

Depository Receipts from the East Asian Region

by *Ajay Samant*, Department of Finance and Commercial Law, 3290 Haworth College of Business, Western Michigan University, Kalamazoo MI 49008, USA; *Alireza Tourani Rad*; and *Chun Yi Wang*, Department of Finance, School of Management Studies, University of Waikato, Private Bag 3105, Hamilton, New Zealand

Abstract

This study examines the nature of Depository Receipts (DR) from East Asia, with a view towards learning their national origin, sponsorship status, industry classification, and identifying the financial institutions that serve as lead managers. This overview provides information and empirical documentation on depository receipts from East Asia, which can serve as input in decision-making by international investors, corporate managers, and global bankers. Further, the relationship between DR issuance and exchange rates changes around the period of issuance is examined. The results partially support the hypothesis that firms tend to issue DRs when the exchange rate is favorable, in order to attain the best listing price.

I. Introduction

There has been a dramatic increase in the volume of trade of foreign securities as investors around the world recognize the need for international diversification and companies seek to enhance their global presence and raise capital abroad. As a result, the number of Depository Receipt (DR) listings on US exchanges has risen sharply. By March 2000, as many as 2104 DRs were listed on the New York Stock Exchange (NYSE), American Exchange (AMEX), the National Association for Securities Dealers' Automation Quotation (NASDAQ) system, or over the counter 'pink-sheet' market, compared to 1407 DRs five years ago. The number of DRs from the East Asian region alone, was 605 in March 2000, compared to 280, five years ago. In the year 2000, the Bank of New York estimated that investor demand for DRs was growing at an annual rate between 30 and 40 percent.

Depository Receipts are created by financial institutions that hold shares of a foreign firm in trust, and issue receipts which are subsequently traded on stock exchanges abroad. A DR is structured to suit the convenience of investors as well as issuers. For example, if an investor based in the US wants to purchase shares of a Korean firm, the investor will have to arrange to convert US Dollars into Korean Won, contact a broker in Korea, and deal with the time difference between the two countries. It is much more convenient for the US based investor to purchase a DR on a share of the Korean firm. The DR is listed on US stock markets and trades in US dollars. From the point of view of the Korean firm (on whose share the DR is based) it is much easier to comply with the listing requirements for DRs than to comply with the much more strict listing requirements for stocks traded in US markets. The financial institution that manages the issue of the DR, of course, earns a nominal commission, in the process.

This study examines the nature of depository receipts from East Asia, with a view towards learning their national origin, sponsorship status, industry classification, and identifying the financial institutions which serve as lead managers. The East-Asian region has been chosen because economic growth rates there during the 1980s and 1990s have been higher than in any other region of the world, and consequently, East Asia is often the

focus of attention of international business. The study also investigates the relationship between exchange rates and the issuance of DRs. The hypothesis tested is that companies issue DRs when their country's currency is strong against the US dollar. To the knowledge of the authors, there is no previous study that has examined this issue.

This paper is organized as follows. Section II presents an overview of the structure of the DR market. Section III is a literature review. Section IV examines the nature of DRs from the East-Asian region. The relationship between DR issuance and exchange rate changes is discussed in Section V. Section VI concludes the paper.

II. The Structure of the Depositary Receipts Market

Depositary Receipts, American Depositary Receipts (ADRs) or Global Depositary Receipts (GDRs), are negotiable certificates that represent a non-US company's publicly traded equity or debt. DRs were first developed in 1927 by J.P. Morgan to allow US investors to participate in a non-US stock market without direct access to the market itself. DRs are treated as legal, US securities that trade freely on the over-the-counter (OTC) market or on a major exchange, in US dollars, pay dividends or interest in dollars, and settle, clear, and transfer according to standard US practices. A DR is a certificate of ownership issued by a US bank (i.e. depositary bank) that represent indirect ownership of a certain number of shares of a specific foreign firms that are held on deposit in a bank in the firm's home country (called the custodian). DRs may also trade in non-US markets, such as the United Kingdom or the Euromarket, where they are either listed on a stock exchange or trade over-the-counter (OTC) among dealers and institutions.

A DR program may be "sponsored" or "unsponsored." An unsponsored DR program is set up by a financial institution in the US in response to demand in the US equity capital markets for shares of a particular non-US company, but without entering into any agreement with the company. Nowadays, unsponsored DRs are considered obsolete and, under most circumstances, are no longer established due to the lack of control of the facility and their hidden costs. The majority of DRs are under 'sponsored' programs, where a firm signs an agreement with a single depositary to be the sole agent for its DRs and the costs related to depositary services are paid by the issuer. There are four different levels of sponsored ADR programs. Sponsored Level I ADRs are traded in the US in the over-the-counter (OTC) market and on some exchanges outside the United States. The Bank of New York estimates that the Level I ADRs market is the fastest growing segment of the DR market.¹

Level II ADRs are similar to Level I in that no new offering of shares is associated with it - thus no capital can be raised. The main difference between these two levels is that the Level II ADRs are listed on a US stock exchange. Also, the Level II ADRs issuers are required to comply with the reporting requirements of the US Securities and Exchanges Commission (SEC) and have to prepare financial reports in accordance with the US Generally Accepted Accounting Principals (GAAP). Because of the higher costs and more stringent reporting requirements, many firms choose a Level I ADR instead of a major exchange ADR program. Level III ADRs raise new equity capital in a public offering and trade on the major stock exchanges, such as NASDAQ, AMEX, or NYSE. However, Level III ADRs are the most prestigious and costly type of listing which requires full SEC disclosure and compliance with the exchange's own listing rules. Finally, the fourth kind of DRs are those issued under Rule 144A of the SEC. They are capital raising

issues in which the securities are privately placed to qualified institutional buyers, and, as a result, do not require compliance with GAAP or SEC disclosure rules. Nevertheless, the liquidity of these DRs is very limited.

III. Literature Review

Capital market integration is an important issue in corporate finance. Since there are a variety of barriers to free international capital flows, capital markets are either completely or partially segmented along national boundaries. Examples of such barriers include regulatory environment, ownership restrictions, and information barriers. In completely segmented capital markets, investors of one country cannot invest in securities of the other country and vice versa. On the other hand, completely integrated markets provide the same investment opportunity set, which consists of all domestic and foreign securities, for investors of different countries. The term "partial segmentation" covers the entire area between complete segmentation and integration. Stapleton and Subrahmanyam (1977) suggest three categories of corporate financial policies that can effectively overcome investment barriers and reduce the negative effects of market segmentation: (1) direct foreign investment; (2) mergers with foreign firms; and (3) international cross-listing of the securities of the firm on foreign capital markets.

A number of studies have examined the impact of international listings on return (i.e. wealth effect) because of possible inferences pertaining to the issue of capital market integration and segmentation (Alexander, Eun, and Janakiramanan (1987) and (1988)). If markets are segmented, firms have an incentive to adopt financial policies to reduce the negative effects of investment barriers. The market segmentation hypothesis suggests that the stock price for firms that cross-list from segmented markets is expected to rise and subsequent returns should fall as an additional built-in risk premium compensating for these barriers dissipates. Also, the stock reaction around the date of inter-listing should vary across stocks by home market in ways related to differences in degrees of market segmentation. In other words, firms located in markets where barriers to capital flow are more acute, such as emerging market, should experience larger abnormal returns upon international listing.

Another explanation for why a firm cross-lists on a foreign market is the liquidity hypothesis. The liquidity hypothesis, suggested by Amihud and Medelson (1986), states that cross-listing on a foreign exchange with superior liquidity services reduces the liquidity risk premium and the expected return. Since each DR program trades off varying degrees of liquidity and investor recognition with disclosure requirements. Miller (1999) examines empirically these issues by studying the stock price reaction across each type of DR program. He finds that abnormal returns are largest for firms that list on major US exchange such as NYSE or NASDAQ and smallest for firms that list on PORTAL. It provides evidence that indirect barriers (i.e. liquidity and investor recognition) segment capital markets. Furthermore, Miller reports that the stock price reaction is related to not only choice of listed exchange but also geographical location (i.e. emerging or developed markets), and avenues for raising equity capital (i.e. public versus private offerings). He finds that firms located in emerging markets have larger abnormal returns than those domiciled in developed markets. Also, foreign firms that enter US capital markets to raise new equity capital in a public offering experience a positive change in shareholder wealth while those in a private offering experience a negative change.

A number of studies focus on the impact of changes in exchange rates on a firm's valuation [See for example, Amihud (1994), Bartov and Bodnar (1994)]. As far as DRs and exchange rates are concerned, Huang and Stoll (1997) assess whether exchange rate variability affects bid-ask spreads and other measures of market liquidity. They examine the microstructure characteristics of United Kingdom and Mexican DRs around two major exchange rate crises - the pound sterling withdrawal from the European Exchange Rate Mechanism in September 1992 and the Mexican devaluation of December 1994. Similar to many other studies, Huan and Stoll have been unsuccessful in finding a link between exchange rate volatility and firm values.

IV. Nature of DRs from the East-Asian Region²

A. DRs classified by Country

Table I shows the distribution (as of March 2000) of 605 DRs from East Asia. Among this group of countries, China, India, Indonesia, South Korea, Malaysia, the Philippines, Taiwan, Thailand and Vietnam are usually considered to be emerging markets, and Hong Kong, Japan and Singapore, are considered to be developed markets. Table I shows that almost 50 percent of East Asian DRs are from emerging markets. The primary attraction for global investors to invest in emerging markets is that these countries have the potential for rapid economic expansion and high returns on investments on a medium to long-term basis. However, there is a significant amount of risk, including political and economic risk, involved in such investments. Regarding the issuance of DRs from developed markets, Japan accounted for about 27 percent of East Asian DRs. This is no surprise because Japan is the largest developed market in the Asian region and has had open foreign investment policy since the 1960s. Table II confirms this observation and shows that DRs were first introduced by Japan into US markets in 1963.

Table I: The Distribution of 605 DRs Issued by Asian Countries as of March 2000

| Country | Total | Percent |
|-------------|-------|---------|
| China | 28 | 5 |
| Hong Kong | 106 | 18 |
| India | 98 | 16 |
| Indonesia | 10 | 2 |
| Japan | 162 | 27 |
| South Korea | 31 | 5 |
| Malaysia | 19 | 3 |
| Philippine | 22 | 4 |
| Singapore | 27 | 4 |
| Sri Lanka | 2 | 0 |
| Taiwan | 60 | 10 |
| Thailand | 17 | 3 |
| Vietnam | 23 | 4 |
| Total | 605 | 100 |

It is interesting to note in Table I that a relatively small number of DRs are issued from South Korea (i.e. only 5 percent of the total DRs from Asian countries) compared with other important emerging markets in Asian, such as India and Taiwan. Choung (1998) provides a reasonable explanation for this. By comparing the technological capa-

bilities of Taiwan and South Korea over the period 1969 to 1992, Choung makes three interesting observations. First, the growth of Taiwanese and South Korean technological activity has been rapid both during and after the 1980s. Secondly, the process of technological development in these countries have different patterns, with a highly diversified technical field with stable growth in Taiwan and a highly concentrated technical field with dynamic growth in South Korea. Thirdly, Taiwan's patenting activities have been spread among a large number of individuals exploiting non-electrical and miscellaneous technologies, whereas the main agent of South Korea's technological innovation has been the small number of large companies in the electrical technology field. Table VI also confirms Choung's findings, and shows that the distribution of DRs issuance from Taiwan was more dispersed across industries than from South Korea.

B. Chronological Classification of DRs

Table II presents the distribution of 605 Asian DRs across years. Southeast Asia experienced remarkable economic growth during the 1980s and early 1990s. Japan, Malaysia, South Korea, Indonesia and other countries in the region enjoyed rates of growth of nearly 8% a year, several times faster than those in the US and many other Western industrialized nations. With the deregulation of foreign investment, most of emerging markets in Asia initiated their DRs in the early 1990s (See Table II). In July 1997, the Asia economic crisis began in Thailand and spread to Malaysia, Indonesia and South Korea. However, as the data reported in Table II shows, Asia's economic crisis did not seem to affect the issuance of DRs. The numbers of DRs issued in 1997, and in the following year by countries who faced the crisis, did not change very much. Table II shows that both China and India had DRs issued primarily over the period 1993 to 1997. DRs issued from India reached a peak in 1994 and DRs issued from China had uniform distribution throughout the period. China and India are the world's two most populous nations. In 1990s, both these economies have emerged as the world's most challenging markets, and are competing for a limited capital pool.

Despite systemic differences, there are many similarities between China and India. Both are experiencing booming growth and major social change. With populations of around one billion or more, both have the potential to be economic dynamos. Both are restructuring their industries and welcoming foreign investment, while reducing trade tariffs and opening the financial services sector. And both are trying to sort out the troubles of their loss-making state enterprises, as they look for ways to attract foreign investment to bolster failing infrastructure. However, India may have the advantage in the capital competition since it has established legal, accounting, and financial systems and institutions, entrenched property rights, and a thriving private sector. Despite these advantages, India is perceived as an unpredictable place to do business. Regarding China, in addition to its lead in economic reform, the country has three factors working in its favor when it comes to attracting capital. First, it is an unexplored market. Second, Hong Kong provides China a ready-made and good conduit for capital and partners. Third, China enjoys considerable support from the 50 million-strong overseas Chinese community. Overall, China seems to have greater potential to attract more and more overseas investors and is ready for future capital raising by way of cross-listing on US exchanges in the near future. However, the data in Table II shows that there is a significant decline in DRs issuance from Hong Kong after 1997 as more than 10 Hong Kong firms issued DRs each year during the period from 1993 to 1996. It appears that when the British Colony of Hong Kong returned to Chinese sovereignty, this had an impact on the issuance of DRs from Hong

Table II: The Summary Statistics of 605 DRs Issued by Asian Countries as of March 2000: Classified by Issuance Years

| Years | China | Hong Kong | India | Indonesia | Japan | South Korea | Malaysia | Philippine | Singapore | Taiwan | Thailand | Vietnam |
|-------|-------|-----------|-------|-----------|-------|-------------|----------|------------|-----------|--------|----------|---------|
| 1963 | | | | | 1 | | | | | | | |
| 1970 | | | | | 4 | | | | | | | |
| 1976 | | | | | 2 | | | | | | | |
| 1977 | | | | | 2 | | | | | | | |
| 1979 | | | | | 1 | | | | | | | |
| 1982 | | | | | 3 | | | | | | | |
| 1986 | | | | | 1 | | | | | | | |
| 1989 | | 2 | | | 1 | | | | 3 | | | |
| 1990 | | 0 | | | 2 | 1 | | 1 | 1 | | | |
| 1991 | | 5 | | 1 | 3 | 2 | 2 | 1 | 1 | | 1 | |
| 1992 | | 5 | 2 | | 3 | 1 | 1 | 2 | 2 | | 2 | |
| 1993 | 3 | 14 | 6 | | 5 | 1 | 4 | 1 | 1 | 4 | 1 | 4 |
| 1994 | 8 | 23 | 53 | 2 | 5 | 4 | | 9 | 4 | 7 | 3 | 2 |
| 1995 | 5 | 18 | 7 | 3 | 2 | 4 | | 1 | 4 | 13 | | 2 |
| 1996 | 5 | 19 | 16 | 4 | 3 | 5 | | 1 | 1 | 7 | 3 | 5 |
| 1997 | 6 | 8 | 7 | | 6 | 3 | | 3 | 3 | 11 | 2 | 3 |
| 1998 | 1 | 2 | 0 | | 6 | 10 | 2 | 3 | 2 | 4 | 2 | 2 |
| 1999 | | 4 | 7 | | 5 | | 2 | | 4 | 12 | 5 | 1 |
| 2000 | 0 | 0 | 0 | 0 | 110 | 0 | 7 | 0 | 3 | 0 | 0 | 0 |
| N/A | | | | | | | | | | | | |
| Total | 28 | 100 | 98 | 10 | 52 | 31 | 11 | 22 | 24 | 59 | 17 | 23 |

Kong companies, even though Hong Kong will continue to handle its own international trade affairs and will retain its membership of international trade bodies such as the World Trade Organisation (WTO) and the Asia-Pacific Economic Cooperation forum (APEC).

C. Sponsorship Status of DRs

Table III presents data on the sponsorship status of DRs from each country. Almost 80 percent of DRs are sponsored. This may be so because most of DRs issued by Asian companies were after 1983, when the Securities and Exchange Commission (SEC) announced that all new DR programs must have company approval in order to be established (i.e. a DR can not be established without a sponsor). Approximately 70 percent of DRs on Japanese companies were unsponsored GDRs which means that the DR programs were initiated at the request of investors.

Table III: The Summary Statistics of 605 DRs Issued by Asian Countries as of March 2000: Classified by Sponsor Status

| Country | Sponsored | Unsponsored |
|-------------|------------|-------------|
| China | 28 | 0 |
| Hong Kong | 100 | 6 |
| India | 98 | 0 |
| Indonesia | 10 | 0 |
| Japan | 50 | 112 |
| South Korea | 31 | 0 |
| Malaysia | 11 | 8 |
| Philippine | 22 | 0 |
| Singapore | 24 | 3 |
| Sri Lanka | 2 | 0 |
| Taiwan | 60 | 0 |
| Thailand | 17 | 0 |
| Vietnam | 22 | 1 |
| Total | 475 79% | 130 21% |

This is so because most of DRs from Japan were issued prior to 1983. From the early 1950s until the Arab oil shocks of the 1970s, Japan experienced one of the most impressive periods of economic growth in recorded history and, therefore, became one of the most attractive markets for foreign investors. However, in the early 1970s, the Japanese market was much smaller and more tightly regulated. At the end of 1980, a significant amendment to the Foreign Exchange Control Law made Japan become an open market to foreign investors. DRs were widely being used by foreign investors as a way to circumvent limits on foreigner investments.

D. DRs Classified by Listing

Table IV presents information on the market in which these DRs are listed. According to SEC rules, unsponsored DRs are not allowed to trade on organized exchanges in the US. A large percentage of DRs from Japan are unsponsored, and therefore, are listed in the Over-the-Counter (OTC) markets.

**Table IV: The Summary Statistics of 605 DRs Issued by Asian Countries as of March 2000:
Classified by Exchanges**

| Country | OTC | NYSE | NAS | Rule144A | NONE | Total |
|-------------|------------|----------|----------|------------|-----------|-------|
| China | 10 | 9 | 0 | 6 | 3 | 28 |
| Hong Kong | 98 | 4 | 3 | 1 | 0 | 106 |
| India | 1 | 2 | 2 | 50 | 43 | 98 |
| Indonesia | 2 | 3 | 1 | 2 | 2 | 10 |
| Japan | 126 | 14 | 16 | 6 | 0 | 162 |
| South Korea | 0 | 4 | 2 | 24 | 1 | 31 |
| Malaysia | 19 | 0 | 0 | 0 | 0 | 19 |
| Philippine | 6 | 2 | 0 | 9 | 5 | 22 |
| Singapore | 22 | 2 | 2 | 1 | 0 | 27 |
| Sri Lanka | 0 | 0 | 0 | 1 | 1 | 2 |
| Taiwan | 0 | 1 | 1 | 33 | 25 | 60 |
| Thailand | 14 | 0 | 0 | 2 | 1 | 17 |
| Vietnam | 14 | 3 | 0 | 5 | 1 | 23 |
| Total | 312 52% | 44 7% | 27 4% | 140 23% | 82 14% | 605 |

Further, because the OTC market provides the least costly way for a company to cross-list its securities, it is no surprise that the figures in Table IV show that a majority of Asian companies (52 percent of total DRs) traded in the OTC market.

Also, a significantly large number of firms from developed markets in East Asia, such as Japan and Hong Kong, listed their securities in the OTC market. The category 'NONE' in Table IV means that the DRs were not listed on any exchange in the US. Thus these DRs are Global Depositary Receipts (GDR), rather than American Depositary Receipts (ADR). Approximate 40 percent of DRs from India and Taiwan were not listed on any of the US exchanges. It implies that firms in India and Taiwan try to attract a broader spectrum of international investors. Also, it may be noted that over 50 percent of total DRs from India and Taiwan were privately placed (under Rule 144A). Because the US SEC has stringent rules for public placement of securities, firms often choose to follow the easier terms for private placement under Rule 144A. Further, South Korea has nearly 80 percent of its total DRs, listed under Rule 144A.

E. DRs Classified by Depository Banks

Table V reports the classification by depository banks. Note that the total number in this table (806) is greater than the total in previous tables (605). This is so, because unsponsored ADRs can be issued by more than one bank. The Bank of New York, Bankers Trust, Citibank, J.P. Morgan (Morgan Guaranty Trust), and Bankers Trusts are the major US depositories. The Bank of New York (BNY) has issued 48 percent of the DRs from East Asia. Also, BNY has issued about 80 percent of the DRs from Hong Kong, and over 40 percent of the DRs from Japan, Singapore and Malaysia.

The second largest sponsor for DRs from Asia is Citibank. Citibank has been operating in Asia since 1902, and was the first US bank to establish operations in Asia with the opening of branches in China, Singapore, Hong Kong, India and the Philippines. Table V shows that Citibank is very active in the East Asian region, especially in Taiwan and South Korea. Both countries have about 65 percent of their DRs sponsored by Citibank.

Table V: Depository Bank of 'Sponsored' Depository Receipts*

| Country | BNY | BT | CIT | MGT | HSB | Total |
|-------------|------------|----------|------------|-----------|----------|-------|
| China | 21 | 0 | 5 | 2 | 0 | 28 |
| Hong Kong | 80 | 0 | 19 | 4 | 1 | 104 |
| India | 37 | 21 | 36 | 4 | 0 | 98 |
| Indonesia | 7 | 1 | 2 | 0 | 0 | 10 |
| Japan | 133 | 43 | 76 | 68 | 21 | 341 |
| South Korea | 10 | 0 | 20 | 1 | 0 | 31 |
| Malaysia | 16 | 4 | 9 | 8 | 0 | 37 |
| Philippine | 10 | 0 | 9 | 3 | 0 | 22 |
| Singapore | 19 | 2 | 9 | 3 | 0 | 33 |
| Sri Lanka | 0 | 0 | 2 | 0 | 0 | 2 |
| Taiwan | 17 | 1 | 39 | 3 | 0 | 60 |
| Thailand | 14 | 0 | 2 | 1 | 0 | 17 |
| Vietnam | 19 | 0 | 2 | 2 | 0 | 23 |
| Total | 383 48% | 72 9% | 230 29% | 99 12% | 22 3% | 806 |

*The depository banks are: BNY, the Bank of New York; BT, Bankers Trust; CIT, Citibank; MGT, J.P. Morgan; HSB, Hong Kong ShangHai Bank.

In addition, it is interesting to note that the only Asian bank in the table is Hong Kong & Shang-Hai Bank (HSBC). Further, all the DRs issued by HSBC are from Japan.

Other banks that are active in this area are J.P. Morgan and Bankers Trust. It is surprising that J.P. Morgan accounts for only 12 percent of DRs from Asia since it is the financial institution that invented the ADR. Further investigation on the strategic perspectives of J.P. Morgan, BNY, and Citibank may shed some light on this. Both BNY and Citibank have been at the core of trade with Asia for a couple of decades. While a strong correspondent banking network makes BNY a major player in the Asian region, Citibank has a large number of branches in the region. However, the strategy of J.P. Morgan focused on providing a tailor-made product for each individual customer. As recently as 1991, J.P. Morgan was the largest investment bank in the US. However, in the year 2000, its capitalization of \$27 billion was well behind one-time peers such as Citigroup, worth \$247 billion.³

F. DRs Classified by Industry⁴

Table VI reports DRs classified by industry⁴. As expected, the distribution of DRs over industries is not uniform. In Japan 14 percent of total DRs belonged to the banking industry (BKS). Over the years, the banking industry has taken an active role in the Japanese economy. The link between banking institutions and non-financial corporations remain much stronger in Japan than in the United States, even though financial system deregulation and international competitive pressure is starting to change the nature of Japanese banking. Japanese banks are often large shareholders in publicly traded corporations. They have a close relationship with both local governments and national regulatory agencies, and often play a coordinating role for their clients. Nevertheless, after the 'bubble' economy of the late 1980s and early 1990s, Japanese banks have had a harder time maintaining strong capital positions, and consequently have become more restrictive.

As shown in Table VI, the electronics industry accounted for almost 18 percent of total DRs from Japan. This number includes 12 percent for consumer electronic products (CLE) and 6 percent for electrical equipment (EEI). The Japanese electronics components market is the world's second largest and one of the most attractive for US suppliers. The most promising subsector is the semiconductor industry (CSC), which accounts for 70 percent of the total Japanese electronic components market. Continued market access efforts by both US suppliers and Japanese semiconductor users are essential since the continued expansion of communications networks and the Internet will provide broad product growth for all chip sectors.

Regarding the industrial classification of DRs from India, over 16 percent are from the chemical industry. The Indian chemical industry ranks 12th in the world in the production of chemicals. In the production of pesticides, India is the second largest producer next only to Japan. Over the past five years, the growth of the Indian chemical industry (CHM) has been double that of the Asian rate of growth in the chemical sector, and over five times the world growth rate. Foreign investment in the chemical sector has been liberalized. Overall, it is evident that the chemical industry plays an important role in the manufacturing sector in India.

Further, the textile industry (TEX) contributed about 12 percent of total DRs from India. The textile industry, which provides employment to 20 million people, has an important socio-economic significance in India's national economy. It contributes around 5 percent of GDP and accounts for over one-third of India's total exports. Most of the Indian textile companies issued their DRs in 1994. A number of textile projects were established in India between 1993 and 1995 using imported equipment from the United States. These projects were successful, and there is good demand internationally for Indian textiles.⁵

Regarding the industry classification of DRs from Taiwan, since the 1970s, the country has seen a rapid movement away from the agricultural sector towards the services and industry sectors. Taiwan now lays emphasis on high-tech, capital intensive industries. While Japan has been Asia's benchmark in electronics R&D, design, manufacturing, marketing, and sales, Taiwan has been strongest in the areas of computers and in component technologies. As shown in Table VI, almost 40 percent of the DRs from Taiwan belonged to computer related industries.

V. Exchange Rates and Issuance of DRs

A. Hypothesis

The market price of a Depositary Receipt should be equal to the ordinary share price multiplied by the Depositary Receipt ratio multiplied by the applicable foreign exchange rate plus any transaction cost. This formula represents the theoretical pricing relationship between a Depositary Receipt trading in the US and the underlying share trading in the local market. Thus a firm should be inclined to issue DRs when the exchange rate is favorable, in order to obtain a good listing price in the US stock market. In this section the hypothesis tested is that firms issue DRs when their home currency is relatively strong against the US dollar.

Table VI: The Summary Statistics of 605 DRs Issued by Asian Countries as of March 2000: Classified by Industries

| | China | Hong Kong | India | Indonesia | Japan | South Korea | Malaysia | Philippine | Singapore | Sri Lanka | Taiwan | Thailand | Vietnam | Total |
|-----|-------|-----------|-------|-----------|-------|-------------|----------|------------|-----------|-----------|--------|----------|---------|-------|
| AER | 2 | 1 | | | 1 | | | | | | | | | 2 |
| AIR | 3 | 1 | | | 8 | | | | 1 | | | 1 | | 3 |
| AUT | 1 | 3 | 4 | | 1 | 4 | | | | | | | | 21 |
| BEV | | | 2 | | 1 | 6 | | | 3 | | | | 1 | 2 |
| BKS | 5 | | 16 | 1 | 4 | 1 | | | | | 1 | | | 38 |
| CHM | | 12 | 2 | | 20 | 5 | | | 1 | | 3 | 1 | 1 | 29 |
| CLE | | | | | | | | | | | | | | 44 |
| COA | 1 | | | | | | | | | | | | | 1 |
| COM | | | | | 1 | 1 | | | 1 | | 3 | | | 5 |
| COP | | | | | | | | | 1 | | 2 | | | 1 |
| CSC | | | | | | | | | | | | | | 3 |
| CSN | | | 2 | | 12 | | 1 | | 2 | | 2 | 1 | 2 | 3 |
| CST | | 6 | 9 | | | 3 | | | | | 8 | | | 37 |
| CSV | | 1 | | | | | | | 1 | | | | | 9 |
| DEB | | | | | 2 | | | | | | | | | 0 |
| DRU | | 1 | 4 | | | 4 | | | 1 | | 17 | 1 | | 8 |
| EEL | 1 | 5 | 3 | | 9 | | 1 | 1 | | | | | | 43 |
| EES | 2 | | | | | | | | | | | | | 2 |
| ENG | | 2 | 1 | | 1 | | | | | | | | | 5 |
| ENT | | 1 | | | | | | | | | | | | 1 |
| FTN | | 5 | 2 | | 2 | | 2 | | | | | | 1 | 7 |
| FOD | | 4 | 1 | | 8 | | 3 | 2 | 1 | | | 1 | | 24 |
| HCG | | 4 | | | 3 | | | | | | 1 | | | 9 |
| HOT | | 3 | 6 | 1 | 1 | | 3 | 4 | 1 | | | | | 15 |
| INV | | 2 | | | 6 | | | | | | 2 | | 2 | 14 |
| INS | | | | | 2 | | | | | | | | | 4 |
| LUX | | | | | | | | | | | | | | 1 |
| MAC | | 1 | 1 | | 7 | | | | | | | | | 10 |
| MAN | | | | | 1 | | | | 1 | | | | | 2 |
| MED | | | | | | | 1 | | | | | | | 6 |
| MER | | | 1 | 2 | 4 | | 5 | 3 | 1 | | | | 1 | 1 |
| MIN | | | 2 | | 4 | | | 6 | | | | 1 | | 7 |
| MUL | | 1 | 4 | | 4 | | | | | 2 | | | | 37 |
| OFF | | | | | 3 | | | | | | | | | 4 |

Table VI: The Summary Statistics of 605 DRs Issued by Asian Countries as of March 2000: Classified by Industries

| | China | Hong Kong | India | Indonesia | Japan | South Korea | Malaysia | Philippine | Singapore | Sri Lanka | Taiwan | Thailand | Vietnam | Total |
|-------|-------|-----------|-------|-----------|-------|-------------|----------|------------|-----------|-----------|--------|----------|---------|-------|
| OGS | | | 1 | | 1 | 1 | | 2 | 2 | | 1 | 1 | | 4 |
| OTH | | | 7 | | 1 | 1 | | | | | | | | 10 |
| PAP | | | | 1 | 1 | | | | | | | | 3 | 8 |
| PHO | | | | | | | | | | | | | | 1 |
| PLA | | 1 | | | 1 | | | | | | | | 2 | 1 |
| PPP | | | 1 | | | | | | | | | | | 4 |
| PUB | | | | | 4 | | 2 | 1 | 5 | | 1 | | 1 | 3 |
| RES | 3 | 17 | | 2 | 2 | | | | | | | | | 36 |
| RET | | 3 | | | 2 | | | | | | | | | 5 |
| RUB | 1 | | | | | | | | | | | | | 3 |
| SHP | 1 | | | | 10 | 1 | 2 | | | | 4 | 1 | 6 | 28 |
| STE | 1 | | 4 | | 1 | | 2 | | | | | | | 1 |
| SVC | | | | | 2 | 1 | | | | | 5 | | | 1 |
| TEC | | 2 | 1 | | 4 | 2 | | 2 | 1 | | | 8 | 1 | 11 |
| TEL | | 8 | 6 | | 7 | | | | | | | 1 | 2 | 35 |
| TEX | | 2 | 12 | 3 | 3 | | | | 3 | | 1 | 1 | | 25 |
| TRN | 3 | 3 | 1 | | | | | | | | 4 | | | 17 |
| UTI | 2 | 4 | 5 | | | 1 | | 1 | | | | | 1 | 14 |
| Total | 28 | 106 | 98 | 10 | 162 | 31 | 19 | | 27 | 2 | 60 | 17 | 23 | 605 |

**Table VI (Cont.)
Industry Abbreviations**

| SYMBOL | INDUSTRY | SYMBOL | INDUSTRY |
|--------|------------------------------|--------|-----------------------------------|
| AER | Aerospace/Defense Elec. | LUX | Luxury Goods |
| AIR | Airlines | MAC | Machinery |
| AUT | Auto/Auto Parts | MAN | Manufacturing |
| BKS | Banking | MED | Media/Entertainment |
| BEV | Beverage | MER | Merchandising |
| BIO | Biotechnology | MIN | Mining & Minerals |
| CER | Ceramics | MUL | Multi-Industry |
| CHM | Chemicals | OFF | Office Equipment/Supplies |
| COA | Coal | OGS | Oil & Gas |
| COM | Computer: Mainframe/Hard | OTH | Other |
| CSC | Computers: Semiconductors | PPP | Packaging/Printing |
| CSV | Computers: Services/Parts | PAP | Paper & Forest Products |
| CSN | Computers: Software/Network | PHO | Photo. Equipment/Supplies |
| CLE | Consumer Electronics/Parts | PLA | Plastic Products |
| CST | Construction & Householding | PUB | Publishing |
| COP | Cosmetics/Personal Care | RRS | Railroads |
| DEB | Debt Securities | RES | Real Estate |
| DRU | Drugs/Healthcare | RET | Retailing |
| EEI | Electrical Equipment | RUB | Rubber Goods/Tires |
| EES | Energy Equipment & Service | SVC | Services (business & public) |
| ENG | Engineering | SHP | Shipbuilding |
| ENT | Entertainment/Leisure/Toy | STE | Steel |
| FIN | Financial Services | TEC | Technology-Misc. |
| FHP | Food & Household Products | TEL | Telecommunications |
| FOD | Food Product/Agribusiness | TEX | Textiles |
| HOT | Hotel & Leisure Industry | TOB | Tobacco |
| HCG | Household Products/Appliance | TRN | Transportation: Freight & Storage |
| INS | Insurance | UTI | Utilities - Gas & Electric |
| INV | Investment/Financial Service | WAS | Waste Management |

B. Data and Methodology

For the 11 East Asian countries in the study, daily exchange rates are collected for each firm from 12-month prior to DRs issuance (i.e. month -12) to the issuance month (i.e. month 0). Using this data, monthly average exchange rates are computed. Due to missing data, the number of firms included in the sample is reduced to 422. The exchange rates are expressed in US dollar per unit of local currency. For each DR, the monthly average exchange rates are converted into an index, using the exchange rate during the month of issue as the baseline 100. Thus the exchange rate index in month 0 is equal to 100. For each of the past 12 months, the exchange rate index is calculated as follows:

$$IFX_{i,t} = \frac{FX_{i,t}}{FX_{i,0}} \times 100$$

where $FX_{i,0}$ is the exchange rate in month 0 for firm i and $FX_{i,t}$ is the monthly average exchange rate in year t . The procedure is repeated for each DR issued from the 11 East Asian countries. Then, a t-statistics test is used to examine the hypothesis that:

$$\frac{\sum_{i=1}^{422} IFX_{i,t}}{n} > 100$$

where $FX_{i,t}$ is the monthly average exchange rate for firm i in the month t and n is the total number of DRs. The tests are carried out for DRs grouped by country, by stock exchange, by stage of development of the country of origin (emerging or developed), and overall. The results are reported below in Table VII for one, four, eight and twelve months before listing.

C. Results

As is apparent from Table VII, the overall exchange rate index one month prior to DRs issuance is significantly greater than the baseline 100 (i.e. month 0) at the 5 percent level. It implies that the home currency is relatively strong against the US dollar when firms issue DRs. This evidence supports our hypothesis. Categorized by the types of market, firms located in both developed and emerging markets have an exchange rate index that is more than 100, but significant results are only obtained from emerging markets. Further, seven out of 11 countries have an exchange rate index of more than 100 in month -1, although only firms located in the Philippines have a significant result at the 1 percent level. Regarding the exchange rate index across listed exchanges, firms whose DRs are traded OTC do not seem to issue their DRs when the home currency is relatively strong. However, the figure for firms listed on the OTC market during month -1 is not significantly different from that of month 0. Further, the exchange rate index is significantly lower than the baseline 100, which means the home currency was significantly weaker against the US dollar, during the months -7 to months -12, especially for those firms located in emerging markets such as China, India and Indonesia. Within that same period, firms listed under Rule 144A and those on global exchanges outside the US (i.e. shown as 'NONE' item in Table VII) appear to have significant weaker home currencies. However, the exchange rate of the home currency against the US dollar tends to appreciate gradually throughout the sample 12 months and reaches the best rate around the month of issuance. Overall, the results seem to indicate that firms issuing DRs attempt to study exchange rate changes prior to issuance in order to strive for the best listing price in the US stock market.

VI. Conclusion

A depositary receipt is a financial security that is well suited to fit the needs of firms who try to raise capital from outside their home country, as well as the needs of international investors which are looking for convenient ways to diversifying their asset portfolios. This study provides an overview of depositary receipts issued in developed markets, particularly in the US by companies based in East Asia. The national origin, industrial classification, and choice of stock exchange for listing are examined. Further, the relationship between DR issuance and exchange rate changes around the period of issuance is examined. The results partially support the hypothesis that firms tend to issue DRs when the exchange rate is favorable, in order to attain the best listing price.

Table VII: The Relationship Between Exchange Rates and DRs Issuance

| | Number of obs. | Month -1 | | | Month -4 | | | Month -8 | | | Month -12 | | |
|------------------|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|----------|
| | | Mean | t-value | Variance | Mean | t-value | Variance | Mean | t-value | Variance | Mean | t-value | Variance |
| Overall Market | 422 | 100.16 | -1.99** | 2.80 | 99.86 | 0.69 | 16.29 | 99.52 | 1.65* | 35.87 | 99.02 | 2.45*** | 67.68 |
| Developed Market | 158 | 100.17 | -1.09 | 3.72 | 100.31 | -1.00 | 15.62 | 100.46 | -1.28 | 20.05 | 100.82 | -1.64* | 39.14 |
| Emerging Market | 264 | 100.16 | -1.72* | 2.26 | 99.60 | 1.61 | 16.55 | 98.96 | 2.53** | 44.60 | 97.94 | 3.70*** | 81.87 |
| Countries | | | | | | | | | | | | | |
| China | 28 | 100.14 | -1.54 | 0.23 | 97.89 | 1.25 | 80.07 | 93.34 | 2.45** | 207.48 | 91.02 | 2.99*** | 251.95 |
| Hong Kong | 98 | 100.01 | -0.97 | 0.02 | 100.04 | -2.04** | 0.04 | 100.02 | -1.08 | 0.03 | 100.04 | -1.84* | 0.05 |
| India | 98 | 100.19 | -1.05 | 3.33 | 99.27 | 3.10*** | 5.50 | 98.07 | 5.70*** | 11.19 | 96.28 | 8.01*** | 21.16 |
| Indonesia | 10 | 99.89 | 0.78 | 0.21 | 98.95 | 4.16*** | 0.64 | 97.88 | 10.47*** | 0.41 | 96.32 | 14.18*** | 0.67 |
| Japan | 38 | 100.89 | -1.48 | 13.82 | 101.25 | -1.03 | 55.57 | 101.44 | -1.07 | 68.05 | 102.81 | -1.50 | 133.53 |
| Malaysia | 3 | 100.00 | -0.46 | 0.00 | 103.50 | -1.00 | 36.87 | 99.26 | 1.00 | 1.62 | 106.85 | -1.87* | 40.24 |
| Philippine | 22 | 101.07 | -3.07*** | 2.70 | 102.96 | -2.99*** | 21.58 | 103.79 | -2.81** | 40.19 | 103.15 | -1.51 | 96.09 |
| Singapore | 22 | 99.60 | 1.35 | 1.95 | 99.90 | 0.11 | 16.59 | 100.70 | -0.63 | 27.17 | 100.82 | -0.56 | 47.11 |
| South Korea | 26 | 100.42 | -1.51 | 1.98 | 99.87 | 0.25 | 6.88 | 101.01 | -0.84 | 37.40 | 103.22 | -1.90* | 74.53 |
| Taiwan | 60 | 99.93 | 0.50 | 1.09 | 99.52 | 1.48 | 6.20 | 99.95 | 0.10 | 13.60 | 99.44 | 0.75 | 32.91 |
| Thailand | 17 | 99.41 | 1.27 | 3.74 | 99.48 | 0.61 | 12.14 | 101.01 | -0.62 | 45.55 | 98.19 | 0.51 | 214.41 |
| Exchanges | | | | | | | | | | | | | |
| Rule 144A | 129 | 100.24 | -1.54 | 3.26 | 99.66 | 0.93 | 17.08 | 99.04 | 1.81* | 36.46 | 97.85 | 2.88*** | 71.97 |
| NAS | 18 | 100.51 | -1.01 | 4.67 | 99.97 | 0.04 | 10.38 | 101.42 | -1.60 | 14.26 | 102.13 | -0.79 | 130.29 |
| NYSE | 33 | 100.61 | -1.78* | 3.89 | 101.18 | -1.57 | 18.56 | 100.23 | -0.16 | 69.12 | 100.83 | -0.47 | 102.77 |
| OTC | 162 | 99.95 | 0.48 | 2.02 | 99.77 | 0.70 | 17.95 | 99.86 | 0.32 | 32.83 | 99.79 | 0.36 | 56.56 |
| NONE | 80 | 100.20 | -1.10 | 2.72 | 99.83 | 0.45 | 11.98 | 98.89 | 1.75* | 32.05 | 97.90 | 2.64*** | 50.85 |

* , ** , and *** indicate significantly different from the no-change group at the 0.10, 0.5, and 0.01 level respectively using a two-tailed Student's t-test for the mean



Endnotes

1. See *The Global Equity Investment Guide: The Case for Investing in Depositary Receipts from The Bank of New York*, 2000.
2. The source of the data used to prepare all the tables is the website of the Bank of New York (www.adrbny.com)
3. See “J.P. Morgan: Dressed for a Deal?” by E. Thornton, Sept. 2000 [Business Week Online: http://www.businessweek.com/2000/00_38/b3699254.htm].
4. Industry information across countries is obtained from Tradeport online [<http://www.tradeport.org/ts/index.html>] and CorporateInformation online [<http://www.corporateinformation.com>].
5. See “Status of chemical industry” by Y. Kansal, 2000, published by International Market Insight. Also, see “Indian chemical industry - A sunrise sector” from Chemical engineering world online [http://www.exicom/org/cew/dec97/chem_ind.htm].

References

- Alexander, G., C. Eun, and S. Janakiramanan (1987) "Asset pricing and dual listing on foreign capital market: a note," *Journal of Finance*, 42, pp.151-158.
- Alexander, G., C. Eun, and S. Janakiramanan (1988) "International listings and stock returns: some empirical evidence," *Journal of Financial and Quantitative Analysis*, 23, pp.135-151.
- Amihud, Y. and H. Mendelson (1986) "Asset prices and the bid ask spread," *Journal of Financial Economics*, 17, pp.223-249.
- Amihud, Y. (1994) "Evidence on exchange rates and valuation of equity shares," in Amihud, Y., Levich, R. (Eds.), *Exchange Rates and Corporate Performance*, Irwin, New York.
- Bartov, E. and G.M. Bodnar (1994) "Firm valuation, earnings expectations, and the exchange rate exposure effect," *Journal of Finance*, 44, pp.1755-1785.
- Choung, J.Y. (1998) "Patterns of Innovation in Korea and Taiwan," *IEEE Transactions on Engineering Management*.
- Errunza, V. and E. Losq (1985) "International asset pricing under mild segmentation: theory and test," *Journal of Finance*, 40, pp.105-124.
- Eun, C. and S. Janakiramanan (1986) "A model of international asset pricing with a constraint on the foreign equity ownership," *Journal of Finance*, 41, pp.897-914.
- Hung, R.D. and H.R. Stoll (1997) "Exchange rates and firms' liquidity: Evidence from ADRs," Working paper, University of Notre Dame, Notre Dame.
- Miller, D. (1999) "The market reaction to international cross-listings: evidence from Depositary Receipts," *Journal of Financial Economics*, 51, pp.103-123.
- Stapleton, R.C. and M.G. Subrahmanyam (1977) "Market imperfections, capital market equilibrium and corporate finance," *Journal of Finance*, 32, pp.307-319.