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ADR Arbitrage Opportunities for Dummies

I. Introduction

Created by JPMorgan in 1927 to facilitate US investments in the UK, the American Depositary Receipt ("ADR") is a US security that represents an ownership interest in another security of a non-US company. It enables investors to acquire foreign securities without concerning for cross-border transactions, illiquidity, and dividend conversion while maintaining similar benefits of investing internationally.

Since an ADR represent an ownership interest in its underlying foreign security, the prices of the ADR and the underlying stock should be the same at all times after adjusting for exchange rates (law of one price). This should be true since, if the price of the ADR is higher than the underlying (after adjusting for exchange rates), an investor would be able to buy it cheaply, convert it back to the underlying stock, and sell it for a higher price in the foreign market. This is what we call an ADR arbitrage, where an investor will arbitrage these differences away and make a riskless profit.

Oftentimes, however, these two prices diverge and the ADR will trade at either a premium or a discount to its underlying stock. Our primary objective with this paper is to understand why these price differentials emerge and analyze whether they represent real riskless arbitrage opportunities. Finally, we will further analyze different stocks/ADRs pairs in India and Brazil to understand if and how an investor could profit from these price differentials.

This paper is organized in four major parts. The first part discusses very succinctly what an ADR is and how this market works. The second part shows the relationship between local stock prices and ADR prices across different countries, industries and times and discusses why discrepancies between the prices of these two securities exist. The third part provides potential explanations for the continued existence of these discrepancies and will explain the limits to these arbitrage opportunities through the calculation of a band around the stock or ADR prices inside which arbitrage would be unprofitable given transaction costs and other issues. The last and fourth part, will be more practical oriented and focus on applying the ideas developed in the first three parts in two specific countries situations, India and Brazil, and try to test if arbitrage opportunities in ADRs from these countries exist and how an investor would exploit them in practice.

II. Types of ADRs

There are different levels of ADRs that can be issued in US, each of these levels have different requirements for the company (issuer) and provide different protection and information for the investor. The table below summarizes these types of ADRs.

	Level I	Level II	Level III	Rule 144A	Reg S
Description	Unlisted	Listing	US listing and public offering	US private placement	Non-US private offering
Objective	develop/broaden US investor base with existing shares	develop/broaden US investor base with existing shares	Raise equity in US/broaden US investor base	Raise equity in US among qualified institutional buyers (QIBs)	Raise equity outside if the US
Accounting/ diclosure	Home market	US GAAP	US GAAP	Home market (US GAAP optional)	Home market
US reporting requirements	Exempt	Form 20-F	Form 20-F	None	None
Investor's advantages/ disadvantages	Lower liquidity, limited financial informational and diclosure	Provides substantial disclosure in accordance with US law and GAAP reconcialiation	Foster maximum liquidity, with substantial disclosure in accordance with US law and GAAP reconcialiation	Limited liquidity inthe US, no reconciliation with US GAAP, no SEC review of offeing materials	Limited liquidity and home market disclosure practices

Source: ADR Reference Guide - JPMorgan, February 2005

ADRs are issued by a U.S. bank that functions as a depositary, having ADR being backed by a specific number of shares in the non-U.S. company. ADRs can be traded on any of the US stock exchange (NYSE, NASDAQ, or AMEX) and over-the-counter. In the case of Rule 144A, they are privately placed and traded.

The same concept for ADR has been spread into other regions with the creation of the global depositary receipts (GDRs), international depositary receipts (IDRs), and European depositary receipts (EDRs), which are generally traded or listed in one or more international markets. As of February 2005, this instrument is used by around 2,100 non-US issuers from approximately 80 countries. About 500 of those ADRs are listed in the US exchanges. The mechanics of the ADR process is detailed on Exhibit 1.

Advantages of using ADRs: Benefits of ADRs from the point of view of the investor are numerous. First, it simplify trading, making it easy to purchase and hold a non-US issuer's security. The ADR can be traded in US dollars and settled in the same matter as any US security, reducing the risk and the cost of the transaction. It also eliminates investor barriers, facilitating diversification into securities of foreign issuers, providing international exposure for institutional investors that are restricted to US exchanges, and making trading information accessible. Finally, it provides faster US dollars dividend payment.

Disadvantages of using ADRs: Despite all the described advantages, the ADRs do represent the same asset as local shares but may not be "fully fungible" in several countries (meaning they cannot be seamless exchanged with its home market security). For example, until 2001 there was no two-way fungibility for Indian ADRs; in that environment, investors could convert ADRs into local shares but they could not reconvert them back to ADRs. This and other capital control regulations prevent riskless arbitrage opportunities to exist between ADRs and the underlying stock and are one of the reasons that premiums/discounts exist in the ADR market. In

addition to the lack of fungibility, it is worth noting that the ADRs are not protected from country risks, FX exchange fluctuations, and any other related risk usual of an international investment.

III. ADR Arbitrage Opportunities

If markets were completely globalized and integrated, the prices of ADRs and its local shares counterparties should be the same, adjusted for exchange rate. In order to check for the existences of premium and/or discount, we intended to study the 2,213 registered ADRs in the global market as of December 2005. Due to incompleteness of available information, we were only able to access the premium of 671 of those ADRs, which represent the scope of our analysis in this section of the paper. Exhibit 2 lists a sample of some information collected on these ADR.

In studying this sample of 671 ADRs around the world, it is noticeable that these prices are not the same and premium/discounts exist across countries and throughout time. The table below shows the number of ADRs in our sample, as well as the average premium or discount across countries.

	Number of ADRs	Average Premium	Std Dev	Min	Max
Japan	88	0.34	1.10	(3.05)	3.03
United Kingdom	82	0.06	3.93	(29.86)	10.95
Brazil	51	2.51	23.20	(8.59)	164.28
Hong Kong	51	(1.32)	3.85	(18.37)	3.87
Australia	37	(0.36)	4.92	(13.39)	11.50
France	37	0.55	3.89	(11.90)	17.57
Germany	29	(3.77)	18.22	(98.34)	1.54
Netherlands	28	(3.33)	16.89	(89.42)	0.90
Mexico	26	0.53	2.96	(4.97)	9.72
South Africa	20	0.27	4.34	(5.70)	11.15
Chile	18	(0.34)	2.41	(9.48)	1.63
Russia	18	(1.16)	6.36	(20.56)	14.89
Switzerland	14	0.07	0.36	(0.73)	0.57
China	12	(0.18)	1.26	(3.30)	1.35
Ireland	12	(1.41)	7.19	(8.90)	16.84
Argentina	11	(7.83)	27.34	(90.18)	1.89
India	11	4.63	23.41	(62.56)	20.62
Italy	11	(0.39)	1.45	(4.54)	0.77
South Korea	11	1.70	4.52	(3.54)	12.89
Israel	10	(0.46)	1.64	(2.52)	2.51
Other Countries	92	(1.13)		(50.71)	12.57

These discrepancies in the price have also persisted over time, as exemplified by stocks such as Telmex in Mexico, Reliance in India, Gazprom in Russia, and BHP in Australia, whose premium during the last 5 years are shown in Exhibit 3.

Several studies have been published on the theme, with focus on different countries, regions, time periods, and capital control and other restrictions. These studies aim to identify discrepancies in prices of ADRs and understand their reasons, but there are few studies on potential arbitrage opportunities and ways to exploit them, which is the final goal of this paper.

Main Reasons for Discrepancies between the Prices of ADR and Local Shares

There are significant limitations for an investor to buy an ADR on the NYSE and sell it on a local exchange in the same day. Fees and other transaction costs are also incurred in this

transaction. Finally, depending on the ADR level and the local government regulations, different rights and protections are accompanied by the certificate. This section in the paper will discuss the main reasons for discrepancies between the prices of ADRs and local shares while questioning whether they should be subjected to the law of one price.

Are ADRs and local shares the same assets? Despite ADRs being certificates that represent the underling foreign shares that are being held custody outside the U.S., ADRs and local shares are different certificates and may not be "fully fungible" in several countries. For example, until 2001 there was no two-way fungibility for Indian ADRs; in that environment, investors could convert ADRs into local shares but they could not reconvert them back to ADRs. In 2001, the Indian Reserve Bank created the regulation that allowed two-way fungibility between ADRs and local shares with restrictions, however, to what shares could be converted to ADRs. Under this regulation, only local shares that were created through conversion of ADRs can be reconverted.

The high demand for Indian shares in the U.S. during the past few years and the relatively low volume of ADRs available for investors resulted in most Indian ADRs trading at a premium over their local shares. Because of the fungibility problem, however, this premium cannot be arbitraged away by investors so companies such as Infosys and Wipro are making secondary ADR offerings with the goal of increasing liquidity and arbitrage the price differential themselves.

Sponsored vs. unsponsored ADR program, different levels of ADRs As described above, issuers can usually choose from different types of ADRs, ranging from unsponsored to Rule 144A. Each of those types sets specific benefits and rights to the investors and has its particular legal and regulatory requirement.

When analyzing the data from current ADRs programs, it is noticeable that the level of ADR is important if defining the discrepancies between the prices of the ADR and the local share. When running a regression between the premiums of ADR versus local share prices of 671 ADRs worldwide, we found statistical evidence of the influence of ADR level in determining this premium (Exhibit 4 show regression analysis). More specifically, for each increase of ADR level (from Level II to level III, for example), there is an increase of 1.12% in the premium for the ADR in relation to the local share.

Government regulations and investor restrictions Several regulatory reasons may create a disparity between ADR and local share prices, such as direct investment barriers (for example restrictions on capital movements and tax differentials), inability of a group of investors to transact, foreign ownership limits, differences in property right protection, overall market development, etc. Although these restrictions are diminishing, markets are still not fully integrated and it is expected that the law of one price cannot be applied in some cases.

Examples of these discrepancies were found by Jithendranathan, Nirmalanandan, and Tandon (2000) in India, where capital flows barriers allow domestic investors to invest only in local securities and, therefore expect higher returns than international investors. This type of restriction generated a premium for the ADR vs. the local stock. Another example of discrepancy caused by government regulation happened in Hungary in the mid 90's, as studied by Murphy and Sabov (1995), where the then currency black market and bureaucratic delays allowed for arbitrage opportunities in stocks listed both in Budapest and Vienna.

These restrictions, however, are being relaxed as the capital markets get more integrated. A good example for these changes is Korea, which until 2001 restricted foreign investor to exclusively acquire ADRs at their initial offerings. Korea's current rule permits later purchases and redeposit with the consent of the issuer and caused the premium to collapse overtime (see exhibit 5). Other countries such as China, India and Taiwan have similar relaxation programs for its ownership restrictions, which should improve market efficiencies and diminish spread between ADR and local securities.

Investor restrictions and government regulations (including taxes, government controls on money flows, money allocation, short sales, etc.) impact not only ADR and local shares pricing but also many other assets. In the case of closed-end funds, Pontiff (1996) describes how sometimes asset prices deviate from fundamental values when there are limits to what rational sophisticated investors can do to return prices to their intrinsic value using arbitrage. He describes the fact that, oftentimes, municipal bond closed-funds trade at a premium to their bond holdings and how this fact is consistent with institutional arrangements that prohibits short sales of these funds given the tax-exempt status of the bonds and the funds' distributions.

Correlation to stock index between ADRs and local shares Another important source of disparity between ADR prices and its local traded securities are the co-movements between the stocks and the markets they are traded rather than where the company is established. As examined by Froot and Dabora (1999) in "How are stock prices affected by the location of the trade?", the prices for twin stocks appear to be closer correlated with the markets on which they are traded most, and, therefore, do not necessarily move together. In the case for ADRs, studied by Gagnon and Kaolyi (2003), it was shown that the returns have higher correlation with US stock market indexes than with the local market of the traded security.

A good example of this correlation with the US market is the Infosys ADR, which has been following the technology companies in the NASDAQ much more closely than the Indian stock market. Even more interesting, as discussed by Chakrabarti (2003) is the ADR premium of Wipro, which has been presenting a much more modest premium compared to Infosys. Considering both companies are in the same sector and in the same market, the differences between the ADR premium of Wipro and Infosys can only be explained by differences in investor's perception rather than true valuation fundamentals.

For the purpose of this paper, we also tracked a few Brazilian and Indian ADRs, and tested the correlation between the ADR and local prices with their domestic market (BOVESPA index for Brazil and BSE100 and BSE200 index for India) since the inception of their ADRS. Our sample of ADRs ranged from technology, to manufacturing, to banking and telecommunication firms. The correlation with the ADR host market (in particular the technology companies with the NASDAQ) were indeed significantly higher than its correlation with the local market index. The table below summarizes our study.

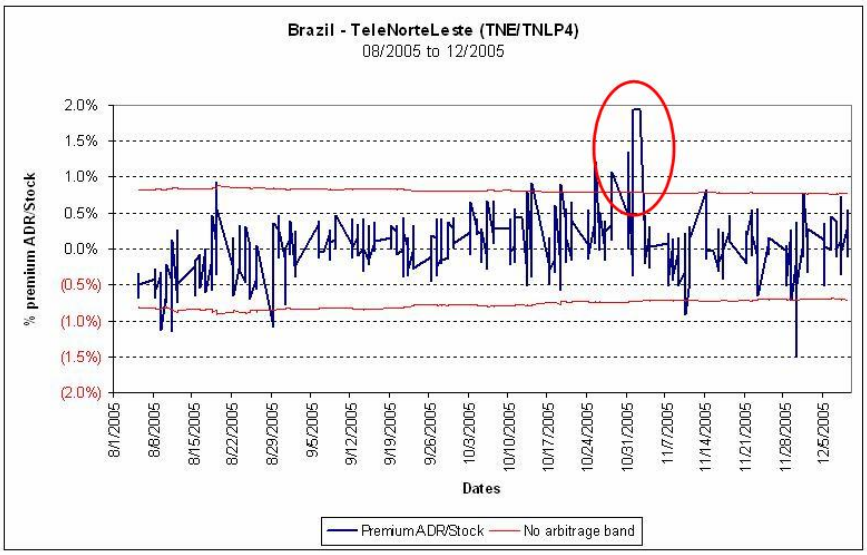
Indian ADR	Correlation with Indexes (R^2)		
Ticker	NASDAQ	S&P	BSE100
INFY US	0.48	0.28	0.44
WIT US	0.40	0.42	0.68
HDB US	0.56	0.49	0.96
MTE US	0.44	0.40	0.07
IBN US	0.07	0.11	0.93
HDB US	0.56	0.49	0.96
VSL US	0.10	0.26	0.62
TTM US	0.60	0.52	0.35

Brazilian ADR	Correlation with Indexes (R^2)		
Ticker	NASDAQ	S&P	Bovespa
TNE US	0.68	0.69	0.12
PBR/A US	0.04	0.09	0.80
RIO-P US	0.01	0.00	0.83
ITU US	0.60	0.63	0.82
GGB US	0.01	0.00	0.87
PBR US	0.17	0.33	0.82
SDA US	0.57	0.50	0.94
BBD US	0.07	0.15	0.39
TCP US	0.89	0.73	0.02

Spread behavior in times of crisis Several reasons may affect the stability of the ADR market in a country crisis. Increase in capital controls, deep fluctuations of currency exchange rates, contagious effects of neighboring countries among others may trigger international investor hysteria leading to irrational valuation of securities.

A great example of spread behavior in times of crises happened in Argentina in the late 2001, when the country faced drastic foreign exchange and capital controls amidst violent demonstrations and social unrest. In order to bypass this strict capital control, Argentinean investors saw in ADRs a way to send capital to the U.S.. These investors would buy Argentinean local shares, convert them to ADRs and sell them in the NYSE in order to fly money out of the country. The effects of this actions in the spread between ADR and underlying Argentine security was studied by Melvin (2002), who found that, while this spread was typically narrow, a large premium existed during the time when ADR conversions were permitted and capital controls were in place.

Another interesting study on crisis behavior and capital controls was made by Yeyati, Schmukler, and Van Horen (2005). They analyzed six countries that applied capital controls in periods of crisis (Argentina, Chile, Indonesia, South Africa, Korea, and Venezuela) and three other countries in crisis without these controls (Brazil, Mexico, and Russia) and its impact on the spreads between ADR and the underling local stock. Exhibit 5 shows the cross-market premium of all stocks in the portfolio of each country. Both crisis and controls led to higher than usual spreads that were slowly normalized after the crisis or the control lifts.



Premium/Discount of TNE ADR over local share in crisis times, such as the political crisis during July 2005, widens to over 2%.

IV. Limits to Arbitrage Opportunities

Despite all of the advantages of the ADR, they are not seamless interchangeable with the local underlying stock. While the previous section of this paper explored the potential reasons for discrepancies between the ADR and the local stock, this section will describe the difficulties of acting on those discrepancies in order to generate profitable arbitrage.

The basic mechanics of the execution of the arbitrage from the perspective of an US investor would be the following:

1. U.S. investor acquires ADR by the ask price with U.S. dollars;
2. ADR is converted into the local security;
3. Local security is sold in the local market in local currency at the bid price;
4. Local currency amount is then converted into U.S. dollar at the ask exchange rate.

Taxes, fees, liquidity issues, bid/ask spreads and restrictions can occur at any point of the transaction.

Operational issues There are several operational issues that make the mechanics of the arbitrage difficult. The first one is related to time zone, which could potentially shrink trading sessions overlap, making it difficult for the arbitrage to occur simultaneously or even in the same day. Additionally, public information about the companies with ADR listing will also hit the market in local business hours, delaying reflections is the price of the ADR.

Another operational difficulty to execute on the arbitrage strategy should be regulatory restriction on short-sale, which, according to Bris, Goetzman and Zhu (2004), is present in about half of their surveyed countries. This restriction could significantly increase the risk of the arbitrage, making spread between ADR prices and local shares less likely to converge.

Low liquidity for certain ADRs There are many instances of firms with multiple listings in different markets and countries having very low liquidity and trading in some of their listed securities. In this case, prices and premiums/discounts do not mean anything since these prices are not applicable for large trades (sometimes these issues trade less than 1,000 shares/day) and differences in prices cannot be exploited (large inefficiencies in bid and ask spreads, higher transaction costs of trading small lots, etc.).

In our sample of ADRs we were able to identify securities with premiums that were attached to very little liquidity and some ADRs that the premium was not even quantifiable due to the lack of liquidity. This was the case of listings for HSBC that trade in Germany or Argentina, that have very limited volume (200-1,000 shares/day) compared to their listings in London (30 million shares/day) and New York (the equivalent of 2 million local shares/day). The same situation occurs with different companies and listings such as BHP Billiton's listing in Germany, Petrobras' listing in Germany and Argentina, etc.

Bid and ask spreads As detailed in the beginning of this chapter, there are several steps in which the investor attempting to act on the arbitrage will face the spreads between bid and ask prices of the local stock, the ADR, and the currency exchange rate. As a result, the wider the spread, the higher the transaction cost of exercising the arbitrage. Another important factor to consider when analyzing the bid and ask spread is the impact of the transaction itself, which should tend to correct for any anomalies in the difference of buying and selling the security and make the spread narrower.

Transaction costs Transactions costs are probably one of the major inhibitors of arbitrage opportunities. Not every investor can maintain trading accounts in different countries and sustain minimal levels of investment and costs to be able to profitably exploit ADR-local shares arbitrage opportunities. Transaction costs oftentimes add up to a significant amount and have to be add up to the stock price (either the ADR or local stock) so as to calculate the "full price" for the stock and compare it to the price of the ADR (or vice versa). Although these costs may not disallow arbitrage opportunities to emerge, they create what we call a no-arbitrage band. This band can be calculated from either the ADR or the local stock point of view and is the sum of the stock price plus all the transaction costs and bid-ask spreads incurred by the investor in the process of doing the arbitrage. As long as the stock (or ADR) is trading within that band, the arbitrage will not be profitable because any difference between the two stock prices will be "lost" to transaction costs.

The figure below shows a real example for Telemar Norte Leste, one of the most liquid Brazilian stock/ADR, and one can see that, although the stock and ADR prices often diverge, usually they do not fall out the no-arbitrage band of the stock, thus providing few profitable arbitrage opportunities.

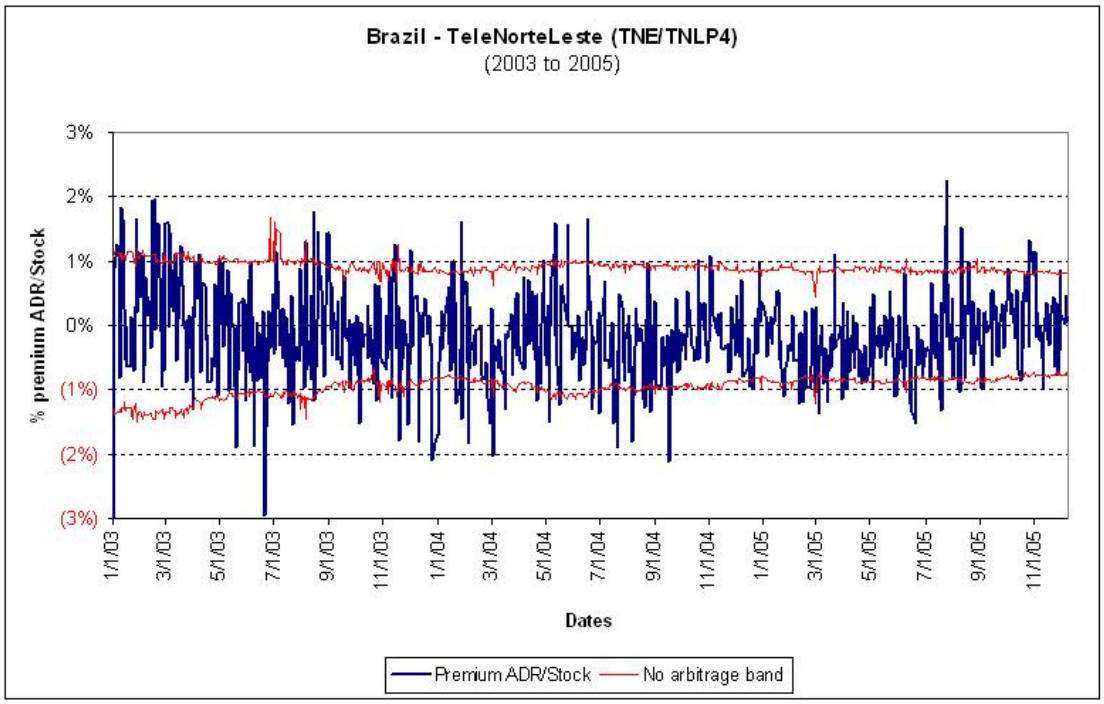


Figure. Daily premium/discount between Tele Norte Leste ADR/Local share price and "no arbitrage band"

Individual investors and smaller traders have usually much higher costs than larger financial institutions. The discrepancies between a smaller trader and a financial institution are due to (1) lack of broker fees, considering the institution operates in both countries of the transaction, and (ii) lower taxes because the financial institution usually are exempt from paying certain taxes bore by individual investors (such as taxes on financial transactions in Brazil up until 2003).

A good example of the impact of transaction costs in arbitrage opportunities was studied by Alves and Morey (2003) in Brazil. They found that arbitrage opportunities are almost non-existent for the ordinary trader, since transaction costs are larger than the price discrepancies that occurred, but are reasonable for larger institutions. The fees and taxes for the smaller investor in a Brazilian transaction included U.S./Brazilian broker free, ADR conversion fee, Brazilian stock exchange fee, Brazilian taxes and other fees; while the financial institution will only pay the ADR conversion fee and the Brazilian stock exchange fee. Since 2004, however, differences between costs for these two types of investors have decreased due to a more competitive market for brokerage (leading to lower fees) and elimination of financial transaction taxes on stock exchange market transactions.

Transaction costs also vary widely among countries, and emerging markets usually have higher costs than developed countries. Additionally, the fees may vary depending on where the arbitrage transaction in initiated (whether it is in the ADR market or the local stock market).

V. Real Life Arbitrage Opportunities: The Cases of Brazil and India

Our analysis in the first part of the paper identified several instances when a stock and its ADR/GDR are trading at apparently different levels which could be exploited to make a potential riskless and profitable arbitrage. The discussion concludes that these opportunities may exist in theory but oftentimes cannot be exploited in practice.

In some cases, there are barriers, such as government regulations, investment restrictions, liquidity issues, transaction costs, tax issues, bid and ask spreads, high volatility, etc., that prevent the arbitrage from happening profitably or happening at all. In other instances, the trade can be made but it is not a classical arbitrage with risk-free profits but a so called risky arbitrage where the investor can make or lose money for various reasons such as: liquidity, timing of the trades (the two securities trade at different times of the day that may or may not overlap, so trades are not done simultaneously), timing of liquidation, and others.

This second part of our discussion will focus then on testing these opportunities to check if they really do exist and, if so, whether they are exploitable by two different types of players: an individual trader and an investment bank, which has much lower transaction costs.

Data and Methodology

We identified two different markets to test our hypothesis: Brazil, given its prominence as one of the countries with the most number of ADR issues and its importance in Latin America, and India, given the apparent high premiums found between ADRs and local stocks in that country. Additionally, since we will be testing whether real trading opportunities exist, we gathered data that closely approximated the real quotes that a trader would get in the different assets in terms of timing, volumes and prices in the stock, ADR and exchange rates.

The amount of data for some of the analysis, particularly for intraday arbitrage opportunities, is very large and, for this reason, we decided to focus on a few, higher volume, stocks and ADRs as shown in the table below.

			ADR information							Local share information			
Country	Companies selected	Sector	ADR Ticker	ADR Level	Exchange traded	Ratio (shares/ ADR)	Last Price (US$)	% Premium ADR/Shar	Avg. Volume traded	Local share Ticker	Last Price (local $)	Last Price (US$)	Avg. Volume traded (US$M/day)
Brazil	Telemar Norte Leste	Telecom	TNE	II	NYSE	1	18.6	0%	$ 27M	TNLP4	41.9	18.6	$ 46M
	Petrobrás	Oil & Gas	PBR	III	NYSE	4	71.1	0%	$ 115M	PETR4	36.1	70.8	$ 15M
	Telesp Celular	Telecom	TCP	II	NYSE	1	4.1	(1%)	$ 7M	TSPP4	9.3	4.1	$ 6M
	CVRD	Mining	RIO	III	NYSE	1	42.2	0%	$ 99M	VALE3	95.0	42.2	$ 17M
	Itaú	Financial Services	ITU	II	NYSE	1	25.3	0%	$ 19M	ITAU4	56.9	25.3	$ 27M
India	Infosys	Software Services	INFY	III	NASDAQ	1	75.0	21%	$ 52M	INFO	2,874.0	62.2	$ 12M
	Tata Motors	Automobile	TTM	II	NYSE	1	12.5	0%	$ 3M	TTMT	575.0	12.5	$ 7M
	Wipro	Software Services	WIT	III	NYSE	1	11.2	17%	$ 4M	WPRO	441.0	9.6	$ 3M
	Mahanagar Telephone Nigam	Telecom	MTE	II	NYSE	2	6.9	19%	$ 1M	MTNL	133.0	5.8	$ 1M
	ICICI Bank	Financial Services	IBN	III	NYSE	2	26.8	13%	$ 18M	ICICIBC	550.0	23.8	$ 3M

Summary information on the stocks analyzed

In order to compare our results with those of previous studies that we analyzed, particularly for the arbitrage study using intraday prices, we decided to follow the same methodology described in Alves and Morey's paper focusing on intraday arbitrage opportunities in Brazilian ADRs and is described below.

To examine arbitrage opportunities we gathered both intraday and daily bid, ask and last closing prices for the exchange rate, local stock price and ADR price from Bloomberg. For intraday arbitrage, in the case of Brazil, we limited the analysis to the periods that these markets were open and trading at the same time so as to limit the risk in the strategy. For end of day prices, the arbitrage opportunity might not be completely risk less given trade timing across markets but, nonetheless, the analysis can provide additional insight on the profitability and risk of these arbitrage trades.

We then investigated how an investor would be able to exploit the arbitrage opportunities above, what would be the transaction costs and risks incurred, what would be the major operational issues and how profitable or not these opportunities would be after taking all these factors in consideration. This analysis was done using both the investor point of view and the financial institution point of view. The major difference between the two is that the institutional investor faces broker transaction costs that the financial institution do not (assuming it is a broker dealer in both countries).

Additionally, we analyze the arbitrage opportunities from two points of views: (1) arbitrage originating from the U.S. initiated by buying the ADR, converting and selling the local stock; and (2) arbitrage originating from the country of the underlying stock initiated by buying the local stock, converting and selling the ADR. For both cases we use a base amount of US$ 100,000 as a way to standardize arbitrage results and make them comparable.

The general framework that we used to analyze the potential arbitrages mimics the trades that an investor would have to perform to exploit these arbitrage opportunities and follows the diagram displayed below.

Arbitrage initiated from Brazil

	Transaction	Settlement Dates		Cash Position		Stock Position	
Action	Date	Stock	Cash	R$	US$	Stock	ADR
1. Buy local stock	D0	D+3*	D+3	-R$		+1	
2. Convert stock to ADR	D0	D+3				-1	+1
3. Sell ADR	D0	D+3**	D+3		+US$		-1
4. Sell US$	D0		D+3	+R$	-US$		
Net Position				**0**	**0**	**0**	**0**

* in Brazil stock settlement occurs in the morning of D+3
** in the US, stock settlement occurs throughout the day on D+3 (often in the afternoon)

For the arbitrage originating in the U.S., we calculate the number of ADRs that we would be able to buy using the US$ 100,000 standard trade capital, the ask price for the ADR and taking into account the broker, stock exchange and conversion costs for the trade. We then computed the number of local shares we would receive using the ADR to local share conversion rate and the local currency amount that we would get if we sold the shares at the bid price and after deducting any transaction costs incurred. Finally, we convert this amount back to US$ using the ask price for the official exchange rate of the country so as to compare the final result with the initial capital used.

Arbitrage initiated from the U.S.

	Transaction	Settlement Dates		Cash Position		Stock Position	
Action	Date	Stock	Cash	R$	US$	Stock	ADR
1. Buy ADR	D0	D+3**	D+3		-US$		+1
2. Convert ADR to stock	D0	D+3				+1	-1
3. Sell stock	D0	D+3*	D+3	+R$		-1	
4. Buy US$	D0		D+3	-R$	+US$		
5. Borrow local stock for 1 day	D+2	D+3					
Net Position				**0**	**0**	**0**	**0**

* in Brazil stock settlement occurs in the morning of D+3
** in the US, stock settlement occurs throughout the day on D+3 (often in the afternoon)

We did the same analysis for the arbitrage opportunities originating from the country of the underlying stock (in our case, India or Brazil). We start with the local currency equivalent of US$ 100,000, estimate the number of local shares we would be able to buy using the ask price for the stock and taking into consideration any transaction cost incurred (broker, stock exchange and conversion fees). Later, we calculated the amount of US$ we would receive after converting and selling the ADRs at the bid price and after deducting any transaction costs incurred. Finally, we convert this amount back to the local country currency using the bid price for the official exchange rate of the country so as to compare the final result with the initial capital used.

Results for the Brazilian case

Assumptions used

Although we found differences in the transaction costs of financial institutions and investors, these were not as steep as those found by Alves and Morey. Since 2003, we found changes in both tax laws, giving investors exemption of the financial transaction tax of 0.38% from 2004 on, and in competition among brokers, giving institutional and private bank investors lower brokerage fees, lowering the transaction costs found in their study (currently, even retail investors would be able to get transaction costs that approximate the costs charged to private bank accounts). Finally, currently brokers are charging investors just a one way trading fee for these arbitrages only over the purchase leg of the transaction (broker fees for sales are assumed to be zero).

Broker Fees		
Buy ADR	0.04 per share	if ADR trades at more $5/share
	0.02 per share	if ADR trades at less $5/share
Buy local stock	0.25% of transaction value	
ADR Conversion Fees		
Convert ADR to stock or stock to ADR	0.05 per share	if ADR trades at more $10/share
	0.04 per share	if ADR price between $7-10/share
	0.03 per share	if ADR price between $4-7/share
	0.02 per share	if ADR trades at less $4/share
Stock Exchange Fees		
Total Fees	0.035% of transaction vaue	
Stock borrowing cost		
Total Fees	5.000% of transaction value per year (~0.014%/day)	
Financial Transaction taxes		
Total Fees	0.000% of transaction value (stock transactions are exempt since 2004)	

Total costs for investor (Financial institutions do not pay broker fees since we assume they are broker dealers in both countries)

Although other costs remained roughly the same, the impact of the two changes above substantially decreased the cost base difference between investors and financial institutions.

Additionally, in further investigating the operational issues regarding the arbitrage process we found out that in the specific case of arbitrages originating from the U.S. and involving the selling of local stock in Brazil, there was a settlement issue not considered by Alves and Morey. Physical and cash settlement of stock transactions in the U.S. and in Brazil are done in D+3 (third working day after the trade date). However, in Brazil this settlement occurs at the latest at 10:00am on D+3 whereas in the U.S. this settlement usually occurs throughout the day, oftentimes in the afternoon.

For arbitrages initiated from Brazil involving a sale of ADRs in the U.S. this mismatch is not a problem given that (1) settlement in Brazil usually occurs before that in the U.S. and (2) it is a known and common problem called "failed to delivery" for which investors are not charged anything for the settlement delay. For arbitrage initiated from the U.S., on the other hand, this becomes a problem and the investor could face a forced purchase of the short stock position at market prices. To prevent this from happening, investors and financial institutions doing the

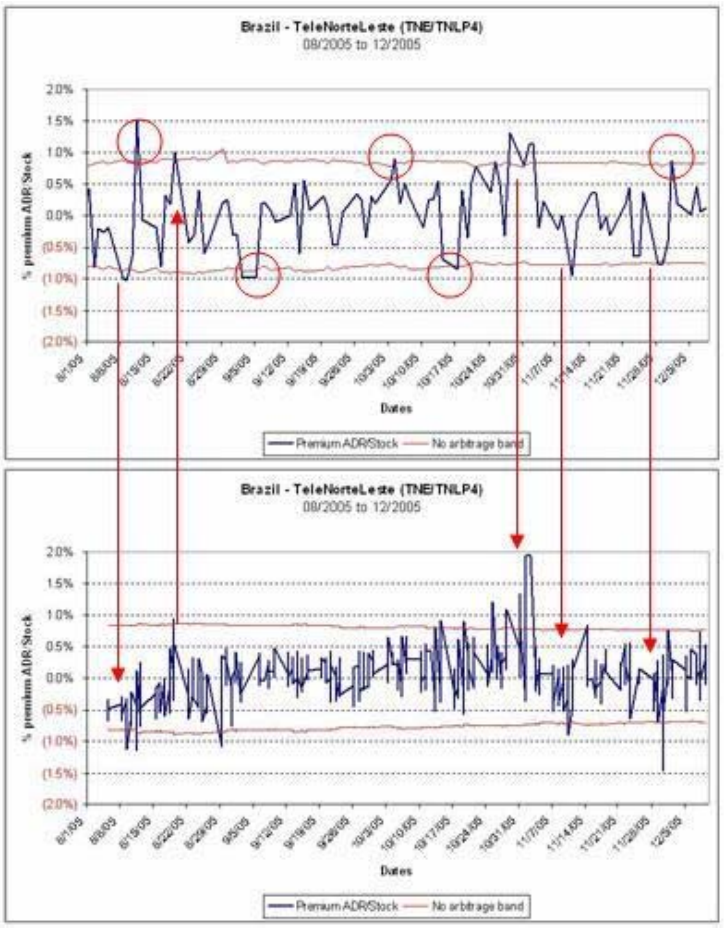
trade usually borrow stock between D+2 and D+3 of the transaction, incurring in an additional cost of 0.014% of the monetary value of the transaction (5% borrowing cost for the stock for a one day period).

Results of the analysis

We analyzed arbitrage opportunities using both daily and intraday prices and present the results in the tables below.

Using daily prices we conclude that there are arbitrage opportunities that have to be further analyzed although they have been decreasing overtime. Most of these opportunities are not real or are not as profitable as they appear, and the positive results are due to the following factors:

1. ***Non-synchronous prices*** Trading hours are different across countries due to different stock exchange and foreign exchange trading hours and differences in time zones between the two countries. For closing prices, there was a two to three hour difference between the closing Brazilian trading and the closing of U.S. based trading. The intraday analysis presented later in this chapter will deal with this issue.
2. ***Low volume trades*** Usually Bloomberg present opening and closing prices for securities using the earlier and later data available during a given day. Analyzing intraday data from Bloomberg, we come to the conclusion that oftentimes, trading in the earlier and later part of the day have very low volumes and are not representative of true equilibrium prices (one cannot arbitrage these price differences). Again, our intraday analysis will deal with this issue since we were able to exclude periods of time with lower than US$150,000 at any 30 minute window (our arbitrage analysis assumes that the investor will buy/sell US$100,000 worth of ADRs/local shares).
3. ***Price volatility*** If we further analyze the daily data on the graphs below, we conclude that many of the arbitrage opportunities presented occur during high volatile periods (financial crisis, political crisis, etc.) where prices are moving too fast in different markets. Although we will show that this is one of the reasons for arbitrage opportunities even during intraday trading, when we use intraday data the opportunities are much smaller due to less problems with non-synchronous data.



Not every opportunity identified using daily pricing data is real or as profitable when using synchronous intraday price data

For institutional investors there seems to be limited arbitrage opportunities using intraday price data. In most of the stocks, with the exception of Petrobras, arbitrage opportunities occur around 1-3% of the time. Additionally, these opportunities that emerge have low profitability of around .4-.7% of total capital employed (although if one considers more than US$100,000 at a time there will be much more price impact on bid and ask spreads that will further compress the trade results).

Arbitrage using Investor cost assumptions				Arbitrage using daily prices					Arbitrage using intraday prices				
Country	Companies selected	Sector	ADR Ticker	Total sample	Profitable arbitrage opportunities	% of sample	Avg. Profit (US$)	% return on capital	Total sample	Profitable arbitrage opportunities	% of sample	Avg. Profit (US$)	% return on capital
Brazil	Telemar Norte Leste	Telecom	TNE	1,706	485	28.4%	1,006	1.0%	1,137	13	1.1%	364	0.4%
	Petrobrás	Oil & Gas	PBR	1,916	581	30.3%	1,063	1.1%	627	25	4.0%	669	0.7%
	Telesp Celular	Telecom	TCP	259	62	23.9%	799	0.8%	522	20	3.8%	676	0.7%
	CVRD	Mining	RIO	1,918	551	28.7%	1,069	1.1%	605	19	3.1%	528	0.5%
	Itaú	Financial Services	ITU	1,012	83	8.2%	1,267	1.3%	611	5	0.8%	743	0.7%

Using full investor's costs, there seems to be limited arbitrage opportunities using intraday data.

For financial institutions there are more profitable arbitrage opportunities but they also occur around 6% of the time and with low profitability (.5%-.6% of the capital employed). The high number of opportunities related to the ADR of Telesp Celular can be explained due to its low trade volume as an ADR, meaning these opportunities cannot be exploited fully (share trade volume is around US$25,000 every half an hour).

Arbitrage using Financial Institution cost assumptions				Arbitrage using daily prices					Arbitrage using intraday prices				
Country	Companies selected	Sector	ADR Ticker	Total sample	Profitable arbitrage opportunities	% of sample	Avg. Profit (US$)	% return on capital	Total sample	Profitable arbitrage opportunities	% of sample	Avg. Profit (US$)	% return on capital
Brazil	Telemar Norte Leste	Telecom	TNE	1,706	721	42.3%	924	0.9%	1,137	41	3.6%	302	0.3%
	Petrobrás	Oil & Gas	PBR	1,916	803	41.9%	1,017	1.0%	627	38	6.1%	597	0.6%
	Telesp Celular	Telecom	TCP	259	107	41.3%	764	0.8%	522	91	17.4%	402	0.4%
	CVRD	Mining	RIO	1,918	873	45.5%	976	1.0%	605	30	5.0%	487	0.5%
	Itaú	Financial Services	ITU	1,012	147	14.5%	1,070	1.1%	611	16	2.6%	409	0.4%

Using costs for a financial institution, there are much more opportunities, although one should consider the Telesp Celular trades with caution due to the ADR's low trading volume..

Results for the Indian case

We approached the Indian case study differently from that of Brazil. Given that it is known that Indian ADRs usually trade with a premium over their underlying shares, we knew that there were potential impediments for arbitrage trades between the ADR and the local Indian market. We describe these restrictions below:

Non-synchronous data There is an impossibility of real time arbitrage between Indian stocks and their ADRs: due to 10+ hours difference between U.S. and Indian time zones there is no synchronous trading session between the two countries. The regular trading session in the BSE in India begins at IST 10:00AM and ends at IST 04:00PM, while the trading session in the NYSE/NASDAQ in the U.S. starts at IST 08:00PM and ends at IST 02:30AM of the next day.

Indian market regulation Although regulation in India has been changing over the past few years, there are still many restrictions that prevent arbitrages from happening between ADRs and local shares. The main restrictions regard the lack of full fungibility for ADRs, restrictions on short sales of securities in the Indian market, and stock investment restrictions for both local and foreign investors.

Up until 2001, there was only one way fungibility of Indian ADRs. That meant that only companies, after being authorized by the Reserve Bank of Indian, could issue ADRs; investors were only able to convert ADRs into local shares but, once that was done, there was no way to reconvert the shares back into the ADRs. In 2001, the government allowed two–way fungibility of ADRs, allowing investors to reconvert local shares into ADRs (subject to headroom or the availability of shares for re–conversion) but still limiting the creation of new ADRs to the companies themselves.

Given the low float of and high demand for Indian ADRs, and the lack of free convertibility of local shares into ADRs, the Indian ADR market is characterized (most often) by

ADRs trading at a premiums relative to their underlying stock. That is, a de facto market segmentation exists between the ADR and local stock markets. This will only decrease when either regulation permits a free flow of equities between domestic and oversees exchanges or when ADR float has increased considerably (see table below).

Company	Industry	ADR Level	Ticker	Exchange	ADR as % of shares outstanding	ADR as % of market capitalization	Premium ADR/Loc	Avg. Daily Value Traded (US$M)
DR. REDDY'S LABORATORIES LTD.	Pharmaceuticals/Biotech	LEVEL III	RDY	NYSE	13%	13%	8%	$ 2M
HDFC BANK LTD.	Financial Services	LEVEL III	HDB	NYSE	33%	37%	14%	$ 8M
ICICI BANK LTD.	Financial Services	LEVEL III	IBN	NYSE	27%	31%	12%	$ 18M
INFOSYS TECHNOLOGIES LTD.	Computer Software/Services	LEVEL III	INFY	NASDAQ (NM)	8%	10%	21%	$ 52M
MAHANAGAR TELEPHONE NIGAM LTD.	Telecommunications	LEVEL II	MTE	NYSE	7%	9%	19%	$ 1M
SATYAM COMPUTER SERVICES LTD.	Computer Software/Services	LEVEL III	SAY	NYSE	11%	12%	18%	$ 14M
TATA MOTORS LTD.	Automotive	LEVEL II	TTM	NYSE	6%	6%	0%	$ 3M
VIDESH SANCHAR NIGAM LTD.	Telecommunications	LEVEL II	VSL	NYSE	11%	11%	0%	$ 2M
WIPRO LTD.	Computer Software/Services	LEVEL III	WIT	NYSE	9%	11%	17%	$ 4M

Most Indian ADRs represent less than 12% of float; with limited supply, restrictions on local share/ADR conversion and high demand for Indian ADRs, premiums remain high

Indian firms are already working in this issue by doing secondary offerings for their current ADR programs. Firms such as Infosys and Wipro have done that in the past two years and are slowly increasing the amount of ADR available for investors. Infosys, in particular, has seen its ADR premium decrease from over 100% four years ago to 40% in June/2005 around the time it made a secondary offer in the ADR market. Today, the premium stands at around 20% over the Indian local shares.

The Indian market still has short sales constraints that make it difficult for arbitrageurs to operate effectively. Additionally, differently from other countries were hedgers and arbitrageurs have benefits regarding taxes, fees, and position limits, in India they face the same costs and limits as speculators, which make arbitrage costs higher.

Stock investment restrictions Indian residents are typically not allowed to invest in ADRs/GDRs, therefore limiting the pool of investors that could exploit arbitrage opportunities in these markets. Additionally, there are minimum requirements for foreign investors (such as size of money pool) that restrict foreign investors ability to invest in local shares in India, limiting demand for these assets and weakening the relationship of ADRs and local share prices. See exhibit 7 for details.

Other issues already mentioned in the first part of the paper Many studies focusing on Indian ADR premiums over local shares mention as possible explanations the fact that ADRs reflect U.S. investors' sentiments rather than that of Indian investors. As shown above in this paper, Indian ADRs, generally tend to correlate more closely with the NASDAQ and NYSE stock markets than with the BSE Indian stock market.

For the reasons above, it is impractical to exploit the apparent arbitrage opportunities from Indian ADRs' premiums. If the ADRs, such as Infosys and Wipro, are selling at a premium to the underlying local stocks, an investor could take advantage by borrowing Indian rupees, buying the underlying Indian stocks, converting them into ADRs, selling the ADRs in the U.S., converting the dollars into Indian rupees and finally repaying the rupee loan. However, this arbitrage is not possible since the underlying local stocks are not convertible into ADRs since only shares that were once trade in the ADR form are allowed to be reconverted to ADRs. Given that

most of the ADR issues have been trading at a premium for years, no investor would be willing to convert them to the local security and sell them at a lower price.

Additionally, since local Indian investors are typically allowed to hold only local stocks and foreign investors are able to hold not only Indian stocks (ADRs/GDRs) but also other foreign securities, the price differential between ADRs and local shares might be explained by investors using different risk premium to value the securities. Since foreign investors are able to use Indian stocks to diversify their portfolios, they might be willing to accept a lower return for their ADRs that the Indian local investor is not, effectively segmenting the two markets.

We conclude that the Indian ADR and local stock market are segmented for most of its components for the reasons above. We expect that ADR premiums will decrease overtime as the volume of ADRs outstanding increases and as Indian government regulations restricting local and foreign investor share holdings diminish. As in the case of Korea (see exhibit 5), as restrictions for investor holdings and other capital controls mechanism are abolished, pricing differentials between ADRs and local stocks tend to decrease and prices tend to convert to the same exchange rate adjusted price.

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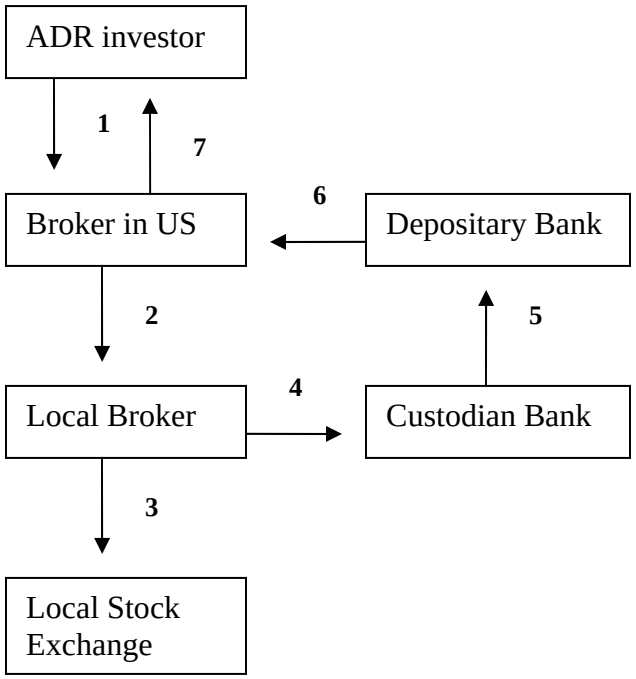
Exhibit 1: Mechanics of a New American Depositary Receipt (ADR)



New ADRS (broker decides to create an ADR)

1. Investor places order with broker in the United States
2. Broker in the US places order with local broker for equivalent shares
3. Local broker purchases shares in local market
4. Local shares are deposited in Custodian Bank
5. Depositary Bank receives confirmation of share deposit
6. Depositary Bank issues new ADRs and delivers them to broker in the US
7. Settlement and delivery of the ADR

Note: If broker elects to trade an existing ADR (rather than creating a new one), it may purchase ADRs in the applicable market and then, settle and deliver this ADR to investor.

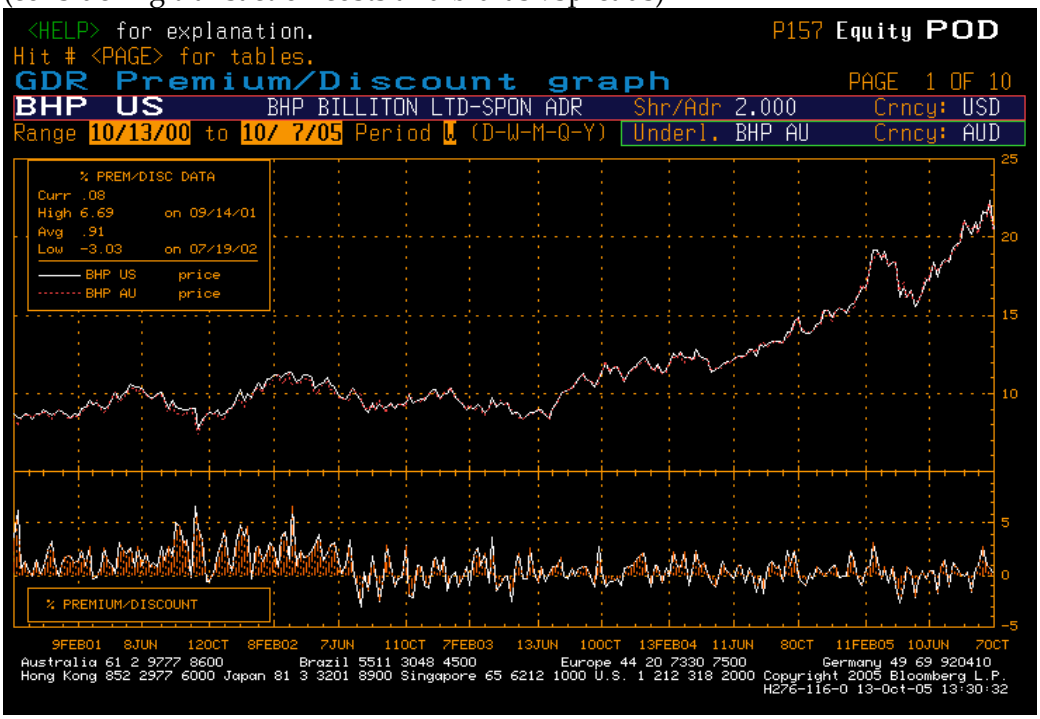
Exhibit 2: Sample of studied 671 ADRs

TICKER	Level	Country	Depositary Bank	Industry	PREMIUM	ADR to Total MC*
ABBN VX	LEVEL II	Switzerland	CIT	Electronics/Semiconductor	0.53	-
AABA NA	LEVEL III	Netherlands	JPM	Financial Services	0.14	2.80
ASA SJ	LEVEL I	South Africa	BNY	Financial Services	(5.70)	
ACM LN	LEVEL II	United Kingdom	BNY	Pharmaceuticals/Biotech	2.07	
ACES4 BZ	LEVEL I	Brazil	BNY	Metals/Mining	(0.49)	
8572 JP	LEVEL I	Japan	BNY	Unknown	0.74	
ADEN VX	LEVEL II	Switzerland	JPM	Business Services	0.35	1.04
ADS GR	144A	Germany	BNY	Apparel/Textile	(2.94)	
ADS GR	LEVEL I	Germany	BNY	Apparel/Textile	(0.40)	
ADVANC TB	LEVEL I	Thailand	BNY	Telecommunications	(2.18)	
2311 TT	LEVEL III	Taiwan	CIT	Electronics/Semiconductor	(0.18)	3.03
6857 JP	LEVEL II	Japan	JPM	Misc Manufacturing/Wholesale	0.86	0.50
AGN NA	LEVEL II	Netherlands	CIT	Financial Services	0.44	10.70
8267 JP	LEVEL I	Japan	BNY	Retail	(0.27)	
AFIL IT	LEVEL I	Israel	BNY	Investment/Holding Companies	1.43	
ABL SJ	LEVEL I	South Africa	BNY	Financial Services	11.15	
AF FP	LEVEL II	France	CIT	Transportation Services	0.81	3.38
AIRSP NA	LEVEL I	Netherlands	BNY	Capital Goods/Machinery	(2.23)	
AIX GR	LEVEL II	Germany	JPM	Electronics/Semiconductor	(1.61)	6.46
2802 JP	LEVEL I	Japan	BNY, JPM	Food/Agriculture	0.87	
AKBNK TI	LEVEL I	Turkey	BNY	Financial Services	0.81	
CGE FP	LEVEL II	France	BNY	Telecommunications	0.82	10.41
9202 JP	LEVEL I	Japan	BNY	Transportation Services	(2.41)	
ALV GR	LEVEL II	Germany	JPM	Financial Services	0.32	1.12
ALBK ID	LEVEL II	Ireland	BNY	Investment/Holding Companies	1.18	11.67
ALPHA GA	LEVEL I	Greece	JPM	Financial Services	2.69	
ALT GR	LEVEL II	Germany	BNY	Pharmaceuticals/Biotech	0.41	
APSA AR	LEVEL II	Argentina	BNY	Property/Real Estate	(90.18)	
ALT FP	LEVEL I	France	BNY	Business Services	(11.90)	
AWC AU	LEVEL II	Australia	BNY	Metals/Mining	(0.16)	4.16
2600 HK	LEVEL III	China	BNY	Metals/Mining	(0.88)	
AMC AU	LEVEL II	Australia	JPM	Paper/Forest Products	(0.30)	
AMEAS FH	LEVEL I	Finland	BNY	Consumer/Household Products	(1.11)	
AMXL MM	LEVEL II	Mexico	JPM	Telecommunications	(0.15)	86.10
AMXA MM	LEVEL II	Mexico	BNY	Telecommunications	(0.92)	2,732.11
AVZ LN	LEVEL II	United Kingdom	BNY	Financial Services	1.29	2.31
AEFES TI	LEVEL I	Turkey	BNY	Beverages	(0.02)	
AAL LN	Unsponsored	United Kingdom	DB, BNY, CIT, JPM	Metals/Mining	(0.49)	
ANGL ID	LEVEL I	Ireland	BNY	Financial Services	2.00	
AMS SJ	Level I	South Africa	BNY, CIT, DB, JPM	Metals/Mining	(0.18)	
ANG SJ	LEVEL II	South Africa	BNY	Metals/Mining	(1.85)	17.09
ANN AU	LEVEL III	Australia	JPM	Healthcare	0.28	0.72
TATN RU	LEVEL II	Russia	BNY	Oil/Gas	(0.48)	
519 HK	LEVEL I	Hong Kong	BNY	Electronics/Semiconductor	(18.37)	
1045 HK	LEVEL III	Hong Kong	BNY	Telecommunications	(5.12)	15.51
ARCZ6 BZ	LEVEL II	Brazil	JPM	Paper/Forest Products	0.07	
ARCAD NA	LEVEL II	Netherlands	BNY	Business Services	(0.64)	
LOR FP	LEVEL I	Luxembourg	BNY	Metals/Mining	1.13	
5208 JP	LEVEL I	Japan	BNY	Chemicals	(0.97)	

* The percentage of the ADR's market capitalization to the total market capitalization of the company

Exhibit 3: Sample of ADR premium over time and in different countries

BHP Australia Oct 2000-Oct 2005 – small premium/discount, probably within no-arbitrage band (considering transaction costs and bid-ask spreads)



Gazprom Russia Oct2000-Oct 2005 – large premium/discount; as in India, there are foreign ownership restrictions to owning/converting stocks/ADRs

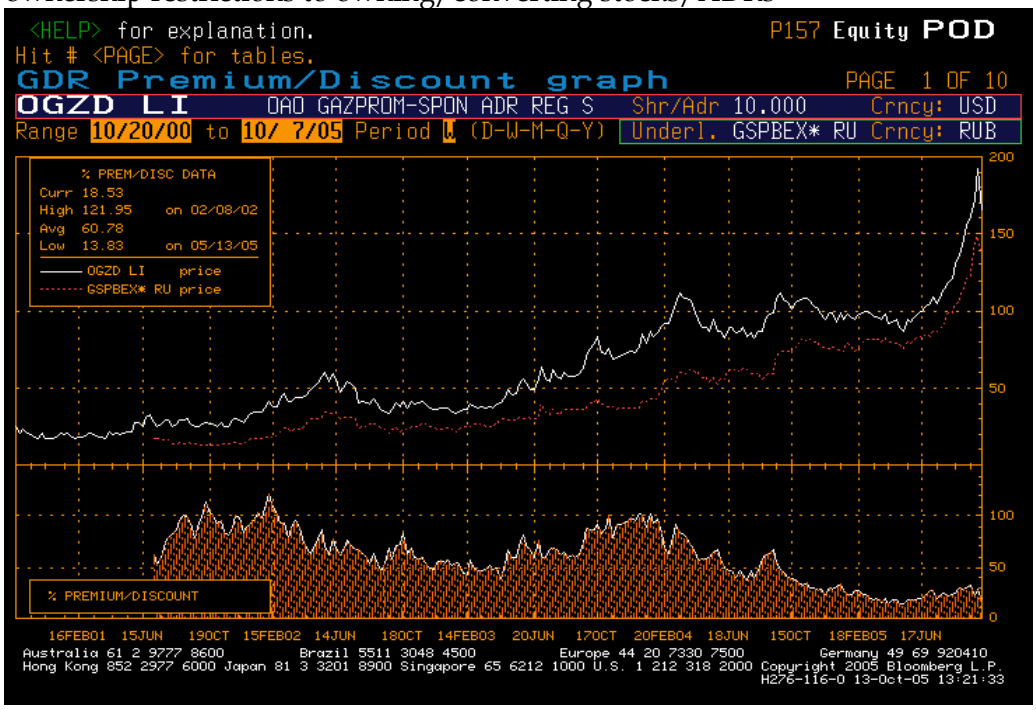
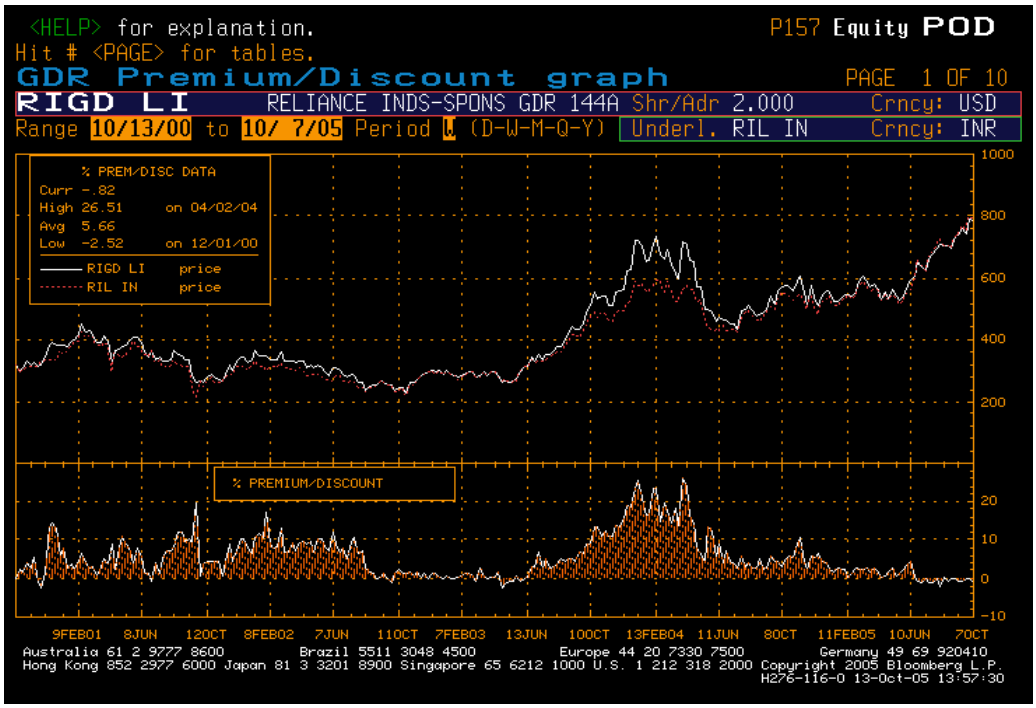


Exhibit 3: Sample of ADR premium over time and in different countries (cont')

Reliance India Oct 2000-Oct 2005



Telmex Mexico Oct 2000-Oct 2005

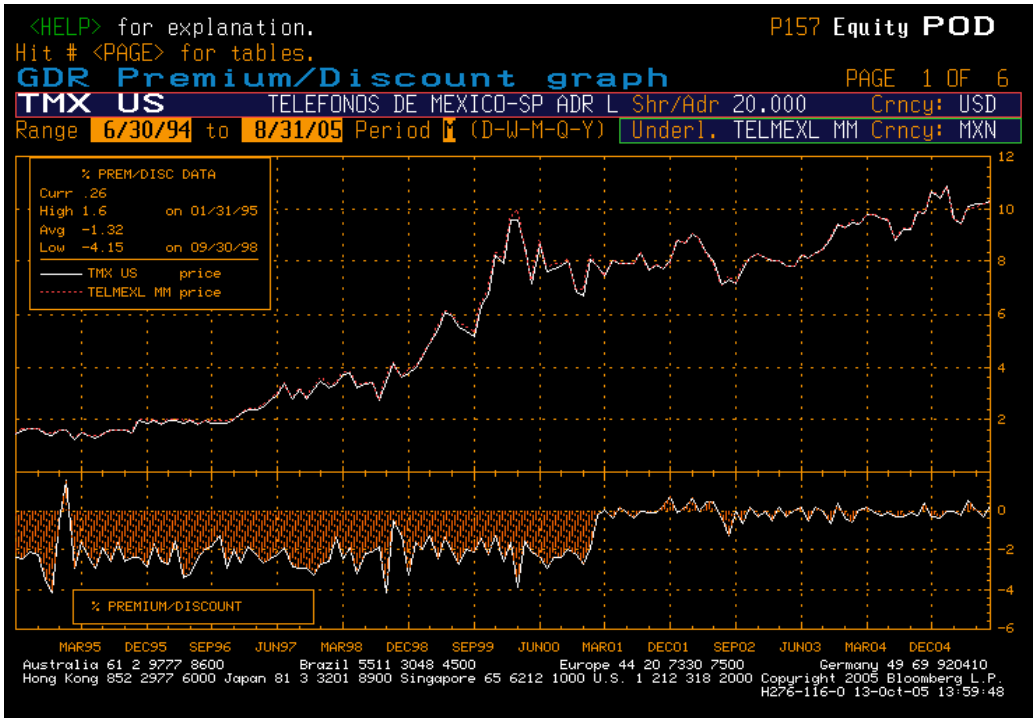


Exhibit 4: Correlation between ADR premium over local stock price and Level of ADR

The table below shows that there is a statistically significant relationship between Level of ADR and its premium over the local stock (p-value of 0.0126). Different levels of ADR were characterized as Unsponsored, Level I, Level II, Level III, and Rule 144A.

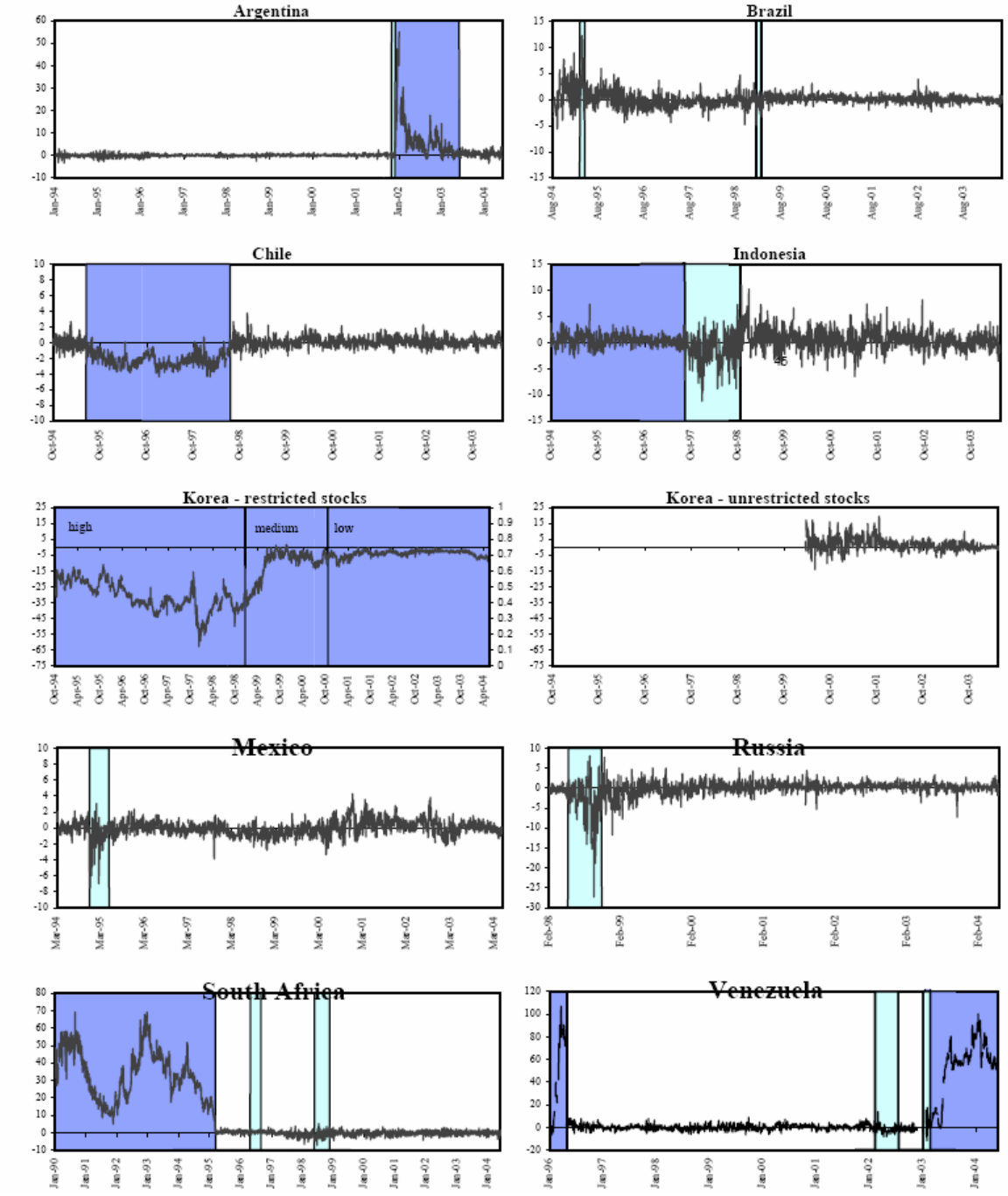
Dependent variable is: **PREMIUM**
No Selector
R squared = 0.9% R squared (adjusted) = 0.8%
s = 10.18 with 671 - 2 = 669 degrees of freedom

Source	Sum of Squares	df	Mean Square	F-ratio
Regression	648.219	1	648.219	6.26
Residual	69317	669	103.613	

Variable	Coefficient	s.e. of Coeff	t-ratio	prob
Constant	-2.4009	0.903	-2.66	0.0080
Level	1.12113	0.4482	2.5	0.0126

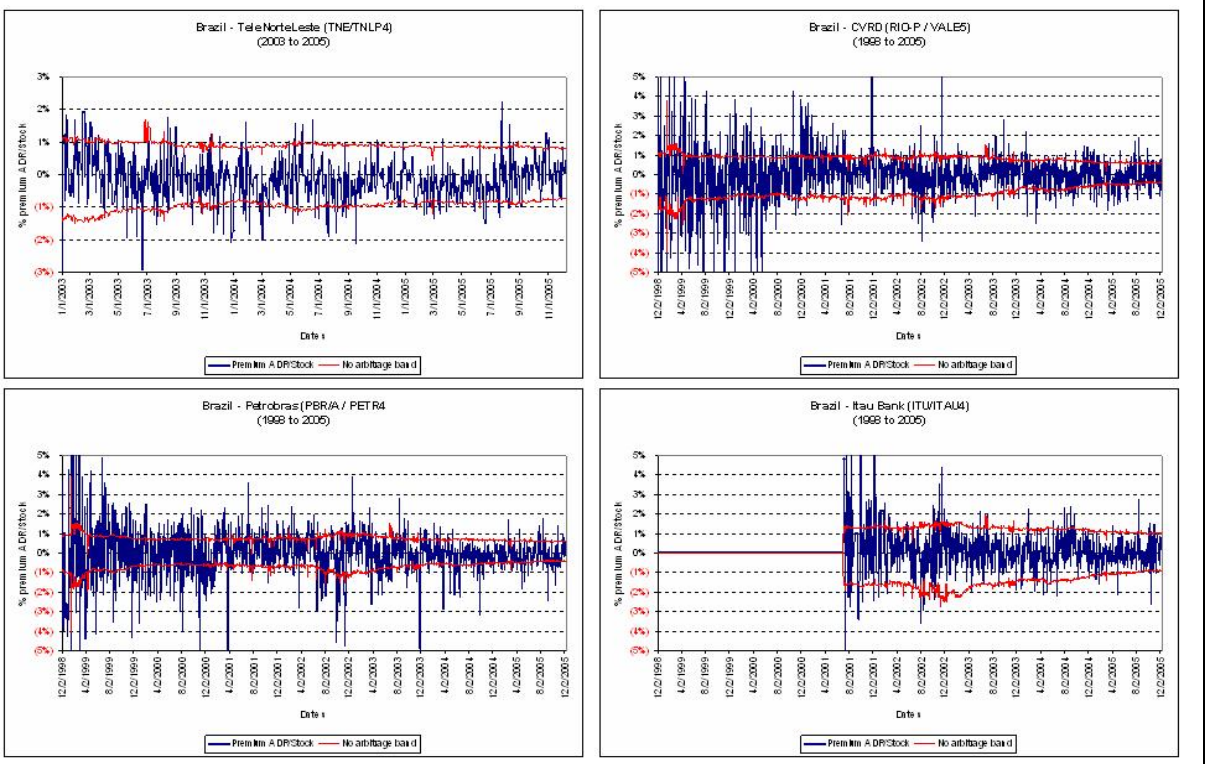
Exhibit 5: Behaviors in times of crisis and Capital Controls

The graphs show the simple average of the cross-market premium of all stocks in the portfolio of each country. The cross-market premiu is defined as the percentage difference between the dollar price of the stock in the domestic market and the price of the corresponding DI in New York. A positive premium implies that the price of the underlying stock is higher than the DR price. As explained in the main tex for Korea we include a graph showing the average cross-market premium of the restricted stocks and one of the unrestricted stocks. For th restricted stocks three control periods are distinguished: The first period, high restrictive, lasts until January 1999, the second period medium restrictive, from January 1999 until November 2000, and the third period, low restrictive, from November 2000 onwards. The ligh shaded areas indicate crises periods and the darker shaded areas indicate control periods.

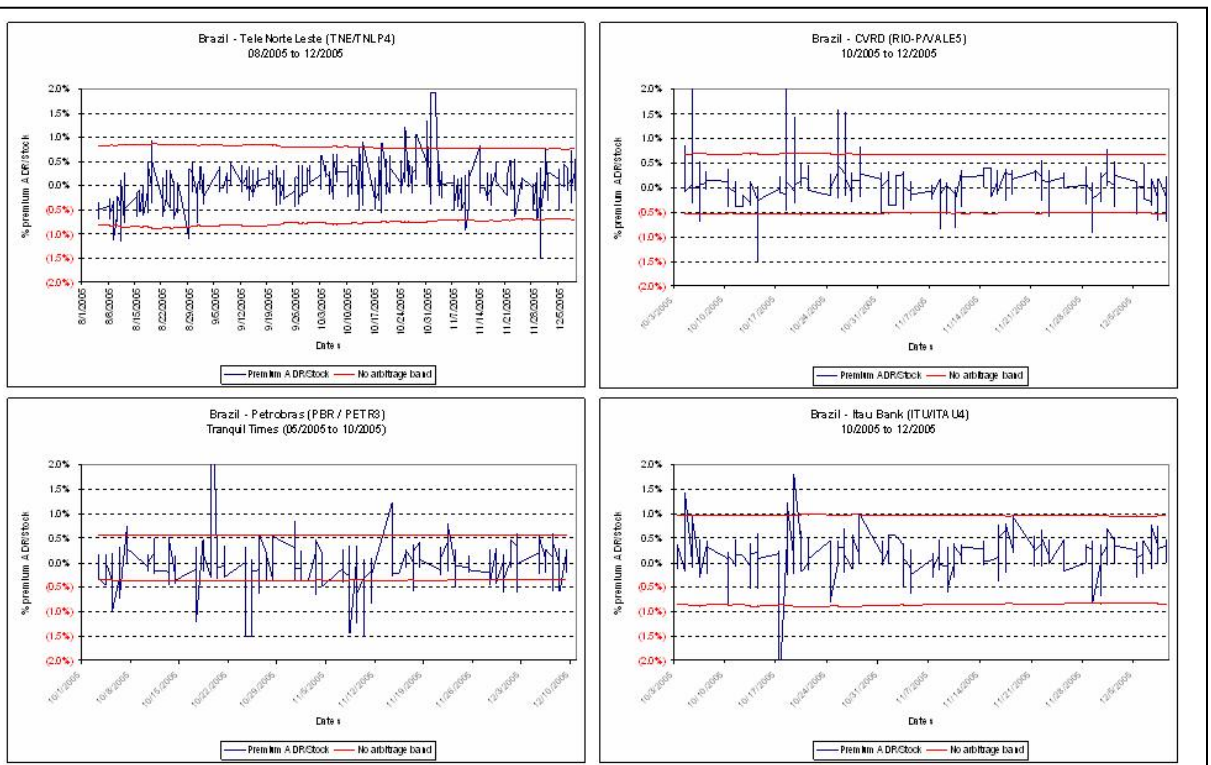


Source: Yeyati, E. L.; Schmukler, S. L.; Van Horen, N. " International Financial Integration through the Law of One Price." Figure 2, Cross-Market premium per country.

Exhibit 6: Daily and Intraday pricing data for Brazilian ADRs



Daily pricing data for Brazilian ADRs



Intraday pricing data for Brazilian ADRs

Source: prices from Bloomberg

Exhibit 7: Foreign Investor regulations for investing in India

Foreign Portfolio Investment regulations

Besides direct investment in India, non-residents can also make portfolio investments. FIIs (Foreign Institutional Investors) are allowed to invest in the primary and secondary capital markets in India under the Portfolio Investment Scheme (PIS). The term FII is defined as an institution established or incorporated outside India for making investment in Indian securities and also includes a sub-account of an FII. FIIs must register themselves with the Securities and Exchange Board of India (SEBI) and comply with the exchange control regulations of RBI.

Foreign pension funds, mutual funds, investment trusts, asset management companies, nominee companies and incorporated/institutional portfolio managers or their power of attorney holders are allowed to invest in India as FIIs. They may invest in securities traded in both the primary and secondary markets. These securities include shares, debentures, warrants, and units of mutual funds, government securities and derivative instruments.

Investment Limits

The investment limits as laid down in the FII Guidelines and the RBI Regulations are as follows:

- An FII and each of its sub-accounts can individually invest up to 10 per cent of the paid-up share capital of an Indian company. However, an FII together with all its sub-accounts cannot hold more than 10 per cent of the paid-up capital of an Indian company. A lower limit of 5 per cent applies to foreign corporations and foreign individuals as sub-accounts.
- FIIs can cumulatively hold up to 24 per cent of the paid-up share capital of a company, but they may increase their holding up to the applicable sectoral limits on various sectors with the approval of the Board of the investee Indian company. The shareholders of the investee Indian company must also pass a special resolution to approve such an increase. The foreign investment under PIS is in addition to the amounts invested as FDI in the Indian company.
- Unless a FII is registered as a debt fund, the total investment in equity and equity-related instruments should not be less than 70 per cent of the aggregate of all its investments. An FII registered as a debt fund can invest the entire amount in debt securities.

The above investment restrictions do not include investments made by an FII through offshore funds, Global Depository Receipt (GDRs), American Depository Receipt (ADRs) or Euro-convertible Bonds. FIIs are allowed to tender their shares in the case of an open offer following a takeover bid by an acquirer. They are also permitted to take forward cover on their equity and debt exposures to hedge against currency fluctuations. However, they are not allowed to short sell and can only engage in delivery-based trading.

Registration Eligibility

FII Guidelines require FIIs to meet certain qualifying conditions for registration. For example, they are required to have a good track record and be professionally competent. They must be registered with the appropriate foreign regulatory authority, and satisfy the 'fit and proper' requirements. SEBI also examines whether the grant of registration is in the interest of the development of the Indian securities market. In early 2002, nearly 500 FIIs were registered with SEBI.

ADRs/GDRs/FCCBs

Qualifying Indian companies are allowed to raise equity capital overseas through the issue of ADRs/GDRs/(Foreign Currency Convertible Bond (FCCBs). To qualify, the company must have a track record of good performance (financial or otherwise) for a minimum of three years. Where an issue of ADRs, GDRs or FCCBs by a company is likely to increase the permissible investment limits of FDI under the automatic route, or where such an investment is made in the form of a project that requires government approval, the company must seek approval from FIPB.

Foreign Exchange controls

The provisions in respect to the repatriation of foreign exchange for select purposes have been summarized below:

- Repatriation of Capital. Foreign capital invested in India is generally allowed to be repatriated, along with capital appreciation, if any, after the payment of taxes due on them, provided the investment was approved on a repatriation basis.
- Repatriation of Sale Proceeds. Repatriation of proceeds from the sale of assets held in India is permitted with prior RBI approval, subject to the payment of applicable taxes.
- Dividends. Profits and dividends earned in India are repatriable after the payment of taxes due on them. No permission of RBI is necessary for effecting remittance, subject to compliance with certain specified conditions.
- Interest. Remittances towards interest on bonds, debentures, government securities, bank deposits in India and dividends on the units of the Unit Trust of India to individuals permanently resident outside India are permitted.

Source: Ernst & Young "Doing Business in India – Tax and Business Guide 2005", pages 62-66