equity Offerings (SEOs), and categories 3 and 4 are similar to the scenarios examined in change-of-market studies.

When no capital is raised with the introduction of the ADR, three distinct categories are identified. Those where the underlying stock did not trade in the U.S. prior to listing the ADR (category 5), those where there was previous pink-sheet trading (category 6), and instances where there was prior Rule 144A trading (category 7). As indicated in Table 3, insufficient data is available to categorize the listing initiations for 6 ADRs. This resulted in 228 ADR initiations being examined in the empirical analysis.

Table 3

Categories of securities transactions for the listing of ADRs during 1975-1994.

Transaction	Notation	Frequency with in the Sample of 234 Sample ADRs	
<u>New Capital Raised:</u>			
1. Worldwide IPOs:	IPO _{WW}	58	
Privatizations	IPO _{PZ}		12
Non-Privatizations	IPO _{NonPZ}		46
2. IPO in the U.S. but security previously traded in a Foreign Market	IPO _{US} /SEO _{WW}	64	
3. First Listing on YSE/ASE/ NASDAQ but previously traded on Pink Sheets	IPO _{List} /SEO _{PS}	15	
4. First Listing on NYSE/ASE NASDAQ but previously had Rule 144A Program	IPO _{List} /SEO ₁₄₄	3	
<u>No New Capital Raised:</u>			
5. New Listing in U.S. Market: No Net Stock Issue; Not previously traded in the U.S.	NEWLIST _{PureADR}	46	
6. New Listing in U.S. Market: No Net Stock Issue; Previously traded on Pink Sheets	NEWLIST _{PS}	39	
7. New Listing in U.S. Market: No Net Stock Issue; Previously had Rule 144A Program	NEWLIST ₁₄₄	3	
<u>Unclassified:</u>			
Insufficient Information on Listing		6	
Total New Listing ADRs		234	

B. Data

The information and data on pre-listing status were obtained from an examination of the *Wall Street Journal*, *Lexis/Nexis*, other security issuance databases and information obtained directly from depository banks. Data on the offering price in transactions where new capital was raised was obtained from the issue documents, Depository Banks, and releases in the financial press. All ADRs in this study were sponsored level-II or level-III ADRs. The sample does not include Canadian stocks listed in the U.S. as they do not trade in ADR form⁴. For ADR listings accompanied by an offering of additional stock, the first day's return was calculated from the offering price to the closing price. Other return data were obtained from CRSP.

C. Methodology

The event study methodology used here is similar to that employed by Dodd and Warner [7]. For each security j we estimate the market model parameters and compute the abnormal returns (ARs) for period day t as:

$$AR_{jt} = R_{jt} - (\alpha_j + \beta_j R_{mt}) \quad (1)$$

where: R_{jt} is the return on security j for event day t ;
 R_{mt} is the return on the CRSP value-weighted index on day t ;
 α_j and β_j are the ordinary least square estimates of the market model parameters for firm j . These parameters are estimated from days +101 to +200 in relation to the listing date.

The Cumulative Abnormal Return (CAR) from day T_{1j} to day T_{2j} for company j is defined as:

$$CAR_j = \sum_{t=T_{1j}}^{T_{2j}} AR_{jt} \quad (2)$$

The average CAR over a specified interval (T_1 , T_2) relative to the listing date for a sample of N firms is:

$$\overline{CAR} = \sum_{j=1}^N CAR_j / N \quad (3)$$

Day 0 is defined as the first trading day in cases where a stock

offering and capital raising accompanied the listing, and an issue price was available for the computation of a return on that first day of trading. In contrast, Day 1 is the first day analyzed for listings not accompanied by a stock offering. In these transactions, no offering price is available for the calculation of a day 0 return.

The methodology calls for standardizing each excess return by the estimate of its standard error s_{jt} . The Standardized Abnormal Return for day t and Standardized Cumulative Abnormal Return (SCAR) for company j over an interval T_{1j} to T_{2j} are given by

$$SAR_{jt} = AR_{jt} / s_{jt} \quad (4)$$

$$SCAR_j = \sum_{t=T_{1j}}^{T_{2j}} SAR_{jt} / \sqrt{T_{2j} - T_{1j} + 1} \quad (5)$$

For a sample of N firms the test statistic over an interval T_{1j} to T_{2j} is given by:

$$Z = \sum_{j=1}^N SCAR_j / \sqrt{N} \quad (6)$$

IV. RESULTS

The results are presented for various subsamples of newly listed ADRs since variation in the International context for ADR listings is seen to produce marked differences in the investment return performance over the first 100 days of trading. It transpires that there is a marked distinction between the investment performance of ADRs with and without (respectively) an associated raising of new capital contemporaneously with their listing. Given this contrast, we examine these two partitions separately.

A. ADR post-listing performance

Table 4 presents results for immediate post-listing returns for the 140 ADRs where new capital was raised at the time of listing, and for 88

ADRs where no capital was raised⁵. The notion that these are very different contexts for the introduction of new listed ADRs in the U.S. is supported by the marked contrast in the immediate investment performance after their introduction. The capital raising ADRs have an average Abnormal Return of 4.37% on the first day of trading (day 0), a magnitude with a test statistic of 28.94. The average Cumulative Abnormal Return at day 10 ($CAR_{0,10}$) is 3.88%, increasing to 8.59% at day 50, and to 11.60% at day 100. These average CARs over the indicated intervals beginning at day 0 are all significant at the 1% level.

In marked contrast, the newly listed ADRs with no simultaneous capital raising experience little significant abnormal return. Day 1 (the first day for which returns are available) has an average AR of -0.18% (test -statistic 0.47), and the $CAR_{1,t}$ at day $t = 10$ is -0.03%, at day 50 is -1.62%, and at day 100 is -2.75%. None of these average CARs over the indicated intervals beginning at day 1 are significant even at the 10% level. In contrast to listings associated with the raising of capital, there is a downward trend in the average CAR between day 10 and day 100.

This highlights an important aspect of the examination of ADR investment performance. Variation in the context for their listing initiation in terms of the capital raising attributes is seen to be associated with markedly different investment performance outcomes. This suggests caution when interpreting findings on ADR investment performance when the samples are not partitioned according to factors systematically associated with different patterns of returns.

B. ADR listings accompanied by additional stock offering

We now carry out a detailed examination of listings that are accompanied by a stock offering, which results in the foreign firm raising new capital. We previously identified four subsamples of capital raising ADR listing initiations as indicated in Table 3. Because ADRs in these four subsamples have such distinct attributes and investment performance over the immediate post-listing interval, we report results for each separately.

Table 4

Average Abnormal Returns (ARs) and Cumulative Abnormal Returns (CARs) for 228 ADR listings. These are partitioned into 140 transactions that resulted in raising of new capital, and 88 listings that did not involve

the raising of incremental capital. The test-statistic is a z-statistic.

Day t	ADR listing with new capital raised (n = 140)			ADR listing with no new capital raised (n = 88)		
	AR	CAR _{0,t}		AR	CAR _{1,t}	
	%	%	Test Statistic	%	%	Test Statistic
0	4.37	4.37	28.94*	--(1)--	----	----
1				-0.18	-0.18	0.47
10	0.01	3.88	7.95*	-0.18	-0.03	-0.57
50	-0.14	8.59	5.62*	-0.13	-1.62	-0.71
100	0.00	11.60	5.57*	-0.01	-2.75	-0.97

(1) Due to lack of a offering price, a rate of return calculation cannot be undertaken.

* significant at the 1% level.

1. Worldwide IPOs

The returns for 58 ADR programs that were worldwide IPOs initially reflect the investment performance of purely domestic IPOs reviewed in Section II of this paper. As reported in Table 5, their abnormal return on the first day of trading is 8.16%, which has a test-statistic of 31.59. The CAR_{0,10} is 8.94% (test-statistic 10.07), the CAR_{0,50} is 16.85% (test-statistic 7.01), and the CAR_{0,100} is 25.62% (test-statistic 7.52). While the first day finding is consistent with expectations derived from studies of purely domestic IPOs, the ADRs' ongoing accumulation after day 0 is different from the profile of findings in studies of purely domestic IPOs.

In a worldwide IPO the stock is typically offered on a number of markets simultaneously⁶. There are region-specific profiles of how the

offering is split between North America, Europe and the rest of the world. For instance, South American firms typically have only a about third of the total offering in the home country. While outside the scope of this study, the pattern of distribution of worldwide IPOs appears to be an interesting topic for subsequent research.

Given their different contexts, and the extensive debate regarding privatizations, the worldwide IPO sample was partitioned into ADRs emanating from private sector firms and those resulting from privatizations of state-owned firms.

Table 5

Average Abnormal Returns (ARs) and Cumulative Abnormal Returns (CARs) for 122 ADR listings that were accompanied by raising of new capital. Results are reported for 58 Worldwide IPOs (IPO_{ww}), and 64 ADRs denoted as IPO_{us}/SEO_{ww}. The test-statistic is a z-statistic.

Day t	ADR listings which are worldwide IPOs			ADR listings that are first offerings of the security in the U.S., but the security previously traded abroad.		
	AR	IPO _{ww} (n = 58)		AR	IPO _{us} /SEO _{ww} (n = 64)	
		CAR _{0,t}	Test Statistic		CAR _{0,t}	Test Statistic
	%	%		%	%	
0	8.16	8.16	31.59*	1.12	1.12	10.78*
10	0.27	8.94	10.07*	-0.34	-0.35	1.57
50	-0.51	16.85	7.01*	-0.11	-0.24	0.49
100	0.14	25.62	7.52*	0.08	-1.96	-0.13

* significant at the 1% level.

While the overall sample of IPO ADRs had a day 0 return of 8.16% (Table 5), as reported in Table 6 the subsample of private-sector IPOs were underpriced to provide an average day 0 abnormal return of 4.57%, with 76% of firms having positive returns. This return is lower

than the 14.1% reported by Ritter [20] and 14.3% by Levis [15]. Non-privatization IPOs also had a significant (at the 1% level) positive return of 21.65% over the first 100 trading days. The average CAR accumulation after the first day of trading is somewhat different from the findings for domestic IPOs.

Table 6

Average Abnormal Returns (ARs) and Cumulative Abnormal Returns (CARs) for worldwide IPOs (IPO_{WW}) partitioned into 12 ADR listings that are privatizations (IPO_{PZ}) and 46 IPOs that were not privatizations (IPO_{NonPZ}). The test-statistic is a z-statistic.

Day t	Privatization IPOs IPO _{PZ} (n = 12)			Non-Privatization IPOs IPO _{NonPZ} (n = 46)		
	AR	CAR _{0,t}		AR	CAR _{0,t}	
	%	%	Test Statistic	%	%	Test Statistic
0	21.93	21.93	39.46*	4.57	4.57	15.36*
10	0.76	21.56	11.95*	0.23	5.97	5.33*
50	0.40	31.35	7.79*	-0.80	13.56	4.19*
100	-0.68	43.43	7.43*	0.38	21.65	4.91*

* significant at the 1% level.

The initial investment return performance of world-wide IPO ADRs resulting from privatization was substantially greater than that for private-sector IPO ADRs. The first day's abnormal return was 21.93%. The average CAR over the 100 day period was 43.43% (median 27.09%;

91% of firms had positive cumulative abnormal returns). These numbers are generally consistent with the privatization results reported in Perotti and Gunev [19]. After the immediate day 0 abnormal return, the privatization IPOs accumulate no further positive abnormal return until after day 10. They then go on an upward trajectory, with the $CAR_{0,50}$ being 31.35% (test-statistic 7.79), and the $CAR_{0,100}$ is 43.43% (test-statistic 7.43). This is a notable trend that is not driven by outliers. 11 of the 12 privatization ADR IPOs experience positive abnormal returns from the listing initiation up to day 100. A substantial portion of privatizations in our sample were of British firms where the abnormal returns to investors in the home market have been the subject of considerable discussion and debate.

2. U.S. IPO, previously traded abroad (IPO_{US}/SEO_{WW})

When compared to the worldwide IPOs considered above, the findings for the second category of transactions are markedly different. These 64 ADRs had not traded in the U.S. prior to listing on a U.S. market, but the security had traded abroad prior to the listing initiation. New capital was raised at the time of listing through net additional shares being issued (by way of ADRs and/or a SEO in the home market). Their average Abnormal Return on the first day of trading (Day 0) is 1.12%, which is significant at the 1% level. Given the pre-existing availability of these securities abroad, the significant day 0 return can reasonably be interpreted as evidence in support of market segmentation.

This is particularly so given the contrast between their post-listing performance and those for worldwide IPOs. As reported in Table 5, after the first day of trading, they experience negative abnormal returns. The $CAR_{0,10}$ is -0.35% (test-statistic -1.57), the $CAR_{0,50}$ is -0.24% (test-statistic 0.49), and the $CAR_{0,100}$ is -1.96% (test-statistic -0.13). There is thus a notably different pattern compared to the worldwide IPOs. It is consistent with the notion that the price signals from prior foreign trading lead to an ADR issue price much closer to their intrinsic value, and only the first day of trading produces significant abnormal return.

While the financial press often refers to both of these categories of ADRs as IPOs, it is clear that they are fundamentally different in both the context for their U.S. trading, and the investment return performance in the immediate post-listing period.

3. Previously on Pink Sheets ($IPO_{List}/SEOPS$) or with Rule 144 Programs

(IPO_{List}/SEO₁₄₄)

Since these listings are associated with the raising of new capital, they have some attributes of Seasoned Equity Offerings. We find remarkable differences between these two types of ADR initiations, although the very small sample size ($n = 3$) for former Rule 144A programs limits the strength of the findings.

As reported in Table 7, the subsample of 15 formerly Pink-Sheet ADRs have a day 0 abnormal return of 4.61%, which is significant at the 1% level. However, this is materially offset by a day 1 AR of -3.45%. From day 0, the CAR accumulation until day 10 is modest (CAR_{0,10} = 3.40%, not statistically significant) followed by substantial gains to day 50 (CAR_{0,50} being 12.82%, with a test statistic of 1.91). The three former Rule 144A ADRs have no material abnormal return at issue, but have a CAR_{0,100} of 31.08%. Although all 3 had positive CARs over the first 100 days, the very small size of this clinical subsample produce marginal statistical significance even for this substantial economic magnitude.

C. Listings without a simultaneous stock offering

The initiation of trading of an ADR where there is no contemporaneous stock issue in many ways captures the "pure" international dimension of ADRs. Here, price performance is a clear indicator of the value of creating an additional financial instrument, and the firm does not receive any additional funds for investment purposes. It is in the nature of a pure capital structure change, albeit a subtle variation on that theme.

Table 7

Average Abnormal Returns (ARs) and Cumulative Abnormal Returns (CARs) for ADR listings accompanied by capital being raised, and where the security previously traded on the pink-sheets (denoted by IPO_{List}/SEO_{PS}), or where there was a Rule 144A program for the security

(IPO_{List}/SEO_{144}). The test-statistic is a z-statistic.

Day t	ADR listing. Previously on pink sheets			ADR listing with previous Rule 144A programs		
	IPO _{List} /SEO _{PS} (n = 15)			IPO _{List} /SEO ₁₄₄ (n = 3)		
	AR	CAR _{0,t}		AR	CAR _{0,t}	
%	%	Test Statistic	%	%	Test Statistic	
0	4.61	4.61	4.10*	-0.48	-0.48	-0.21
10	0.66	3.40	1.22	0.27	2.47	0.08
50	1.03	12.82	1.91***	0.20	15.86	0.99
100	0.00	12.81	1.78***	0.03	31.08	1.67***

* significant at the 1% level.

** significant at the 5% level.

*** significant at the 10% level.

Table 8

Average Abnormal Returns (ARs) and Cumulative Abnormal Returns (CARs) for ADR listings in which no new capital was raised. Results are reported for 46 listing initiations classified as $NEWLIST_{PureADR}$, and for 39 new listing in U.S. markets denoted $NEWLIST_{PS}$. The test-statistic is a z-

statistic.

Day t	Not previously traded in U.S. markets			Previously traded on the Pink Sheets		
	NEWLIST _{PureADR} (n = 46)			NEWLIST _{PS} (n = 39)		
	AR	CAR _{1,t}		AR	CAR _{1,t}	
	%	%	Test Statistic	%	%	Test Statistic
1	-0.01	-0.01	-0.26	-0.39	-0.39	-0.80
10	-0.16	0.50	0.01	-0.62	-0.89	-0.59
50	0.01	1.44	0.80	-0.33	-5.79	-1.85***
100	-0.00	0.46	-0.28	-0.33	-6.69	-1.11

* significant at the 1% level.

** significant at the 5% level.

*** significant at the 10% level.

Table 8 reports the findings for this category of ADR listings. The sample included 46 "pure" ADRs (NEWLIST_{PureADR}), where the security had not previously traded in the U.S., and no new capital was raised at the time of listing. There were 39 ADRs listings where the security had previously traded in the U.S. on the pink sheets, and no capital was raised. For both groups, the absence of an offering price prevents the calculation of a return for day 0, and Table 8 reports abnormal return performance over the interval from day 1 to day 100.

For both of these categories, there is little in the way of significant abnormal return performance. The pure ADRs in our sample have investment return performance precisely as predicted by the one factor market model benchmark used in the study. The newly listed ADRs

previously trading on the pink sheets experience negative abnormal returns, but they are of marginal significance. However, the material differences in the CAR accumulation between "pure" ADRs and those previously traded on the Pink-Sheets indicates that these different contexts for listing do affect investment performance. The post-listing decline for these ADRs previously on the pink sheets is similar to the findings of Foerster and Karolyi [9]. It is also generally similar to the findings in domestic "change of market" studies summarized in Section II. We investigated various subsets of these subsamples based on attributes such as where the ADR came to be listed (NYSE, AMEX or NASDAQ), and the country of origin of the ADR (developed or developing). None of these partitions was found to be associated with systematic abnormal returns, leading to the conclusion that newly listed ADRs where no new capital is raised experience abnormal returns insignificantly different from zero.

V. CONCLUSIONS

ADRs have been one of the most rapidly growing segments of U.S. financial markets and represent a major manifestation of trends in multinational finance. This paper examines their investment performance in the immediate post-listing interval.

Our original conjecture was that because ADRs have such a wide variety of International financial contexts their investment performance would vary systematically with that background. This was supported by the findings. The post-listing performance is found to be materially affected by contextual factors, such as whether it is a worldwide IPO, whether the security had previously traded in the U.S. on the Pink-Sheets or under a Rule 144A program, and whether the ADRs listing was associated with net capital raising. If the listing is a "pure" ADR, where the corresponding foreign equity has been trading in a foreign market and the listing is not accompanied by a secondary offering, the Abnormal Return performance is insignificantly different from zero over the first 100 trading days. In contrast, if initiation of ADR trading is part of a worldwide IPO, then the average Abnormal Return on the first day of trading is substantial (being largest in the case of privatizations), and continues on an upward trajectory through day 100. From the perspectives of both investors and issuers, it is clearly necessary to consider ADR listings as comprising several notably different categories rather than considering them as one genre of securities about which

generalizations can be made. Because of the variation in post-listing return, attempts to generalize ADR investment performance could be misleading.

Depository Receipts as a genre can be anticipated to play an increasing role in international finance, and there remain numerous avenues for further research. These include an examination of the linkage between exchange rate changes and the value of ADRs, and the impact of the relative size and use-of-proceeds of capital-raising ADRs on the investment performance of the underlying shares and the ADRs.

NOTES

1. The number of offerings has averaged over 50 each year since 1993, with capital raised averaging over \$10 billion. The comparable number of offerings in 1990 was 11, with just \$1.7 billion raised. In terms of trading volume, in 1997 12.4 billion units of various ADRs traded on the major exchanges, accounting for just over \$500 billion of dollar volume.
2. Reflecting these considerations, firms from emerging markets frequently offer Depository Receipts in the U.S. and Europe simultaneously.
3. While we do not examine the home-country reaction to ADR program announcements, we found anecdotal evidence of increase in share price in the home market at the time listing plans was announced. These were particularly notable for emerging market securities.
4. Two ADRs were excluded as they were small U.S. based firms that obtained listing first in London, and then issued ADRs. In addition one firm was excluded as it was misclassified as an ADR by CRSP.
5. The expression "no capital raised" refers to the net proceeds for the foreign firm of the ADR listing. If shares put into Trust to back the ADR are all purchased in foreign financial markets, then the firm has no net proceeds. Conversely, if additional shares are issued in association with the introduction of the ADR, then new capital is raised.
6. In case the U.S. and home country markets are not open at the same time, the home country exchange usually sets a special trading session, so that the stock could be offered simultaneously in all markets. The size of the offering in each market was sometimes changed just prior to the offering based on local market demand

conditions. This is possible as ADRs can be freely converted ("put") into the underlying stock.

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