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International Financing – Focused on GDR and ADR

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Prohlášení

Prohlašuji, že jsem diplomovou práci vypracovala samostatně a použila pouze uvedené prameny a literaturu.

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ABSTRAKT

Depozitní certifikáty se staly v devadesátých letech minulého století velice populární. Po zpomalení v letech 2001/2002 přinesl rok 2003 obnovení rozvoje jejich trhů. Také střeoevropské společnosti si postupně uvědomují výhody emise depozitních certifikátů.

V souladu s hypotézou oddělených trhů jsme zjistili, že ceny depozitních certifikátů střeoevropských společností a jim podléhajících akcií jsou velice těsně korelované a příležitosti arbitráže jsou tak velice omezené.

Pro kvantifikaci efektů emise depozitních certifikátů na podkladové akcie na domácím trhu jsme uvažovali 19 akcií českých, maďarských a polských společností, které depozitní certifikáty vydaly. Výsledky ukazují, že uvedení GDR či ADR programu má velmi pozitivní dopad na hodnotu podkladové akcie. Aritmetický průměr hodnoty přidané k ceně akcie během jednoho roku po zahájení programu dosáhl velmi vysoké pozitivní hodnoty; cenový nárůst (z úrovně 20 dní před emisí) se rovnal 33,33%. Na druhé straně, u 7 z 19 akcií nebyl pozorován žádný pozitivní vliv emise depozitních certifikátů na cenu.

Na stejném vzorku byla potvrzena hypotéza, že emise depozitních certifikátů podporuje likviditu podkladových akcií na domácím trhu. Denní objemy obchodování se zvýšily v průměru o 21% v roce následujícím po emisí.

ABSTRACT

Depository receipts have gained much popularity in the 1990s. After a slowdown in 2001/2002, year 2003 brought a renewed progress of the DR markets. Also Central European companies are gradually becoming aware of the advantages of DR offering.

In line with the market segmentation hypothesis, we found, that the prices of depository receipts by Central European companies and their underlying shares are very closely correlated and the opportunity of arbitrage is therefore very limited.

To quantify the effects of a DR issue on the underlying shares in the local market, we considered 19 shares of companies from the Czech Republic, Hungary and Poland, which issued depository receipts. The results show that creation of a DR program has a very positive impact on the underlying shares' value. The simple average of value added to the share price one year after establishment of the DR program reached very high, positive value; the price increase (from the level of the day 20 prior to the issue) equaled 33.33%. On the other hand, with 7 out of 19 shares no positive effect of DR offering on price could be observed.

On the same sample, the hypothesis, that a DR listing enhances liquidity of the underlying shares in the local market, was confirmed. The daily trading volumes improved on average by 21% in the year subsequent to the listing.

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INTRODUCTION

“In 1927, it can be postulated, three seminal events in America forever altered the dynamic of global commerce, and subsequently brought the world closer together:

- *Charles Lindbergh’s first-ever non-stop solo trans-Atlantic flight from New York to Paris, which eventually led to the commercialization of international travel.*
- *The release of the first feature-length “talkie” movie, “The Jazz Singer,” which energized and led to the globalization of the entertainment industry.*
- *JPMorgan’s creation of the American Depositary Receipt (ADR), which has fostered the internationalization of the global equity markets, and connected U.S. investors with non-U.S. issuers.”*

(JPMorgan ADR Group: 75th Anniversary of the ADR)

Depositary receipts (mostly denoted as ADR or GDR), an equity instrument representing shares listed on foreign exchange, are still very little known in the Czech Republic (and not only there), although their history reaches back to 1927. We therefore aim in this thesis to broaden knowledge about the depositary receipts (DRs), show the impact a DR program may have on the price and liquidity of the company’s ordinary shares in the local market and identify a few circumstances, where DRs can serve as a useful tool.

DRs have gained much popularity in the 1990s. After a slowdown in 2001/2002, the year 2003 brought a renewed progress of the DR markets, which is likely to continue. Also the Central European companies are gradually becoming aware of the advantages of DR offering. There is, however, still enough unused potential in particular for the Czech companies.

In case the domestic and DR markets are integrated, there is a possibility of cross-border trading. The prices of underlying shares in the local market and the DRs should be therefore virtually equal, not allowing for arbitrage opportunities. The first hypothesis we will test in this thesis is that the price of ordinary share in the local market and respective local currency equivalent of the DR price are very closely correlated.

The price of underlying shares in the local market rarely remains unaffected by the DR issue. A company listing its equity internationally can gain from diversified

shareholders' base, increased demand or lower cost of capital. These are only some of the factors that may drive the share's price up. Several studies have dealt with response of the underlying share's price to the DR offering. The obtained results are, however, ambiguous. We will focus on the impact of DR program establishment on the price of Czech, Polish and Hungarian shares. That a price increase will follow the DR offering is our second hypothesis we want to prove.

It is usually expected a DR listing also improves liquidity of the company's stock, as the potential investors' base is extended, the visibility of the company both in DR and local markets is enhanced and cross-border trading is enabled. On the other hand, some argue, that trading in the stock shifts to the DR market and they worry about the impact on the overall liquidity of the local market. A typical outcome will be examined on a sample of Central European shares in this thesis. We expect a positive reaction of the domestic markets to the DR offering in terms of trading activity, which we take as our last hypothesis.

The first chapter brings an insight in the DR world. The basic characteristics of the instrument are described there, including its advantages and disadvantages for both issuers and investors. The second chapter will concentrate on development of DR trading volumes; the main trading centers and players on the DR markets are identified there. Also, an illustration of DR trading mechanisms is included. In the third chapter we will focus on prices of depositary receipts and their underlying shares. The two fields of interest are correlation between the underlying share's price and the local currency's equivalent of the DR price, and the response of the ordinary share's price in the local market to the DR program introduction. The fourth chapter will deal with liquidity effects subsequent to the DR listing. In the last chapter, we will identify a few areas, where DRs are frequently employed and we suggest that there is an unused potential of the instrument in the Czech Republic.

1. THE INSTRUMENT OF DEPOSITARY RECEIPTS

Every company has to finance its operations and activities and its managers thus have to solve the financing issues on a daily basis. There are several possible sources, from which to obtain the necessary capital. If a company creates enough profits, it is able to finance itself from internal sources. If this is not the case, the company may choose between debt and equity financing. Nevertheless, it happens quite often that a company doesn't have access to any of these sources of financing in the local market (typically in less developed markets). Usually, only larger and well-established firms can raise capital through a bond issue. Also, banks may not be willing to give credits to small and relatively new enterprises, especially if the economical climate makes the banks feel concerned about their repayment. Opportunities to raise equity capital in the local market, through initial or seasoned public offering or private placement of the shares, are substantially limited by the size of the market and its functionality. Among other ways to finance a company belongs attracting venture capital or establishing a joint venture with a company with sufficient financial sources. To obtain such financing in an emerging market is, however, almost impossible (mainly due to the reasons mentioned above). The governments may face a similar problem when they seek to privatize state-owned companies.

When capital in the home market is not available, it is time to consider employing foreign capital. (Nevertheless, there are clearly also many situations, when foreign capital is preferred, even though local capital is available.) The major ways of how to raise foreign capital are following:

- Foreign direct investment (including foreign venture capital)
- Joint ventures with foreign companies
- Portfolio investment
 - Foreign investors purchasing stocks on the home market
 - Local companies listing shares on a foreign exchange
 - Depositary receipts

The foreign direct investments (FDI) have recorded great development in the last decades. The developing and emerging markets are fighting for direct investments from “western” countries. On the other hand, foreign portfolio investments in developing

countries lagged behind and succeeded to gain more recognition first in the 1990's. Among the factors that have discouraged from foreign portfolio investments belong barriers to investing or listing on foreign exchanges. As a consequence of these limitations, depositary receipts were developed to facilitate the cross-border portfolio investments. Nevertheless, these still fail to attract attention of all potential issuers.

1.1. WHAT ARE DEPOSITARY RECEIPTS?

A depositary receipt (DR) is a negotiable financial security. It represents a publicly traded security, usually equity, but it can be also debt, of a company listed in one market, which is traded on another (foreign) market. DRs are issued when a company wishes to have its shares (or debt) traded on a foreign stock exchange. The depositary receipt, a bank-issued certificate, allows investors to hold shares in equity of other countries without need to go directly into the foreign markets.

There are several types of depositary receipts, out of which the most common are the American Depositary Receipts (ADR), Global Depositary Receipts (GDR) and European Depositary Receipts (EDR).¹ Besides these, some local alternatives such as International Depositary Receipts (IDR) – listed in Brussels, Dutch Depositary Receipts (DDR) – listed in Amsterdam, Swedish Depositary Receipts – listed in Stockholm or Singapore Depositary Receipts (SDR) have developed. An example of instrument that represents debt rather than equity is American Depositary Debenture (ADD). Global Registered Shares (GRS) and New York Shares (NYS) are similar securities. Depositary receipts are typically denominated in US dollars, but can also be denominated in Euros.

1.2. HISTORY OF DEPOSITARY RECEIPTS

American Depositary Receipts have been introduced to the financial markets as early as April 29, 1927, when the investment bank J. P. Morgan launched the first-ever ADR program for the UK's Selfridges Provincial Stores Limited (now known as Selfridges plc.), a famous British retailer. Its creation was a response to a law passed in Britain, which prohibited British companies from registering shares overseas without a British-based transfer agent, and thus UK shares were not allowed physically to leave the UK.² The ADR

¹The difference between ADR, GDR and EDR is largely in name only. The choice is usually dictated by marketing considerations and by where the offering is to be made (as at each market another name is common) and in which currency.

² Deutsche Bank: Depositary Receipts Handbook, 2003

was listed on the New York Curb Exchange (predecessor to the American Stock Exchange.)

The regulation of ADR changed its form in 1955, when the U.S. Securities and Exchange Commission (SEC) established the Form S-12, necessary to register all depositary receipt programs. The Form S-12 was replaced by Form F-6 later, but the principles remained the same till today.

Crucial novelties brought the new regulatory framework introduced by the SEC in 1985, which led to emergence of range of DR instruments, as we know it nowadays. Then the three different ADR programs were created, the Level I, II and III ADRs. This change was one of the impulses for revival of activity on the otherwise stagnant ADR market.

In April 1990, a new instrument, referred to as Rule 144A was adopted, which gave rise to private placement depositary receipts, which were available only to qualified institutional buyers (QIBs). This type of DR programs gained its popularity quickly and it is very frequently employed today.

The ADRs were originally constructed solely for the needs of American investors, who wanted to invest easily in non-US companies. After they had become popular in the United States, they extended gradually to other parts of the world (in the form of GDR, EDR or IDR). The greatest development of DRs has been recorded since 1989.

In December 1990, Citibank introduced the first Global Depositary Receipt. Samsung Corporation, a Korean trading company, wanted to raise equity capital in the United States through a private placement, but also had a strong European investor base that it wanted to include in the offering. The GDRs allowed Samsung to raise capital in the US and Europe through one security issued simultaneously into both markets.

The Hungarian company Fotex Rt. issued the first Eastern European depositary receipt in 1992 in a form of ADR. Among the Czech companies, Komerční banka was the first one to discover the instrument of depositary receipt. In June 1995 it established the first Czech GDR program with the Bank of New York.³

In 1993, Swedish LM Ericsson raised capital through a rights offering in which ADDs were offered to both holders of ordinary shares and DR holders. The Ericsson ADDs represented subordinated debentures that are convertible into ordinary shares or DRs.

³ Already in 1992, the company Bonton a.s. issued shares in the US. It was, however a private placement of a low volume.

German Daimler Benz AG became the first European Company to establish a Singapore depositary receipts program (SDRs) in May 1994.

Table 1: History of Depositary Receipts

1927	1 st ADR: Selfridge's created by J.P.Morgan
1931	1 st Sponsored ADR: Electrical & Musical Industries
1970	1 st ADR public offering: British Petroleum
1984	1 st Interim ADR Listed on NYSE: Privatization of British Telecom
1987	1 st ADR through Warrants: British Petroleum
1988	1 st Discounted ADR registered rights offering: Barclays PLC
1990	1 st Depositary receipts pursuant to the Rule 144A: Huhtamaki, Finland
1990	1 st Global Depositary Receipt: Samsung Corporation, introduced by Citibank
1992	1 st Hungarian and Eastern European ADR: Fotex Rt.
1993	1 st ADD: LM Ericsson
1994	1 st Singapore depositary receipt: Daimler Benz AG
1995	1 st Czech DR: Komerční banka
1996	1 st Direct Purchase Plans for ADRs
1998	Largest-ever acquisition of a U.S. company using ADRs as acquisition currency: BP Amoco (\$54 billion)
1999	1 st Company sponsored Direct Purchase Plan: BP Amoco

Source: J.P.Morgan Chase & Co., Citibank, The Bank of New York, Deutsche Bank

1.3. MOTIVATION FOR CREATING DR PROGRAMS

1.3.1. Motivation for investors

The primary reason for creating DR programs was the complexity involved in buying shares in foreign countries that trade at different prices and currency values. To invest internationally is very attractive to investors. It allows them to achieve the benefits of global diversification, which eliminates the systematic risk of their portfolios, as the world equity markets are not perfectly correlated (although their interdependence is increasing). Another motivation for investors is the returns. The rates of return on the individual markets differ substantially in different periods and they show high volatility. International investment allows the investors to use appropriately the current return potential of the different markets.

It seems now that to invest internationally is the only rational way of investing and the investor who doesn't use it gives up the opportunity of higher return with lower risk.

Obviously it is not so simple, as the investment on the international markets presents not only advantages, but also lots of obstacles, risks and expenses. Among the basic risks belong the currency risk and other country risks, taxation risk, risk of inefficiency or illiquidity and the information risk. In case of change of the exchange rate, the rate of return can be altered substantially. The country risk includes political and economic risks. In an extreme case, the political situation can endanger the investment through nationalization or blocking of fund transfers. From the economic environment risks, the biggest influence have the uncertainty about development of inflation, interest rates, exchange rates, economic activity or payment ability of the country. The taxation risk stems from different models for taxation of capital returns and dividends in individual countries. Nevertheless, the globalization of financial markets heads for agreements to avoid double taxation. For the less developed countries, the risk of inefficiency and illiquidity is typical. The local investors dispose often of insider information and the market prices do not face the internal value of securities. The illiquidity of the markets evokes high time and transaction costs when realizing the purchase or sale instructions. An insufficient information level can also discourage from investing abroad. Accounting statements are often prepared in accordance with different accounting standards and reports may be distributed only in the local language and the English version is not available.

In addition, there are also other, rather technical obstacles, which must be overcome when entering the foreign markets. Not every investor can enter any stock exchange he wishes to. Virtually every market has its specific regulation rules. The investor has to know and follow them. With regards to the home market regulations, there are often limits on share of foreign investments in the portfolio of institutional investors (e.g. insurance companies, mutual or pension funds). The investors can be worried about the inefficient trade settlements or unreliable custody services.

Certain costs are also related to the international investments. These are most notably the custody fees, which the investors cannot avoid. When purchasing shares in a foreign market, a brokerage needs to appoint a global custodian to buy the shares there, which is connected with fees of up to forty basis points annually (depending on the market and broker), consisting of safekeeping fee and settlement fee, charged for every transaction. Further on, the investor has to pay a stamp duty tax levied on the transfer of ownership in most markets. Other expenses are added on by currency conversions.

Besides these direct costs, there are many indirect expenses associated with international investing. The indirect expenses include mainly the investment opportunity costs, which incur from inefficient foreign trade settlements, causing delays in receiving funds for the sold securities.

Advantages of DRs for investors

The depositary receipts help to overcome most of the above-mentioned disadvantages of investing internationally. Thus the main characteristics of DRs, thanks to which they attract the interest of investors, are as follows:

- DRs can trade freely on the major US and European exchanges
- Trade in accordance with US clearing and settlement conventions (or conventions of the relevant DR market)
- Are quoted in US dollars (Euro) and payment of dividends or interest in US dollars (Euro), thus avoiding currency conversions
- Enable large institutional investors who may be prohibited or limited by their charter or regulation from purchasing and holding securities outside of their local market to invest internationally
- Overcome barriers, which a foreign investor may face, when entering especially the emerging markets
- Elimination of global custodian safekeeping and settlement charges, potentially saving investors up to 40 basis points annually
- Avoidance of foreign tax on each transaction
- Competitive US dollar (Euro)/foreign currency conversions for dividends and other cash distributions
- Ability to acquire the underlying securities directly upon cancellation of the DRs⁴
- DRs provide expatriates living abroad with an easier opportunity to invest in their home markets

⁴ It is, however, not always possible to acquire the underlying shares, due to barriers which prevent foreigners from holding local securities in some markets.

- Enable employees of US subsidiaries of non-US companies to invest more easily in the parent company (and analogously for the European subsidiaries)

Disadvantages of DRs

- Although the DRs have most of the characteristics of ordinary stocks, they are not identical. There are several limitations, which do not allow the DR holder to dispose of all the rights that the common shareholder has.
- At unsponsored or Level I sponsored ADR programs, the issuer or the depository decides whether voting rights are to be offered to the ADR holders. Also the EDR programs and GDR programs with Rule 144A can be set up without the voting rights for DR holders.⁵
- For the purpose of petitioning the company to include a shareholder resolution on the board's agenda, the DR holders are lumped into one category and counted as a single shareholder.
- DR holders are exposed to the exchange rate risk. As Karolyi notes, „dividend payments are not necessarily passed through to US shareholders on the same terms as native holders receive them. And if they are treated the same, there are a number of exchange rate options that the foreign company can choose in paying the dividends”.⁶
- The liquidity of DRs often doesn't reach the liquidity of underlying shares in foreign markets, which is the reason for higher trading costs in the DR markets.

1.3.2. Motivation on the side of issuers

Multiple listing

Not only investors are motivated to purchase depositary receipts, but also companies have several reasons why it is advantageous for them to issue the DRs. Similarly to investing internationally, also listing internationally or on two markets simultaneously

⁵ To improve the voting rights of ADR holders, the ADR subcommittee of the cross-border voting practices committee drafted principles, which, among others, require, that depository agreements expressly permit ADR holders to vote either directly or through the Depository. (ICGNews, December 2003)

⁶ In Shearer (2001), p. 4

offers its benefits. Some of the major advantages, being associated with multiple listings, are as follows:

- Extended potential investors base
- Expanded market share through broadened and more diversified investor exposure
- Increased liquidity of the securities
- Enhanced visibility of the company; improved image for the company's products, services and financial instruments in a marketplace outside its home country
- Stimulation of the local investors' interest – boosting the company's prestige
- Elimination of endangering by the risks of the local market
- The local share price may increase as a result of global demand

As well as the investors, the issuers face lots of complexities when they want to access a foreign market. Companies, which want to be listed on several markets, must fulfill the requirements of all the markets, which can differ a lot⁷. Following Karolyi (1998), “stringent disclosure requirements are the greatest impediment to cross-border listings”⁸.

The companies may not be able to meet the listing requirements and even if they are, it imposes substantial multiple listing costs on them, including additional reporting requirements, registration costs or listing fees. Among the common features of companies listing abroad belongs their size, which suggests that the cross-listing decision involves non-negligible fixed costs and economies of scale.

In addition, firms listing internationally face the risk of increased volatility of their domestic stock in response to economic news, for reason of incurred differences between local and DR price. The impact of the cross listing on the return volatility of stocks has been examined, among others, by Domowitz et al. (1998) and Foerster and Karolyi (1999), who reported increased variance of returns following the cross listing. More recently, Podpiera (2001) confirmed the previous results, using data from three Central European countries in transition: “We have thus identified another factor that needs to be considered

⁷ For example, German and Swiss companies have been very reluctant to list shares in the United States, because of the difficulty of reconciling US and German or Swiss accounting practices and the detailed information that these firms are not accustomed to disclosing. (Solnik B., 1996)

⁸ Karolyi (1998), p. 35

when considering cross listing shares abroad in an emerging market environment – it is the increased variance of returns that is induced by the fragmentation of the market.”⁹

Evidence on determinants of cross-border listing

Multiple studies have examined the factors influencing the decision on cross-border listing. Limited access to external capital is a primary motive for foreign listing in Chaplinsky, Bruner and Ramchand (2000), Miller (1999) and Stulz (1999). Foerster and Karolyi (1998) empirically analyze the importance of broadening the investors’ base as a motivation for foreign stock listing. Reese and Weisbach (2000) examine the influence of quality of the corporate governance framework in the home country of the firm. Their results show that, under a weaker framework, it is more likely that the firms will list abroad to protect the minority rights of shareholders. “Listing abroad can thus be a tool for corporations to signal to their investors that they are more willing to protect minority rights as corporate governance rules are stronger abroad.”¹⁰ Baker, Nofsinger and Weaver (2002) and Lang, Lins and Miller (2003) focus on the increased visibility; Lins, Strickland and Zenner (2002) or Doidge, Karolyi and Stulz (2003) concentrate on the relaxed financial constraints and greater financing possibilities.

Advantages of DRs for issuers compared to direct listing

Depository receipts represent an easier way to enter foreign markets and moreover offer opportunity to design the DR program to reflect needs of individual companies and given circumstances. Besides the benefits of listing abroad named above, depository receipts bring also advantages in comparison to the direct listing on a foreign exchange:

- The companies do not need to satisfy all requirements of all exchanges, where they want to be listed
- It is a flexible mechanism for raising capital in foreign markets
- ADR ratio can be set in a way, that the ADRs are traded in similar values as the shares on the foreign market
- Possibility of reinvestment of dividends can secure continuous flow of investment into the program of the issuer

⁹ Podpiera (2001), p. 33

¹⁰ Claessens, Klingebiel, Schmuckler (2002), p. 6

- Vehicle or currency for mergers and acquisitions, as well as privatizations
- Finally, all the advantages for investors (treated above) further increase the number of potential investors interested in an issue of DRs, which is favorable for the issuers.

1.4. TYPES OF DEPOSITARY RECEIPTS

1.4.1. American Depositary Receipts (ADR)

American Depositary Receipts are US securities representing an indirect ownership of a non-US company. Each certificate stands for a depositary share (American Depositary Share – ADS¹¹), which is safekept by the depositary bank (depositary). ADRs allow American investors to invest into non-US companies without having to worry about the complexities associated with the cross-border transactions. At the same time, the ADR provide the investor with virtually the same rights as to the shareholder in the home country of the company, which issued the ADRs, such as cash dividends, pre-emptive rights and usually also voting rights. The rights of the ADR holder are stated on the certificate.

ADRs are being issued by an American bank (e.g. Bank of New York, Citibank, J.P. Morgan Chase & Co.¹²), which serves as a depositary. They are traded on American markets, according to the American rules and regulations, such as any other American securities. ADRs can list on any American stock exchange, most frequently on New York Stock Exchange (NYSE), American Stock Exchange (AMEX) and are also traded in National Association of Securities Dealers Automated Quotation System (NASDAQ) or in the over-the-counter (OTC) market. ADRs are denominated and traded in US dollars; also the dividends and other payments are made in US dollars. Investors receive annual reports and proxy materials in English.

Each ADR can represent one, more than one, or a fraction of underlying ordinary shares. The relationship between the ADR and the ordinary share is referred to as the ADR ratio. The ratio is set in a way that the ADR price is acceptable for the investors. The price must be high enough as to show substantial value, yet low enough, so that the individual

¹¹ ADS are shares, which represent a given number of foreign shares, held with the custodian in the country of the issuer. One or more ADS are represented by the physical certificate ADR. The terms ADS and ADR are often used with the same meaning.

¹² The bank J.P.Morgan Chase & Co. will be further referred as JPMorgan.

investors can purchase these shares. The ADR price should also be comparable to the share prices of other companies in the same industry and common price levels on the stock exchange. As a result, the majority of ADRs range between \$10 and \$100 per share. If the shares were worth considerably less in the home country, then each ADR would represent several real shares. While many ADR programs are established with a 1:1 ratio, current ADR programs have ratios ranging from 100,000:1 to 1:100.

ADR programs

As by other capital markets' instruments, several different types of ADR programs have evolved over time, to satisfy the demand of all issuers and investors. Each of the available ADR programs has specific characteristics with regards to its objectives, conditions on trading, registration requirements with the SEC (Securities Act of 1933), and reporting requirements (Securities and Exchange Act of 1934). "A menu of different types of listing has arisen to accommodate companies in their attempt to trade off the costs and potential benefits."¹³

The first classification of depositary receipt facilities concerns involvement of the issuer, according to which these may be either sponsored or unsponsored. Unsponsored depositary receipts are issued by one or more depositary banks in response to market demand, but without formal agreement with the company, whose shares the DRs represent. The unsponsored ADRs are generally established, when securities dealers or brokers believe, there is interest for the securities of the relevant issuer in the US market. The depositary expects to cover the expenses of the program and generate income from the charges imposed on the ADR holders. The unsponsored ADRs issued after 1983 can be traded only in the OTC markets, but some listed unsponsored programs still exist. This kind of depositary receipts was quite frequent at the beginnings of ADRs, but has been diminishing in last decades and nowadays it is established rather rarely. The reason for that is "lack of control over the unsponsored depositary receipts and potential hidden costs"¹⁴.

Thus, majority of the DR programs are issued as the sponsored ones. Sponsored ADRs are issued by a depositary bank, appointed by the company, which wants to establish them. The issuer enters into a Depositary Agreement with the depositary, which provides for the payment of certain fees and expenses of the depositary in connection with

¹³ Karolyi (1998), p. 3

¹⁴ Bank of New York: The Global Equity Investment Guide, 2003

the program by the issuer. The sponsored DR program allows the company to keep control over the facility and to raise capital with its aid. Sponsored depositary receipts can be listed on a US or European stock exchange.

We distinguish three levels of sponsored ADRs, plus the Rule 144A program. Level I and Level II programs are aimed at increasing the secondary market activity in the US for the issuers' shares, Level III and Rule 144A programs are utilized by issuers seeking to raise capital in the United States. The Level II and III programs are listed on US stock exchange or quoted on NASDAQ and therefore require a SEC registration, unlike the other two types of ADRs. The basic characteristics of the different types of ADR programs are discussed below (for a comprehensive overview see Table 2):

- Sponsored Level I Depositary Receipts

This is the easiest way, how the companies can access the US or other foreign capital market, if they don't qualify or don't wish to have their DRs listed on an exchange. Level I Depositary Receipts are traded in the US over-the-counter (OTC) market, with price (and other information) published in the "Pink Sheets"¹⁵ and on some exchanges outside the United States. Establishment of Level I program is subject to the loosest requirements from the Securities and Exchange Commission (SEC). The company doesn't have to report its accounts under US Generally Accepted Accounting Principles (US GAAP) or provide full SEC disclosure. It is relatively easy and cheap way to broaden and diversify the issuer's investor base, but offers just a limited visibility and liquidity to the stocks. However, this is a good start when building a company's presence in the US securities markets.

Currently, most of the sponsored Depositary Receipts are the Level I type. In addition, the market with Level I Depositary Receipts is the fastest growing segment in the DR market. Typically, between 5 and 15 percent of the shares of a company with a Level I program are in a form of Depositary Receipts. Many well-known multinational companies have established such programs and lots of companies, who started with Level I programs, upgraded to Level II and Level III later.

To establish a Level I ADR program, the issuer must ask for exemption from the SEC Reporting requirements under the Rule 12g3-2(b). Nevertheless, the

¹⁵ Pink Sheets is a listing of equities traded over-the-counter, which is daily published by the National Quotation Bureau (NQB), an interdealer quotation system.

company is obliged to provide SEC with copies or contents of any public documents, which are required on the local market (including documents for the regulatory authorities, stock exchanges or directly for the shareholders), translated into English. The depository cooperating with the issuer files the Registration Statement Form F-6, on the base of which the program is established.

■ Sponsored Level II Depository Receipts

Level II Depository Receipts are exchange-listed securities but do not involve raising new capital. Level II ADR are listed on the US stock exchanges (NYSE or AMEX) or quoted on NASDAQ. They offer the company higher visibility in the US market, higher liquidity and trading volumes. Listed DRs are more widely covered by the US financial press and analysts, providing investors with increased information about the issuer and its securities. On the other hand, the issuer must comply with the exchange's requirements and the Exchange Act registration procedures, when establishing a Level II program. These include SEC registration and adherence to applicable requirements for US GAAP.

The conditions for being listed on the American stock exchanges involve filing the Registration Statement Form F-6 and submitting the Form 20-F, which includes financial reports of the issuer and their reconciliation with the US GAAP. The company, who wants the ADRs to be traded on the stock exchange, must also deliver regularly annual reports and other internal financial reports.

■ Sponsored Level III Depository Receipts

Through Level III Depository Receipts, new capital is being raised. The issuer floats a public offering of ADRs on a US exchange. This type of DR facility is the most prestigious and attracts usually the most US investors' interest. It helps the company to gain substantial visibility in the US financial markets. At the same time, the issuer faces still stricter requirements than in case of the Level II program.

There are two additional prerequisites of conducting a public offering; the issuer must submit Form F-1 to the SEC to register the securities to be offered and fully reconcile its financial statements to US GAAP (or include US GAAP financials). Same as by the Level II program, the company is obliged to submit the Form 20-F annually.

- Rule 144A DRs (RADRs)

A company, who doesn't wish to establish a sponsored depositary receipt program that trades publicly, but wants to access the US capital markets, can issue the depositary receipts pursuant to Rule 144A. This rule was adopted by the SEC as a part of recent efforts to facilitate non-US companies to access the US capital markets. Rule 144A DR programs provide for raising capital through private placement of depositary receipts with large institutional investors (often referred to as Qualified Institutional Buyers, QIBs) in the United States¹⁶. The RADRs are traded electronically among QIBs only through PORTAL and are not listed or otherwise publicly available. A Level I program is sometimes established alongside a Rule 144A program.

The issuers of RADRs are not subject to the SEC requirements. The issuer asks for exemption from the SEC Reporting Requirements under the Rule 12g3-2(b) or agrees to provide information on request. No reconciliation of the financial reports to US GAAP is required.

A drawback of this type of ADR program is the limited liquidity of the instrument, as only the QIBs can participate in trading. On the other hand, it offers a cheaper and faster means of raising equity capital than a public offering. Rule 144A offering's advantages are restricted to smaller companies since registration with the SEC is generally required if the assets of the foreign issuer exceed USD 10 million or if it has 500 or more equity holders.¹⁷

¹⁶ Prior to adoption of Rule 144A in April 1990, privately placed securities could only be resold upon the provisions of opinions and certifications that limited liquidity. Rule 144A greatly increased liquidity, allowing QIBs to resell the privately placed securities to other QIBs without a holding requirement or other formalities.

¹⁷ Davis-Friday, Frecka (2002)

Table 2: American Depositary Receipt programs by type

Item	Use of existing shares to broaden shareholder base		Raising capital with new share issue		
	Level I	Level II	Level III	Rule 144A (RADR)	Global Offering (GDR)
Description	Unlisted in US	Listed on major US exchanges	Offered and listed on major US exchanges	Private US Placement to QIBs	Global offer of securities in two or more markets, not issuer home market
Trading Location	OTC Pink Sheet trading	NYSE, AMEX or NASDAQ	NYSE, AMEX or NASDAQ	US Private placement market using PORTAL	US Exchange or PORTAL and Non-US exchange
SEC Registration	Registration Statement Form F-6	Registration Statement Form F-6	Form F-1 and F-6 for initial public offering	None	Depends: (a) private placement, as Rule 144A or (b) new issue, as Level III
US Reporting Required	Exemption under Rule 12g3-2(b)	Form 20-F filed annually	Form 20-F filed annually; short forms F-2 and F-3 used only for subsequent offerings	12g3-2(b) exemption or agreement to provide info on request	Depends: (a) private placement, as Rule 144A or (b) new issue, as Level III
GAAP Requirement	No GAAP reconciliation required	Only partial reconciliation for financials	Full GAAP reconciliation for financials	No GAAP reconciliation required	See above

Source: Citibank, JPMorgan

In addition to the general listing requirements, every exchange establishes own listing standards, the fulfillment of which it requires. The foreign companies can typically choose between the home standards and alternate listing standards designed especially for the international companies. The criteria concern the size of the issue, volumes of publicly held shares (see Table 3) as well as financial figures.

Table 3: Selected quantitative minimum standards for DR listing on American markets

Standard	NYSE	AMEX	NASDAQ
Publicly Held Shares	2.5 million worldwide or 1.1 million in the US	1 million or 0.5 million*	1.1 million
Aggregate Market Value of Publicly Held Shares	USD 100 million worldwide	USD 3 or 15 or 20 million**	USD 8 or 18 or 20 million**

Note: * 800 public shareholders and 500,000 shares publicly held or 400 public shareholders and 1 million shares publicly held or 400 public shareholders, 500,000 shares publicly held, and average daily trading volume of 2,000 shares for previous 6 months

** Depends on the standard chosen.

Source: NYSE, AMEX, NASDAQ

1.4.2. Global Depositary Receipts (GDR)

GDRs are securities available in one or more markets outside the company's home country. (ADR is actually a type of GDR issued in the US, but because ADRs were developed much earlier than GDRs, they kept their denotation.) The basic advantage of the GDRs, compared to the ADRs, is that they allow the issuer to raise capital on two or more markets simultaneously, which increases his shareholder base. They gained popularity also due to the flexibility of their structure.

GDR represents one or more (or fewer) shares in a company. The shares are held by the custody of the depositary bank in the home country. A GDR investor holds the same rights as the shareholders of ordinary shares, but typically without voting rights. Sometimes voting rights can be executed by the depositary bank on behalf of the GDR holders.

GDRs are typically denominated in USD, but can also be denominated in Euros. GDRs are commonly listed on European stock exchanges, such as the London Stock

Exchange (LSE) or Luxembourg Stock Exchange, or quoted on SEAQ (Stock Exchange Automated Quotations) International, and traded at two other places besides the place of listing, e.g. on the OTC market in London and on the private placement market in the US. Large part of the GDR programs consists of a US tranche, which is privately placed and traded in accordance with Rule 144A and a non-US tranche that is sold to investors outside the United States in accordance with Regulation S (Reg S)¹⁸, typically in the Euro markets. But there are also other variations of this structure. Recently, there have been established GDR programs, which are listed on the New York Stock Exchange and also programs without a US component.

The companies have a great motivation to list on several foreign markets. Among the main reasons belong: access to many sources of foreign capital, wide shareholder base and diversification of the capital, which decreases the risk of hostile takeover in the local market. On the other hand it is very costly to list on more exchanges. The GDRs, however, can eliminate lots of these costs.

To be able to list GDRs on the US markets, the issuer must meet the same requirements as the issuer of ADRs; the requirements for a private placement are as for the Rule 144A and for a new issue as in case of Level III ADR facility (see Table 2). In other markets the requirements differ from exchange to exchange.

Without any doubts, London is the most important DR center outside the US. Depositary receipts listed and traded in London are of two types: Professional DRs and Retail DRs. The Professional DRs are traded by institutional investors, so that the listing requirements are less strict compared to those for the Retail DRs (which are similar to those for direct listings of shares). The Retail DRs are available to all investors and thus have to offer a higher level of protection.

The company together with its advisors must publish a prospectus providing the investors with three years' financial statements. The accounts must be usually in accordance with IAS, US or UK GAAP for the Retail DRs. In case of Professional DRs the statement of accounting principles adopted must be included, plus the UKLA (UK Listing Authority) may require notation of departures from IAS, US or UK GAAP. The issuers of both types of DRs are obliged to appoint a listing agent, submit annual and interim reports

¹⁸ Regulation S was adopted in 1990. It clarifies the conditions under which securities offered or sold to investors outside the US are not subject to SEC registration requirements.

on a continuous basis and announce the same information in London as in the home market. The minimum volume of an issue amounts to GBP 700,000.

An overwhelming majority of depositary receipt programs by companies from Central and Eastern European countries are established as GDRs, typically listed in London and traded only by qualified institutional investors in Euromarkets under regime of so called Regulation S and some of them also in the American OTC markets in accordance with Rule 144A.

Table 4: Selected UKLA Listing requirements for DRs

Requirements	Retail Depositary Receipts	Professional Depositary Receipts
Financial record	3 years	3 years
Minimum size	GBP 700,000	GBP 700,000
Accounting standards	Normally IAS, US or UK GAAP unless UKLA content that standards protect investor's interest	Statement of accounting principles adopted plus may require notation of departures from IAS, US or UK GAAP. No reconciliation.
Prospectus disclosure requirements – Financial information	Normally, three years' profit and loss, balance sheets and cashflow statements, plus accounting policies and notes to annual accounts. Independently audited.	Normally, three years' profit and loss, balance sheets and cashflow statements, plus accounting policies and notes to annual accounts. Independently audited.
Continuing obligations	Annual report within six months of the end of the period to which they relate (UK/US/IAS). Internal report within four months of the end of the period to which it relates.	Annual report within six months of the end of the period to which they relate. Home country standards acceptable. Internal report within four months of the end of the period to which it relates.

Source: London Stock Exchange

1.4.3. European Depositary Receipts (EDR)

EDRs are depositary certificates denominated in Euros accessing the Euromarkets. Issuers of EDRs are companies outside the European Monetary Union. The certificates are

listed and traded on the biggest markets of the EU, in London, Luxembourg, Paris, Frankfurt, Brussels, Amsterdam and Vienna.

EDR programs are often established to complement a GDR or ADR issue denominated in USD. EDRs give the investors as well as the issuers an opportunity to diversify the currency risk connected with USD denominated facilities.

1.4.4. Other types

International Depositary Receipts (IDR) and Dutch Depositary Receipts (DDR) are certificates denominated in Euros and listed on the stock exchange in Brussels and Amsterdam respectively.

Singapore Depositary Receipts (SDR) are instruments that are traded on the Singapore Stock Exchange and enable non-Singapore companies with Asian business to establish a presence in this important capital market.

American Depositary Debentures (ADD) are depositary receipts that represent debt, which is convertible into DRs. ADDs enable the issuer to raise capital through debt financing. Similar instruments to ADDs are the American Depositary Notes (ADN), which represent notes on deposit in the issuer's home market and American Depositary Warrants (ADW) evidencing deposited warrants.

New York Shares (NYS) offer many of the same benefits as ADRs and operate similarly to them, but due to the extra steps involved in cross-border settlement and registration they are not that efficient. These are issued by a transfer agent and registrar in the US against cancellation of the local shares. New York Shares are not registered under the Securities Act of 1933, which means that investors will not receive the disclosures required by that Act. Sometimes NYS are being considered as an alternative to American Depositary Receipts. NYS are popular especially by Dutch companies.

Global Registered Shares (GRS) are very similar to the NYS. The first GRS program was created by DaimlerChrysler AG in 1998 to have the company's shares directly on the NYSE and have them fully fungible with the German-traded shares. The direct share registration is coordinated with the company's German registrar, through a New York-based transfer agency arrangement.¹⁹

¹⁹ JPMorgan ADR Group: ADR reference guide 2004.

2. DR MARKETS

The most important trading centers for depositary receipts are the main American markets – NYSE, AMEX and NASDAQ, among the European ones most notably London, Luxembourg, Brussels, Paris, Amsterdam and some regional German exchanges. The trading volumes are growing rapidly, as well as the number of DR issues.²⁰ The demand of investors is increasing steadily as they know more about the opportunities of this financial instrument and at the same time, the companies learn how to use the chances to raise capital and improve their visibility on the foreign markets through DR programs.

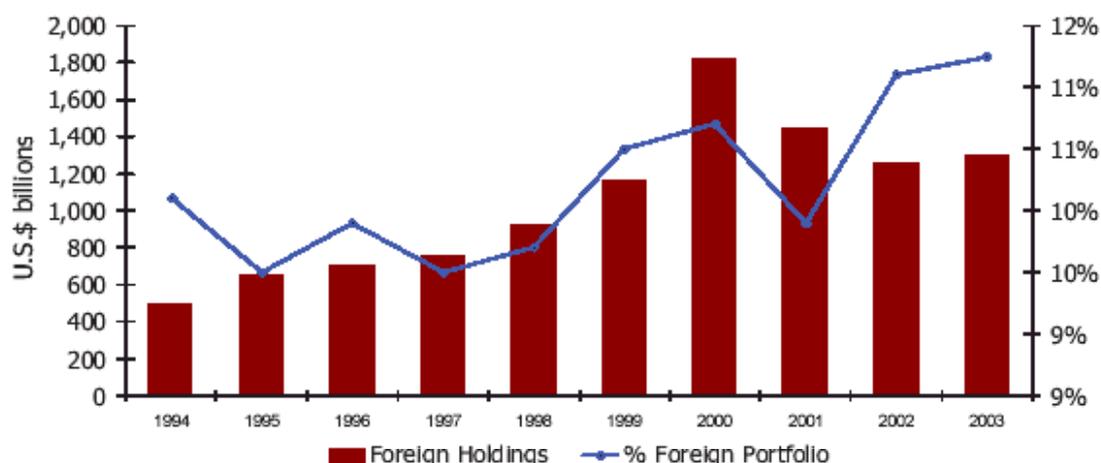
2.1. DEVELOPMENT

The equity markets were the last ones to become globalized, with market integration starting in 1980's. International investing went through a great boom between mid-1980's and the end of 1990's. To illustrate this: in 1987, US residents held USD 94.7 billion, or 3.5% of their portfolios in non-US stocks, compared to almost USD 1.8 trillion (more than 11% of US portfolios) in 2000. Also the volume of trading in non-US stocks increased dramatically, from USD 213 billion in 1987 to USD 1 trillion in 1997. On the other side, volume of trading of US stocks by foreign residents grew from USD 483 billion in 1987 to USD 1.2 trillion in 1997.²¹

²⁰ Like other markets, some figures recorded a downward trend in 2001-2002, affected by the global economic climate. This trend was, however, already reversed in 2003, as described later in this chapter.

²¹ Stahel (2003)

Figure 1: US Investment in foreign equities (ADR and local shares), 1994-2003



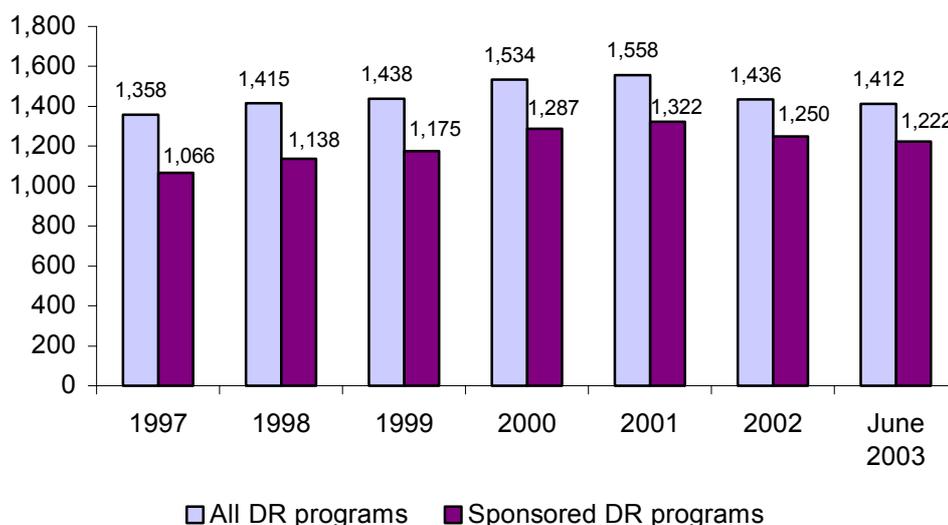
Source: Depository Receipt Market Review 2003, The Bank of New York

Alongside with this trend of internationalization, the depository receipts markets advanced and grew at a double-digit rate in the 1990's. As a consequence of the global market corrections in 2000-2002, the DR markets growth slowed down, but the trading volumes still reached record levels.

There were 836 ADR programs with 176 of them listed in the US in 1990; these figures reached 1,534 and 608 respectively in 2000. The number of ADR programs rose slightly further also in 2001, followed by a drop in the last two years (2002 and 2003), returning to the level of 1998. As of December 2003, the number of all DR programs amounted to over 2,000²² (including Rule 144A, Reg S and other private DR programs).

²² Depository Receipt Market Review 2003, The Bank of New York

Figure 2: Number of DR programs on major American markets



Note: Major American exchanges involve here NYSE, AMEX or Nasdaq; Rule 144A, Regulation S and other privately placed DR programs are excluded

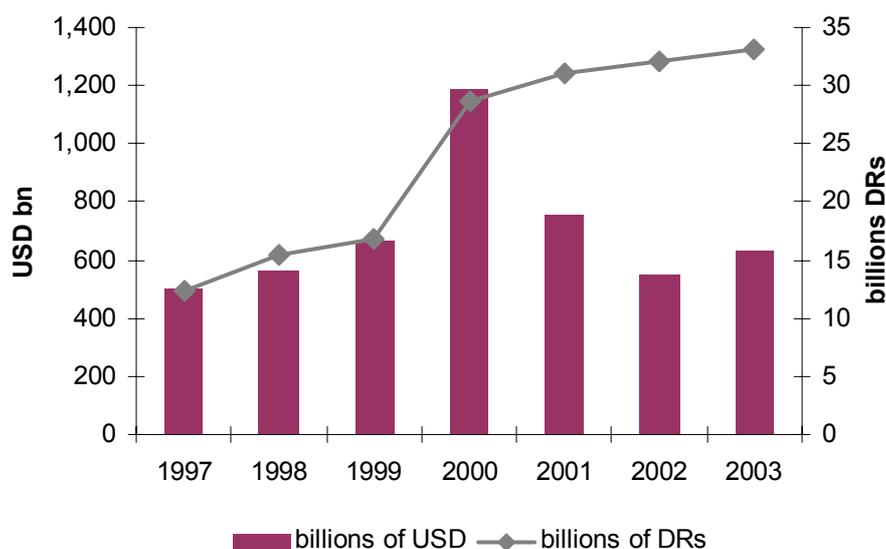
Source: Depository Receipt Half-year Market Review 2003, The Bank of New York

Also the trading volumes increased substantially – from 3.8 billion shares with dollar volume of 75 billion in 1990 to 28.7 billion shares and USD 1,185 billion in 2000. The number of traded ADRs in the US markets increased further in 2001 and even in 2002, but the dollar trading volumes were rapidly falling in 2001 and 2002.

The year 2003 was a year of renewed progress of depository receipts. “Growing investor confidence, coupled with improving economic conditions, has resulted in strengthening investor and issuer interest in ADR this year,” said Christopher Sturdy from The Bank of New York²³. 33.1 billion depository receipts, valued at USD 630 billion were traded in 2003, which represents an increase of more than 3% and 14% respectively over 2002. The growth in trading value was paced by the emerging markets. DR programs with the most active trading were primarily from the telecommunications, semiconductor and chemicals and pharmaceutical industries.

²³ Depository Receipt Market Review 2003, The Bank of New York, p.1

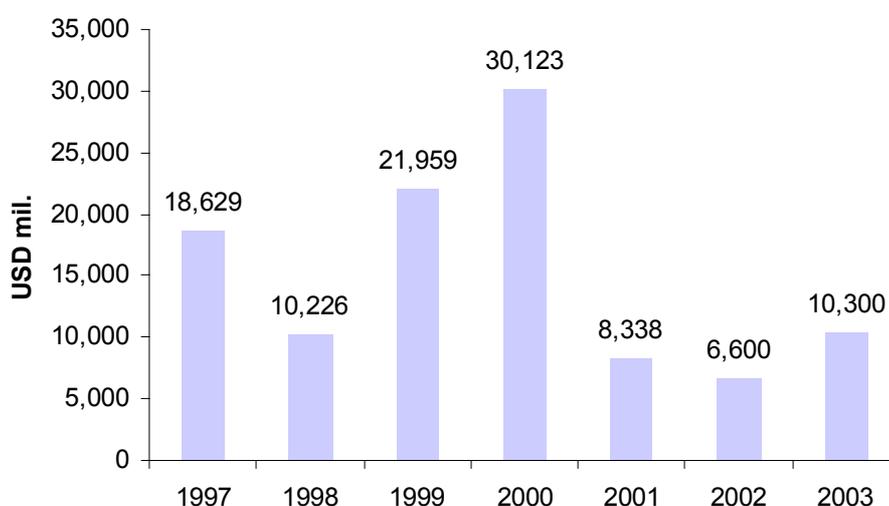
Figure 3: Trading volumes of US-listed DRs



Source: Depository Receipt Market Review 2003, The Bank of New York

Capital raised by non-US companies through American Depository Receipts in the US in 2003 recorded an increase of 56% over 2002 and reached USD 10.3 billion (Figure 4). Nevertheless, this is still just one third of the record volume of 2002. Taiwanese companies accounted for incredible 87% of the total volume. Moreover, 99% of the capital raised occurred after April 2003, which indicates a growing trend. According to the preliminary results from 2004 and experts' forecasts, the trend is likely going to continue.

Figure 4: Capital raised through DRs in the US



Source: Depository Receipt Market Review 2003, The Bank of New York

2.2. DR TRADING CENTRES

2.2.1. US markets

- **OTC (Over-The-Counter market)**
OTC market trades are listed in the “Pink Sheets”, published daily by the National Quotation Bureau. Listing in the “Pink Sheets” is available to sponsored Level I and unsponsored ADR programs, which can’t be listed on NYSE, AMEX or NASDAQ.
- **NYSE (New York Stock Exchange)**
NYSE is the largest exchange in the United States (measured by value of shares listed and volume of trading). It operates an auction market system, enabling competition between public orders. Most non-US companies listing on an American exchange choose NYSE.
- **AMEX (American Stock Exchange)**
AMEX also operates an auction market system. Level II and Level III ADR programs can list on AMEX (same as on NYSE and NASDAQ).
- **NASDAQ (National Association of Securities Dealers Automated Quotation)**
NASDAQ is the first electronic stock market. It operates a system of competing market makers linked to investors by sophisticated telecommunications networks. There are two options for listing: the Small Cap Market determined for smaller companies and the National Market System with the majority of NASDAQ listings. The NASD also operates the market for securities issued under Rule 144A, PORTAL.

2.2.2. European markets

Most of GDRs are currently listed in London or Luxembourg. The other European stock exchanges host usually instead EDRs or other relative instruments.

- **London**
London hosts the most international equity underwriting among all world markets. There are almost 500 international companies listed on the London Stock Exchange and the market capitalization of foreign companies reaches around twice as high volume as the one of the UK companies. Also the trading volumes of foreign stocks are reaching approximately double of the local stocks trading.

Most GDRs, consisting of a US offering pursuant to the Rule 144A and a European element, are listed in London or Luxembourg. Also the euro denominated EDRs can be found there. There have listed 116 foreign companies through DRs on the London Stock Exchange with total market capitalization of GBP 72,941 mil. as of November 2003.

There concentrates also the overwhelming majority of Central and Eastern European (CEE) cross-border listings in London. Thanks to its proximity to the region, it is easier to raise capital and ensure liquidity to the CEE equities in London than in the American markets. (Main reasons for that are the overlapping time zones and better knowledge of the CEE companies in London than in the US.) Over 40 companies from the CEE region have listed in London, mostly in a form of GDR and more than 70% of international trading with the CEE equities takes place there.

- Luxembourg

As mentioned above, GDRs list also on the Luxembourg Stock Exchange. Luxembourg is the second most favorite place for listing of depositary receipts in Europe. The listing requirements are similar to those in London, as they are governed by the EU directive; the differences lie in the level of disclosure, visibility and speed of the listing.

In Luxembourg mostly DRs by Asian companies list and trade. Out of 136 listed stocks in 2003, 85% come from Asia, in particular India (56), Taiwan (27) and Korea (16). Nevertheless, there also list the only two Slovak depositary receipts, Slovnaft and Slovakofarma and four Hungarian DR issues.

- Brussels²⁴

The Brussels Stock Exchange introduced a euro denominated DR instrument, referred to as IDR (International Depositary Receipt), which was primarily designated for American, Canadian and South African companies.

- Amsterdam

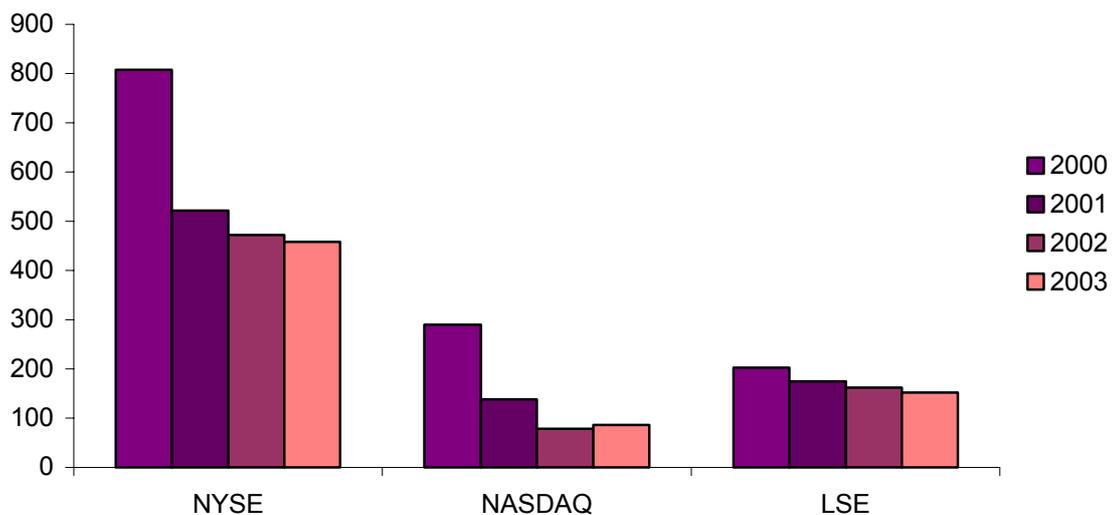
The stock exchange in Amsterdam hosts a few certificates of shares called DDR (Dutch Depositary Receipts) and priced in euro.

²⁴ The exchanges of Paris, Brussels and Amsterdam merged on September 22, 2000, and formed a cross-border exchange Euronext. The Euronext group expanded with the acquisition of LIFFE and merger with the Portuguese exchange at the beginning of 2002.

- Paris

The Paris Stock Exchange brought the initiative to list euro denominated EDR programs from outside the Eurozone (especially from emerging markets) in 1999, when it prepared regulations for a separate EDR market. It has, however, not been launched until today, because Paris failed to attract interest of a single DR issuer.

Figure 5: Development of DR trading volumes by exchange (in billions of USD)



Note: Trading volume for Nasdaq in 2003 has been interpolated from the half-year's data.

Source: Depository Receipt Half-year Market Review 2003 and Depository Receipt Market Review 2000, BNY; NYSE, London Stock Exchange, Federal Reserves Board

2.2.3. Where to list?

There are several factors, which must be carefully evaluated, before the exchange that the best suits the issuer's needs can be selected. The type of DR program desired will determine what listing options are available (e.g. listing on one of the three major US exchanges is only possible for Level II and Level III ADRs.) Besides others, some of the basic market characteristics, such as listing requirements, listing costs, liquidity must be considered. The issuer's business links may play an important role as well.

One of the traditional views about the overseas listings is, that they are primary motivated by diversification gains. Given this assumption, the issuers should tend to choose markets with low correlation with their home market to list the shares on and to

maximize the diversification gains. Nevertheless, empirical results do not support this hypothesis.

Sarkissian and Schill (2003) studied a large sample of cross-listings and found evidence, that “the proximity of foreign stock exchanges and other variables that can indicate the degree of familiarity between two countries such as trade, common language, colonial ties and similar industrial structure”²⁵ are the decisive factors determining the host market selection. The proximity aspect seems to have particularly large influence in the emerging markets and for the firms with non-traded product output, while for firms from the G5 countries, only the impact of similar industrial structure can be observed. The tendency to list in familiar markets might be supported by the investors’ behavior. The investors are usually reluctant to hold securities of firms with which they are not familiar and their overseas portfolios are thus biased towards larger and better-known companies. Some firms may then feel themselves constrained by the base of familiar investors (Kang and Stulz, 1997) and find it inefficient to list the stocks in the markets, where there is insufficient information about the company. Evidence on reasonability of such constraint brings an article in *Euromoney*: “Over the past few years, we have seen a lot of hype about ADRs, but a lot of programs were set up by companies that don’t have either a US presence or a real US penetration strategy... As a result of that, US investors don’t know them and these programs remain very illiquid.”²⁶

The decision to list in the US try to explain Pulatkonak and Sofianos (1999) and find, that for the firms from emerging markets, time-zone distance from the US, along with the trading costs, make up for a large part of the decision to list in New York.

As a result of the proximity and time-zone factors, companies from Latin American countries do most frequently choose US markets as destination for their cross-border listing, while European companies from countries with emerging markets prefer to list their shares in London (or another European DR market, such as Luxembourg, Paris or Frankfurt).

However, the developed European countries are also strongly represented at the US markets. This can be explained by several reasons. The developed European markets (particularly within the EU) are significantly integrated. There are few barriers between the markets, so that listing on one market already enables investors from other countries to buy

²⁵ Sarkissian and Schill (2003), p. 28

²⁶ Mondellini (1999), pp. 80-82

shares in the company. Through multiple listing within Euromarkets, the companies can't thus gain much more visibility or liquidity for their stocks. Larger companies from the developed European countries have often daughter companies or affiliates in the US or at least business relations and may want to enable their American customers and employees to hold stocks in the company. Exporters on American markets might be also motivated by increase of visibility in the US. Pagano, Röell and Zechner (2001) deal with the factors of European cross-listings' destination decision. According to their findings, firms with high growth potentials and in high-tech industries are more likely to list in the US, whereas firms that cross-list within Europe do not grow more than a control group.

2.3. PLAYERS ON DR MARKETS

On the markets with depositary receipts, many subjects with various roles act. The possible DR market players are named in this section, together with a brief description of their roles.

Issuer is the company, whose shares are represented by the depositary receipts. The issuer determines the program type according to his objectives and abilities to fulfill its requirements. He appoints the depositary bank, which should manage the program, as well as other involved parties (lawyers, investor relations firm...). Before introducing the program, an approval by Board of Directors or shareholders and regulators is usually needed.

A typical issuer is a multinational company. There are two basic reasons for that. First, the companies, who are active on more markets, do usually want their shares to be traded on these markets as well. Second, it may not be that difficult for the multinational companies to fulfill the registration requirements (both the reporting obligations and the minimum quantitative standards) as for other companies.

The company with the most widely held DR program as of November 2003 was BP p.l.c. with USD 21,388 million totally invested, followed by Nokia Corporation and Royal Dutch Petroleum Company (see Table 5). The most frequently represented industries among the DR leaders are the telecommunications, chemical industry and banks. Nokia, ranking on the top in most of the DR statistics, is an example of a company that has a larger proportion of ADRs compared to its ordinary shares.

Table 5: Issuers with the most widely held DR programs (as of November, 2003)

Issuer	Total invested (USD million)
BP p.l.c.	21,388.25
Nokia Corporation	12,984.83
Royal Dutch Petroleum Company	12,445.06
Teva Pharmaceuticals Industries Ltd.	8,754.62
Vodafone Group Plc	8,536.80
Telefonos de Mexico, S.A. de C.V.	7,309.60
GlaxoSmithKline Plc.	5,915.19
AstraZeneca PLC	4,914.06
América Móvil, S.A. de C.V.	4,636.15
Total SA	4,528.69

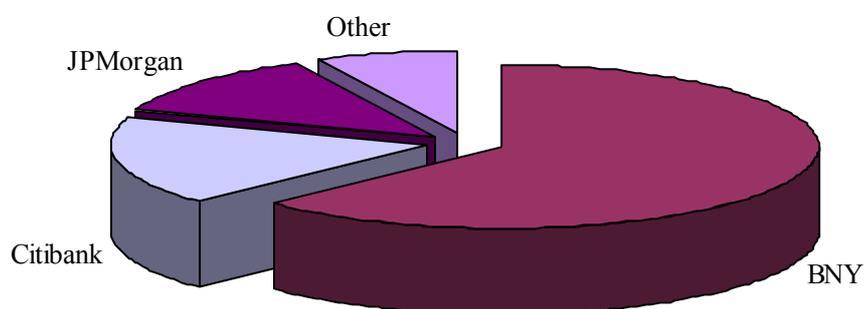
Source: JPMorgan

Depository, a bank such as Bank of New York, Citibank, JPMorgan or Deutsche Bank, has responsibility concerning appointing the custodian (see below). The custodian bank advises the issuers on appropriate issue structure, assists with compliance with registration requirements and prepares and issues the certificates. It is also required to coordinate the activities with lawyers, accountants and investment bankers to ensure all program implementation steps are completed and inform brokers and traders about establishment of the program.

The leader among depository banks is the Bank of New York, which was appointed to manage around 65% of all public sponsored DR programs established so far (as of November 2003). It issued depository receipts for more than 1,400 programs with companies from 70 countries. As the second best ranks the Citibank followed by JPMorgan²⁷.

²⁷ JPMorgan is ahead of Citibank with regards to US-listed issues.

Figure 6: Total sponsored DR programs according to the depositary, in 2003



Note: BNY stands for The Bank of New York

Source: Depositary Receipt Market Review 2003, The Bank of New York

Custodian, appointed by the depositary, holds the shares in custody for the account of depositary in the home market of the issuer. Among the roles of the custodian belong confirming deposit of underlying shares following their receiving, communication with the depositary on corporate actions and transmitting dividend payments.

Brokers make securities available to investor and execute and settle the trades. To become a market maker in a security, when needed (Level I ADRs), they must submit required forms.

Lawyers advise the issuers on type of DR structure. Their role is to draft and negotiate Deposit Agreement (between the issuer and the depositary) and file appropriate registration statements. The lawyers also draft the offering prospectus and prepare the listing agreements if applicable.

Investment bankers also help to design appropriate program structure. They conduct road shows to promote the issue and line up market makers. Investment bankers price and launch the securities. They obtain CUSIP number and DTC, Euroclear, Cedel and PORTAL eligibility as needed. Investment bankers are typically involved only when capital is being raised.

Investor Relations firms are also sometimes employed. These conduct perception studies, coordinate investor targeting and media relations and prepare the communication messages.

Accountants prepare financial statements in accordance with (or reconciled to) US GAAP (or other acceptable accounting principles).

Investors recruit often from the rows of institutional investors, who may be limited on investing in foreign securities directly. Privately placed programs are typically sold to QIBs, to which belong institutions that own and invest at least USD 100 million in securities of non-affiliates and registered broker-dealers that own or invest on a discretionary basis at least USD 10 million in securities of non-affiliates. On the other hand, concerning the public offered DRs, the individual investors have a stronger motivation, as it is usually not feasible for them to invest in shares directly in the foreign markets.

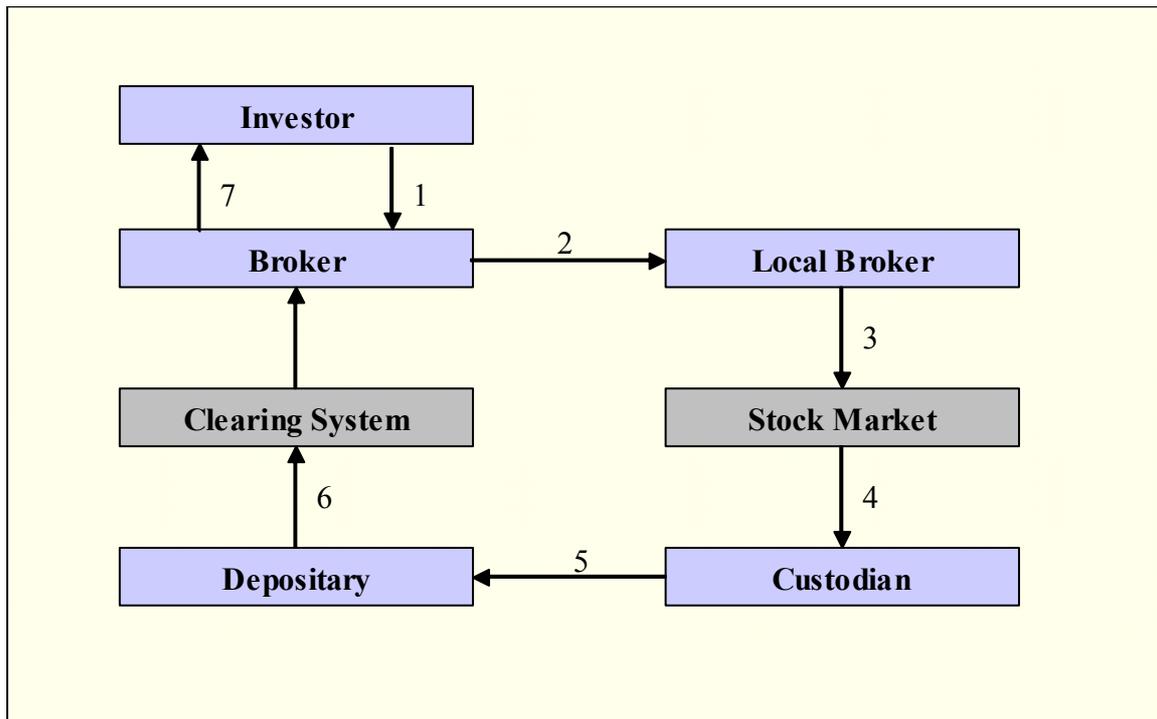
2.4. DR MECHANISMS

2.4.1. Issuance

To create new depositary receipts, the underlying shares must be purchased in the issuer's home market and deposited there with a custodian bank. The depositary bank then issues the certificates (DR) representing these shares to the investors or their brokers.

When establishing the DR program, besides other decisions concerning its structure, the so called ADR ratio must be determined by the issuer (with assistance of other involved parties). ADR ratio is the number of underlying shares represented by one depositary share. The properly set ratio ensures that the DR's price lies in an average price range of the given exchange, corresponds to the usual prices in the issuer's industry and that the investors perceive the shares as well-priced.

Figure 7: Mechanism of DR issuance



Source: Citibank, Depository Receipts – An Information Guide

1. Investor instructs a broker to purchase DRs.
2. The broker contacts a broker in the issuer's home market.
3. The local broker purchases ordinary shares in the local stock market.
4. The shares are deposited with a local custodian.
5. The custodian instructs the depository bank to issue DRs that represent the ordinary shares held by the custodian.
6. The depository issues DRs and delivers them to the broker who initiated the trade (through clearing system, DTC²⁸ for ADRs, Euroclear or Clearstream for EDRs or all the three for GDRs, if applicable).
7. The broker delivers DRs to the investor or credits his account.

²⁸ DTC stands for the Depository Trust Company, which serves as a clearinghouse for settlement of trades of corporate and municipal securities in the US. DTC is an important player in the DR market, as it, among other things, issues and cancels DRs, delivers them to the brokers, facilitates distribution of dividends to investors.

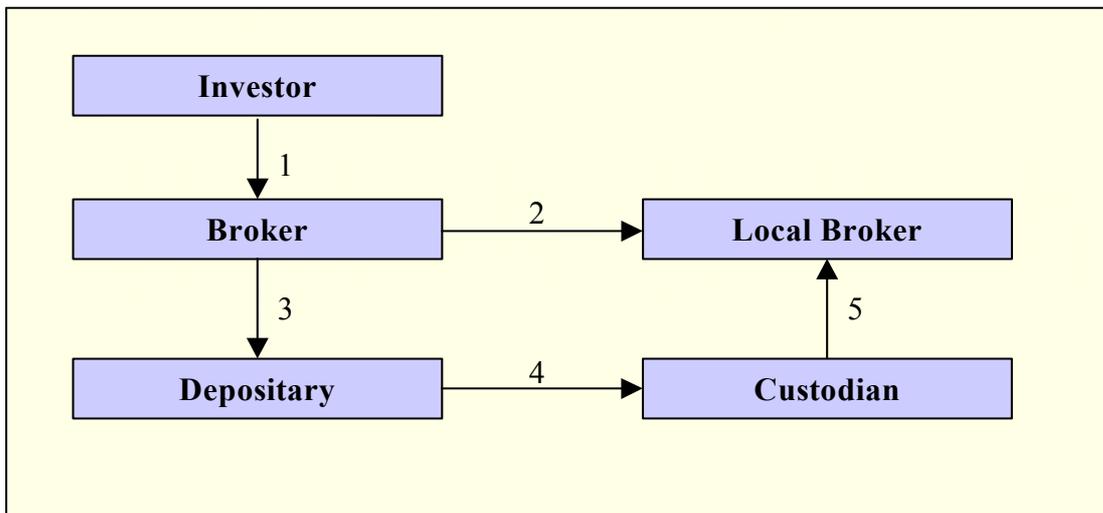
2.4.2. Trading

The broker can decide to purchase existing DRs in the US market (or other market, where DRs are traded) rather than creating new DRs, if it is possible and more advantageous to him. The DRs are freely traded on the market such as other securities. According to the Bank of New York this “intra-market” trading accounts for approximately 95% of all depositary receipt trading in the market nowadays. The certificates can be also sold to another market, where they are being traded.

2.4.3. Cancellation

The mechanism of cancellation is a reverse to the one of issuance. When the investor decides to sell his DRs, his broker can besides transferring them to other investors (or their brokers) sell these back into the home market. The depositary receipts will be handed over to the depositary bank, which cancels them and gives instructions to the custodian to release the underlying shares to a buyer in the home market.

Figure 8: DR cancellation mechanism



Source: Citibank, Depositary Receipts – An Information Guide

1. The investor contacts a broker, requesting sale of the DRs.
2. The broker sells the underlying ordinary shares to a broker in the issuer’s home market.
3. The (US) broker delivers the DRs to the depositary.
4. The depositary instructs the custodian to release the underlying ordinary shares to the local broker.
5. The custodian delivers the underlying shares as instructed.

3. PRICES OF DRs AND UNDERLYING SHARES

The price of a depositary receipt should virtually equal to the price of underlying shares in the local market. The theoretical relationship between the DR price and the price of underlying share could be expressed as follows:

DR price = ADR ratio * price of underlying share * exchange rate (\pm transaction costs)

In the first part of this chapter, we will explain, why this equation should hold, as well as what are the forces that prevent the prices from being equal. Further on, empirical proof of the equation will be presented. Another section deals with DR indices and their development, compared to other stock indices.

The last but not least topic of this chapter is the impact of a DR issue on the price of underlying shares on the home market. The focus there will be on the programs of companies from Central European countries (namely Czech Republic, Hungary and Poland).

3.1. DETERMINATION OF DR PRICE

Some forces drive the prices of depositary receipts and the underlying shares towards each other, while at the same time other forces prevent them from equality. The major factor in favor of the equality is the continuous buying and selling in both markets, which should hinder the opportunity of arbitrage gains. When trading with DRs, the brokers choose to issue a new DR, transfer an existing one or cancel it, comparing the DR price and the US dollar (or Euro) equivalent of the actual shares price in the home market. The only difference could then appear due to the transaction costs, which are such a small fraction of the price, that the variation should be negligible.

Another reason, why the price parity should hold is that the two assets are virtually identical with basically the same pay-offs. Some temporary fluctuations of the two prices can naturally occur, but if the markets are integrated, the price differences should be corrected quickly (usually within one trading day).

Moreover the price of both instruments reflects the same information. The local market should get as the first one the company specific information, thanks to its proximity, while the DR markets receive faster the information about their shocks, which

do, due to their importance and market capitalization, usually spill over also to the local market.

Generally, the price of DRs is influenced by development of both, the local and the DR market. If the most trades occur in the home market, the DR market accepts the equivalent price of underlying shares. On contrary, if the trading volumes on the DR market surpass those in the local market, the DR market may become the primary one. An empirical test for stocks listed in Central Europe and in London as GDRs (Podpiera, 2001) brings evidence, that there exist substantial information flows between the local and London markets in both directions, but the London market appears to be slightly more important.

All the above-mentioned factors leading to price equality of depositary receipts and underlying shares can act freely only in a situation of fully integrated markets. Perfect integrity can, however, be seldom observed in the real markets. As a consequence of the segmentation of markets, price deviations between depositary receipts and underlying shares occur. The segmentation of financial markets is caused by multiple restrictions and trading barriers. To name some of them, these are restrictions on foreign ownership (usually for the institutional investors), barriers of the markets preventing foreign entities to purchase directly the local securities or indirect barriers, such as taxes, informational asymmetries or gaps in reporting and disclosure requirements. These market imperfections prevent arbitrage forces from wiping out the price discrepancy. In an article by Lowengrub and Melvin (2001), it is shown that the German and the US market lie in an integrated global trading environment, rather than are two segmented markets. This finding is supported by effect of ADR listing on German home-market volatility and volume over the trading day.²⁹ More straightforward proof of integration between the US and Euro-markets is brought about in table below (Table 6). You can see that there is only minimum variance between the prices of ADRs at the US markets in the local currency and the underlying shares. The difference may be accounted for the fact that the NYSE, where the ADRs are listed, closes a few hours later than the European exchanges and the price of ADRs could have therefore reacted to the actual development. Small variations can be caused also by the transaction costs.

²⁹ The assertion is that if the home market and USA can be thought of as one global market rather than two segmented markets, the intradaily volatility and volume will flatten in the home market from the standard peaks that exist around the morning opening and the afternoon closing in segmented markets.

Table 6: Closing prices of ADR vs. their underlying shares, Western Europe (3.2.2004)

Company	Closing price local market	Closing price ADR market	ADR in local currency	Local market vs. ADR
ABN Amro (EUR)	19,14	24	19,14	100,01%
Aegon (EUR)	12,13	15,16	12,09	100,34%
Alcatel (EUR)	13,14	16,51	13,17	99,81%
Allianz (EUR)	103,15	12,94	103,19	99,97%
Astrazeneca (GBP)	26,09	48,6	26,43	98,71%
AXA (EUR)	18,1	22,73	18,13	99,86%
Barclays (GBP)	4,95	37	5,03	98,45%
BBVA (EUR)	10,48	13,19	10,52	99,64%
Banco Santander (EUR)	9,19	11,56	9,22	99,69%
BP Plc (GBP)	4,25	47,77	4,33	98,21%
British Telecom (GBP)	1,78	33,11	1,8	98,58%
CS Group (CHF)	47,95	38,39	48	99,90%
DaimlerChrysler (EUR)	37,31	46,39	36,99	100,86%
Deutsche Telekom (EUR)	16,04	20,12	16,04	99,97%
Diageo Plc (GBP)	7,25	53,9	7,33	98,87%
E.ON (EUR)	52,96	66,6	53,11	99,72%
ENI (EUR)	14,99	94,2	15,02	99,78%
Ericsson (SEK)	16,4	22,73	16,67	98,35%
GlaxoSmithkline (GBP)	11,89	44,49	12,1	98,28%
HSBC Plc (GBP)	8,35	76,87	8,36	99,81%
ING Group (EUR)	19,94	25,05	19,98	99,82%
Lloyds TSB (GBP)	4,56	34,03	4,63	98,51%
Nokia (EUR)	16,72	20,99	16,74	99,89%
Novartis (CHF)	56,5	45,22	56,54	99,93%
Philips Electronics (EUR)	24,14	30,2	24,08	100,24%
Prudential Plc (GBP)	4,79	17,8	4,84	99,02%
Royal Dutch (EUR)	38,05	47,93	38,22	99,55%
Shell Transport (GBP)	3,65	40,78	3,7	98,82%
Siemens (EUR)	64,97	81,15	64,71	100,40%
Suez (EUR)	16,65	20,89	16,66	99,95%
Telecom Italia (EUR)	2,49	31,39	2,5	99,28%
Telefonica (EUR)	12,72	47,77	12,7	100,18%
TotalFina Elf (EUR)	142,3	89,51	142,75	99,68%
UBS (CHF)	90,7	72,66	90,85	99,84%
Unilever (EUR)	53,85	67,69	53,98	99,76%
Vivendi (EUR)	20,99	26,2	20,89	100,47%
Vodafone (GBP)	1,37	25,17	1,37	99,72%

Source: Patria Online

Also the discrepancies between the Central and Eastern European shares and respective GDRs are very small (with exception of Gazprom). In the Table 7 a sample of CEE stocks brings evidence, that the two prices are very close in the most cases. These

results suggest integration of the CEE markets with the “Western” ones³⁰. However, Podpiera (2001) brings an opposite evidence for Central European countries, finding systematic causality patterns in daily data, which persisted for several days. Thus he claims the Central European markets are segmented. One possible explanation of this contrasting results could be the fast process of market integration and the fact that Podpiera used in his analysis data till August 2000, while the data applied here are more than three years newer. Also, in the following table, we take just data on one day, which can’t serve as a sufficient proof. Therefore, we come back to this issue later, looking closer at a sample of three Czech, three Hungarian and three Polish companies.

Table 7: Closing prices of GDR vs. underlying shares, CEE Europe (3.2.2004)

Company	Home market	Closing price local market	Closing price GDR market	GDR in local currency	Local market vs. GDR
Agora (PLN)	Poland	45.9	11.95	45.41	101.08%
AO Tatneft (USD)	Russia	1.31	25.4	1.27	103.15%
Bank Pekao (PLN)	Poland	115.5	30.1	114.38	100.98%
Bank Przemyslowo Handlowy (PLN)	Poland	378	49	372.4	101.50%
Borsodchem (HUF)	Hungary	14,050	66.4	14,030.32	100.14%
České Radiokomunikace (CZK)	CR	342.3	12.95	343.18	99.75%
Český Telekom (CZK)	CR	298.1	11.1	294.15	101.34%
Gazprom (RUR)	Russia	43.91	30.5	86.93	50.51%
Gedeon Richter (HUF)	Hungary	26,600	126.12	26,649.16	99.82%
KGHM Polska (PLN)	Poland	30.1	15.88	30.17	99.76%
Komerční banka (CZK)	CR	2,685	33.65	2,675.18	100.37%
Lukoil (USD)	Russia	25.46	102.1	25.53	99.75%
Magyar Tavkozlesi (HUF)	Hungary	847	20	845.2	100.21%
PKN Orlen (PLN)	Poland	26.2	13.9	26.41	99.20%
Prokom (PLN)	Poland	179	23.3	177.08	101.08%
Synergion (HUF)	Hungary	450	2.13	450.07	99.98%
Telekomunikacja Polska (PLN)	Poland	15.95	4.22	16.04	99.46%
Tiszai Vegyi (HUF)	Hungary	3,955	13.85	2,926.51	135.14%

Source: Prague Stock Exchange, Warsaw Stock Exchange, Budapest Stock Exchange, Russian Trading System, Yahoo Finance

Such theories were developed that explain, how the character of barriers between markets determines, whether the deviation of the DR price from the parity value takes a form of premium or discount. Suh (2001), who deals with this topic, claims that under the regime, where the countries impose foreign ownership restrictions on domestic shares, but

³⁰ The western markets are represented by United Kingdom here, as most of the Central and Eastern European DRs are listed on the London Stock Exchange.

let local residents invest in foreign assets relatively freely, ADRs trade at a premium. In a system, when country imposes exchange controls in addition to foreign ownership restrictions, so that only US based investors can hold ADRs, the ADRs can be traded at discounts below their parity values.

Besides the capital barriers, also the different trading hours might cause substantial discrepancies, although just very temporary. As an example, let's consider a Japanese share and a relevant ADR traded in New York. When the NYSE closes at 4 p.m. New York time, the home market may be already 14 hours closed. During these 14 hours, important world news could have come that would have changed the price of ADR substantially. When the market in Japan opens, the price of the actual shares will be artificially high and start falling immediately to reflect the news, so that the prices will soon get close to the parity again. Similarly, a discrepancy can occur during the time, when the NYSE is closed and only the actual share's price contains the new information. Such situation offers an arbitrage opportunity, which can be exploited by those, holding both depositary receipts and underlying shares in the local market.

Another reason for breaking the price parity may be illiquidity of one or the other market. The DR markets are typically less liquid than the home stock markets, but for some emerging markets, the opposite can hold.

3.2. MARKET'S INTEGRATION

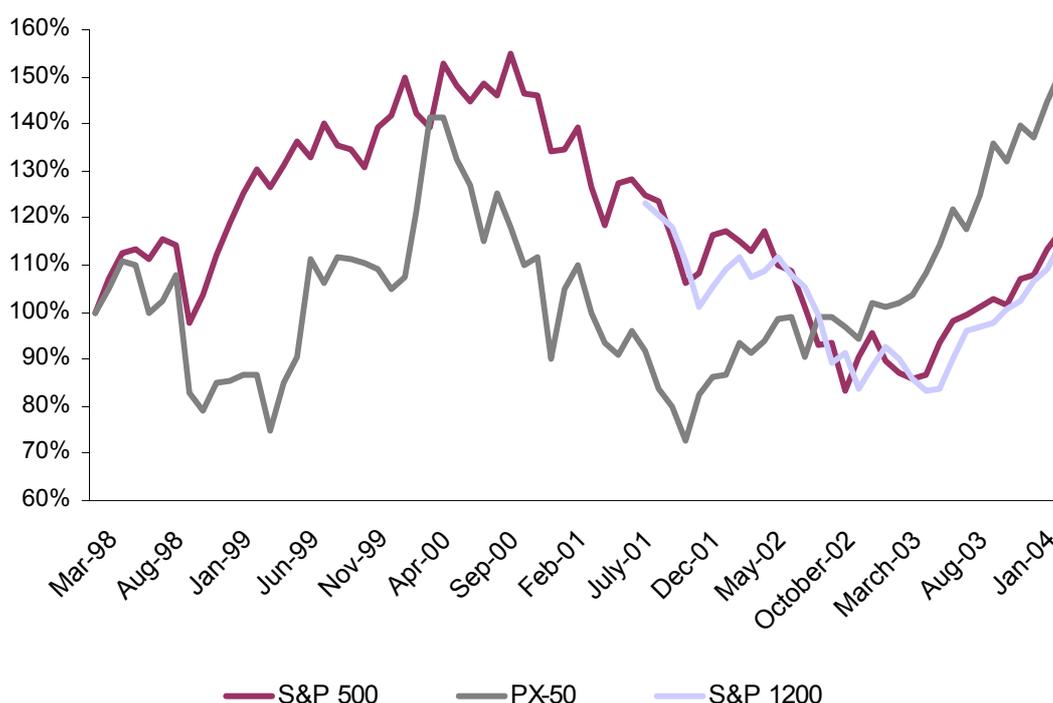
The integration of markets can be tested with use of multiple methods. First of all, we would like to compare the development of the market indices. Such a comparison should tell us something about the markets' integration. Later, in line with our topic, the correlation between DRs and their underlying shares prices is measured, to assess the measure of integration.

The first glance at the development of the Czech Stock Exchange index PX-50, the American market index S&P 500 and the global index S&P 1200 in the figure below suggests positive relationship, which was somehow disrupted in 2002. (This could be explained by several factors, which we do not want to discuss here, as it is already too far from our topic and could be a subject of a separate study.) The correlation coefficient for the data between 1998 and 2001 was over 0.65, but adding the data for 2002 and 2003, the coefficient drops to only 0.19. Because the global market index develops very closely to the S&P 500, the results of comparison with the PX-50 are similar, just as we have only more up-to-date part of the time series, the correlation is even negative. Nevertheless, the

correlation coefficient is obviously an insufficient tool here to compare the markets' development. In the figure below one can recognize all the indices follow similar trends, but with delays and regional bias.

More advanced methods must be therefore applied here, which is not the aim of this thesis. We will proceed in completely different way, using the correlation of DR and their underlying share's prices, to identify markets' integration in the following section.

Figure 9: Development of indices S&P 500, S&P 1200 Global and PX-50



Source: Yahoo Finance, Standard & Poor's

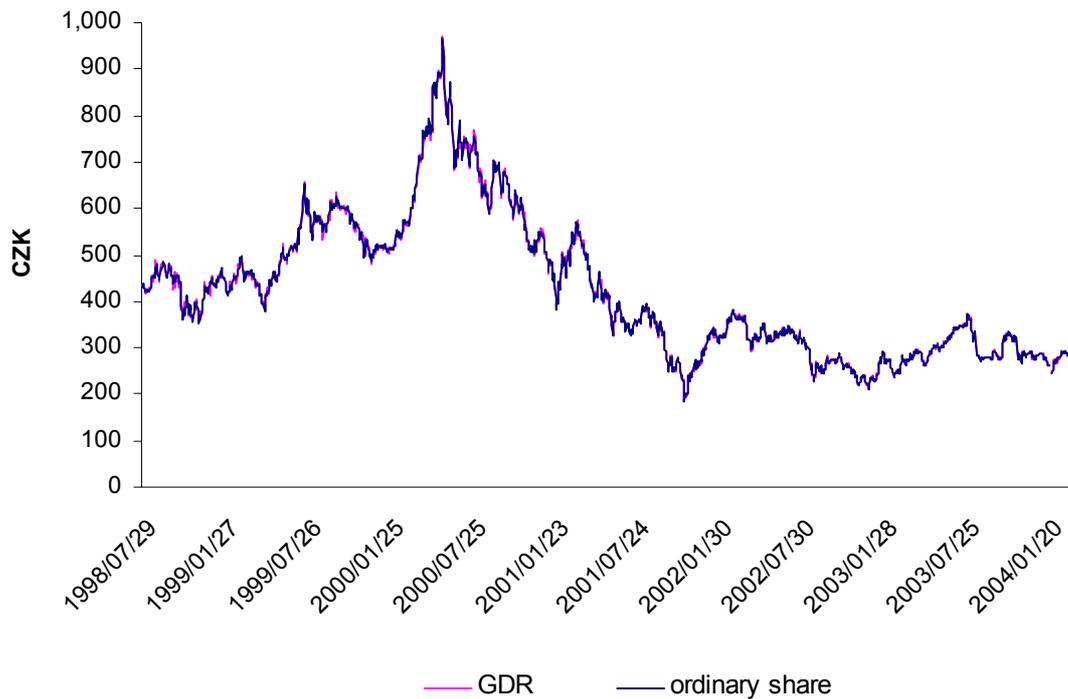
3.2.1. Evidence on DR and underlying share's prices correlation

Using the method employing the prices of depositary receipts, we have examined 3 Czech, 3 Hungarian and 3 Polish stocks, to which DRs have been issued: Komerční banka, České radiokomunikace and Český Telecom, Borsodchem, Gedeon Richter and Magyar Tavkozlesi, Prokom Software, KGHM and Telekomunikacja Polska (usually from the date of DR issue until recently³¹). We found, that the prices of depositary receipts and their underlying shares are very closely correlated.

³¹ The end of the observed period depends on availability of data. For the Czech shares, the period ends in January 2004, for the Polish ones in December 2003 and for Hungarian in June 2003.

To describe the results in more detail, in case of Český Telecom, the correlation coefficient between the two time series speaks for itself, reaching value of more than 0.999 for the period from June 1998 until January 2004. The similarity of the prices is very obvious from the figure below, which depicts price development of the Český Telecom's stock on the Prague Stock Exchange and respective GDR on the London Stock Exchange, both in CZK.

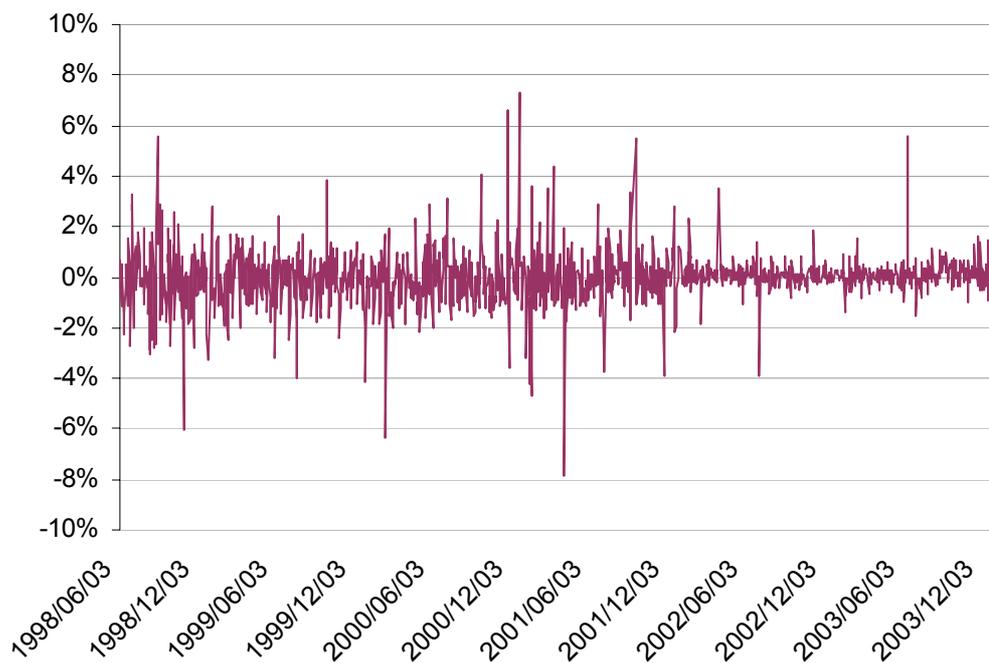
Figure 10: Development of Český Telecom ordinary share and GDR prices



Source: Český Telecom, Czech National Bank

The price difference between the two instruments (which means CZK equivalent of GDR price quoted in London minus the price of share on the local market) deviated from the range of $\pm 1\%$ around the ordinary share's price for longer than one day the last time in January 2002, and even then it was just for two days (see Figure 11). Prior to that, the price gaps were greater, longer lasting and more frequent. Nevertheless, the price difference always returned into the $\pm 1\%$ range at the latest after three days and never exceeded 8% in absolute value.

Figure 11: Difference between prices of Český Telecom ordinary share and GDR



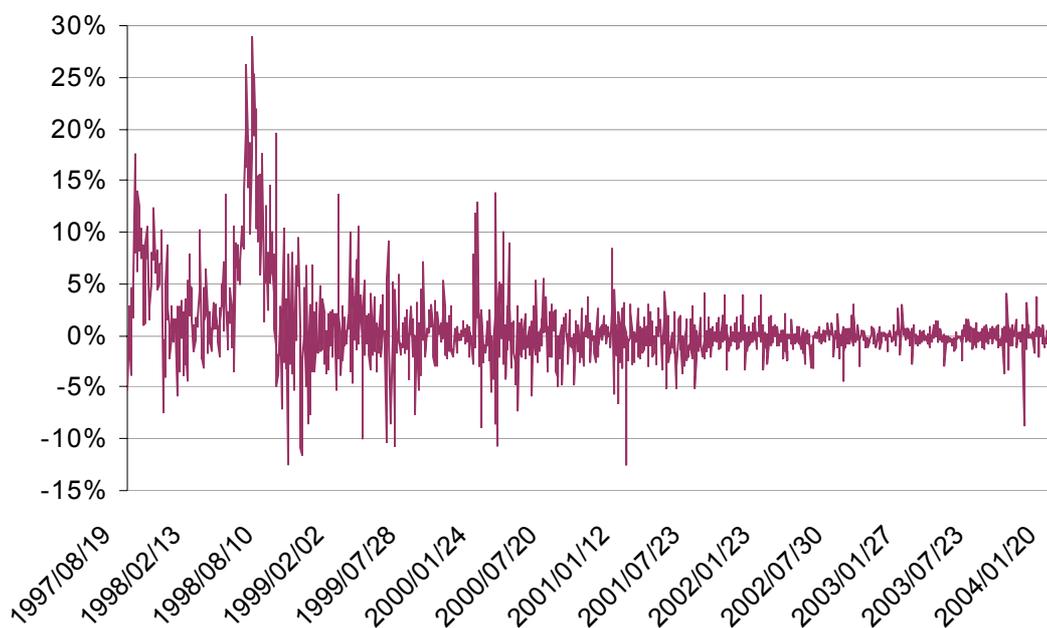
Note: The difference is calculated in a following way: CZK equivalent of GDR price minus ordinary share's price, as a percentage of the ordinary share's price.

Source: Český Telecom, Czech National Bank

Also in case of Komerční banka, the two time series lie very close to each other. The correlation coefficient, calculated from the daily prices between August 1997 and January 2004, is as high as 0.998. (An illustration of the two prices development analogous to the Figure 10 can be found in Annex 1.)

Although the price differences are much larger compared to the situation by Český Telecom, the deviations have never took longer than two days since January 2002 (see Figure 12). Earlier, substantial price gaps persisted three and more days and in 1998 it was not rare that the price difference exceeded 10% (once even for 11 days in a row).

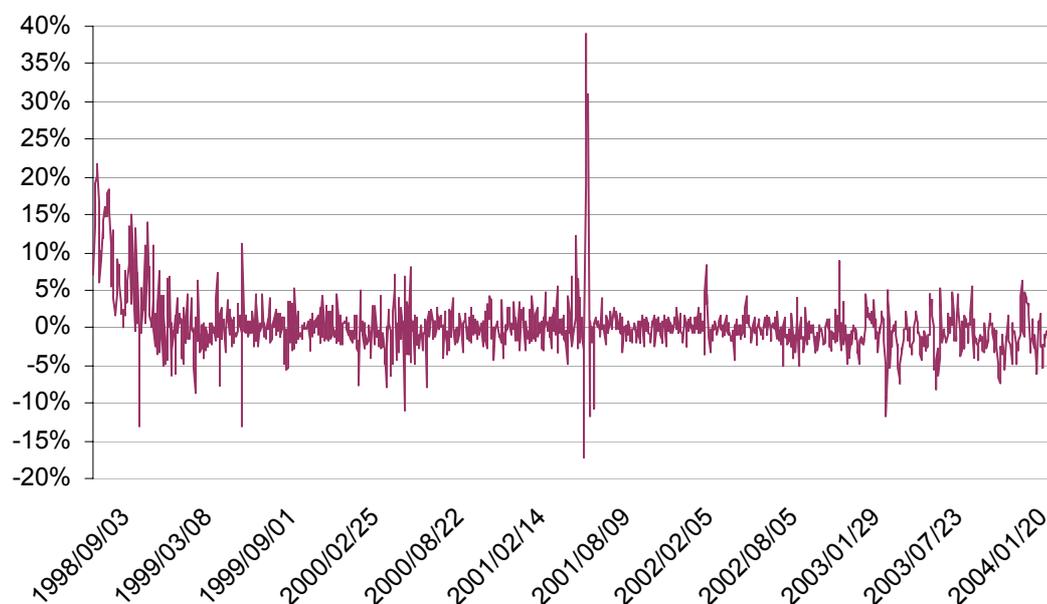
Figure 12: Difference between prices of Komerční banka ordinary share and GDR



Note: The difference is calculated in a following way: CZK equivalent of GDR price minus ordinary share's price, as a percentage of the ordinary share's price.

Source: Prague Stock Exchange, Yahoo Finance, Czech National Bank

Figure 13: Difference between prices of České radiokomunikace ord. share and GDR



Note: The difference is calculated in a following way: CZK equivalent of GDR price minus ordinary share's price, as a percentage of the ordinary share's price.

Source: Prague Stock Exchange, Yahoo Finance, Czech National Bank

For equities of České radiokomunikace, the results are not that clear, even though also here the correlation coefficient lies above 0.998 (for data from May 1998 until January 2004). Nevertheless, the price gap reached high values up to 11.8% even in 2003 and there were still some deviations of more than two percent of the actual shares' price in both directions persisting, which could be balanced first after seven days. It doesn't seem there has been any great improvement with regards to the price differences in the recent years, such as it could be observed in case of the previous stocks.

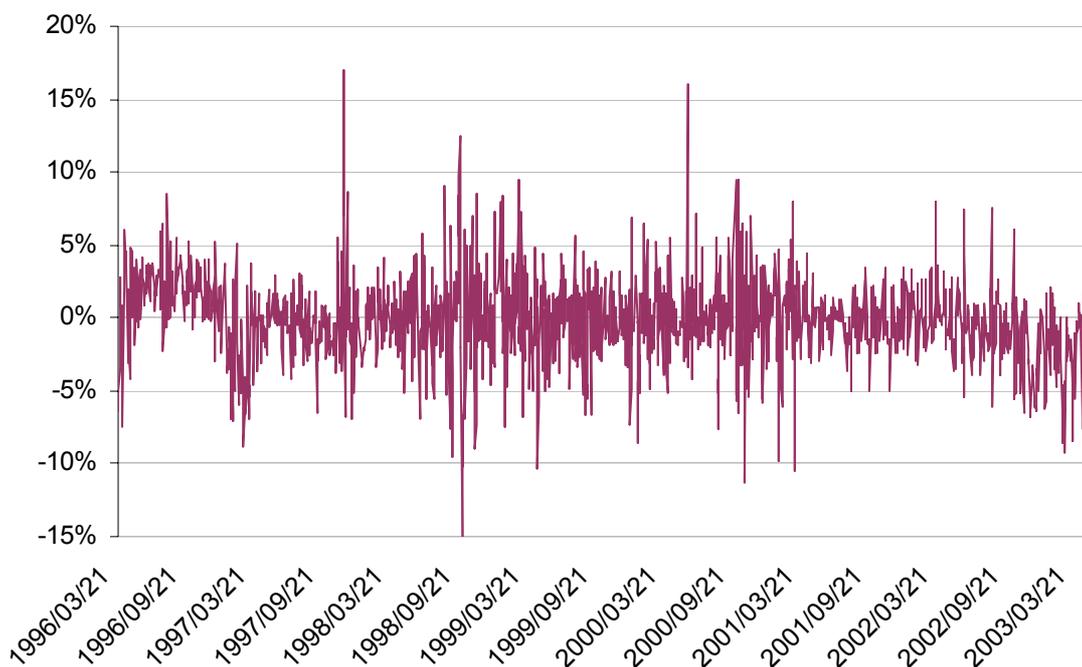
The Hungarian stocks show also very similar development patterns of the two time series. In general, the correlation coefficients reach as high values as in case of the Czech stocks. With exception of Borsodchem the price deviations have been very low recently.

By company Magyar Tavkozlesi, the correlation coefficient reaches almost 0.998. Differences between the two prices are very small; higher deviation, which persisted for a few days, occurred the last time in 2001. Before that, such deviations were more frequent, but always limited by the level of 5%.

The development of Gedeon Richter's equity resembles to the above-described case of Magyar Tavkozlesi very much. Also there were the longer lasting price gaps more frequent prior to year 2001, but haven't appeared since then. Correlation coefficient of the two time series is higher than 0.998.

Slightly different is the situation at Borsodchem, where the correlation coefficient lags little behind, reaching 0.996 (from March 1996 until May 2003). Moreover, longer lasting price gaps between the two securities are very frequent during the whole observed period and interestingly these occurred in 2002 and 2003 more often than earlier. The price differences climb as high as to 10% and last over 10 days. The results for Borsodchem, however, do not seem to relate to the market integration issue, as the other Hungarian stocks do not show similar developments and moreover it doesn't sound logical, that the Hungarian market would become less integrated. There seem to be rather some company-specific factors, which could explain the deviations.

Figure 14: Difference between prices of Borsodchem ordinary share and GDR



Note: The difference is calculated in a following way: HUF equivalent of GDR price minus ordinary share's price, as a percentage of the ordinary share's price.

Source: Budapest Stock Exchange, Yahoo Finance, National Bank of Hungary

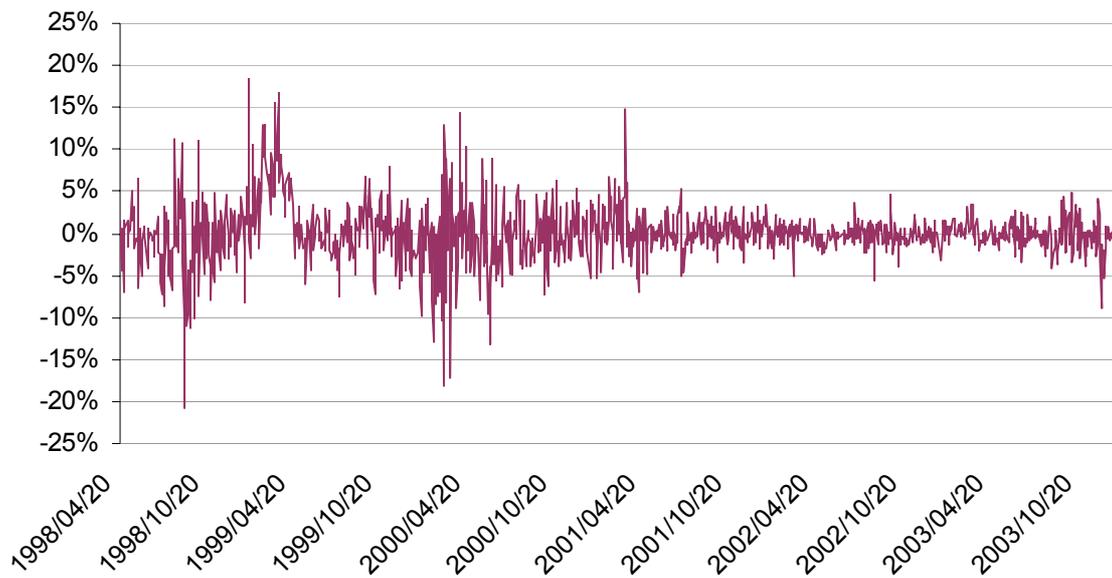
Among the observed stocks from the three countries, Czech Republic, Hungary and Poland, the Polish ones recorded the most significant disparities between the price of ordinary shares in the local market and equivalent price of the depositary receipts at the London Stock Exchange. Nevertheless, same as in the other two countries, the two prices are getting closer to each other over time.

This development can be observed very well on the example of Prokom Software (see Figure 15). In 1999, it happened that the two time series deviated from each other for more than one month by at least 2%, but usually much more, up to 14% (exceptionally even over 20%). These have become more and more rare, nevertheless such cases, when the prices differ more than by 1% for more than a week, appeared also in 2003.

Neither the correlation coefficients reach so high values as in Czech Republic or Hungary. In case of Prokom Software, the coefficient from April 1998 till the end of 2003 equals 0.976, which is less than with the stocks above but still high enough. When we, however, consider data until the end of 1999, we obtain correlation coefficient of just 0.567. This confirms the expectation that the correlation improves over time.

For the other observed companies, KGHM and Telekomunikacja Polska, there are substantially less arbitrage opportunities, as the price gaps usually do not last longer than 3 days and are typically limited by 5%. The correlation coefficients till the end of the year 2003 reached 0.987 and 0.997 respectively; for somewhat older data, till 2000, the values decrease to 0.983 and 0.987.

Figure 15: Difference between prices of Prokom Software ordinary share and GDR



Note: The difference is calculated in a following way: PLN equivalent of GDR price minus ordinary share's price, as a percentage of the ordinary share's price.

Source: Warsaw Stock Exchange, Yahoo Finance, National Bank of Poland

These results correspond with the findings of Podpiera (2001), who examined several Central European issues. Podpiera concludes his results as follows: “Overall, despite the fact that the two time series appear to be reasonably close, there might be room for profitable arbitrage.”³² Nevertheless, we must again realize that the Podpiera's data cover only the period till August 2000 and it is clear, a lot has changed since then. Nowadays the prices seem to be more and more correlated. For all the nine companies, correlation of the two time series was lower until the end of August 2000, nevertheless, the correlation

³² Podpiera (2001), p. 21

coefficient dropped below 0.99 only in case of Komerční banka among the Czech shares, by none of Hungarian shares, but decreased substantially for all the Polish shares. In any case, with the proceeding market integration, the speed of adjustment of the price gaps increases and thus the space for arbitrage is being reduced. This should be the result of the process of markets integration. There remain, however, still some cases, such as Prokom Software and Borsodchem (or perhaps also České radiokomunikace), where arbitrage between GDRs and actual shares in the local market could generate profits.

For all the nine stocks, the deviations of the two prices go in both directions. From the date of the GDR issue, the days when actual share's closing price was higher than the local currency equivalent of the GDR closing price were balanced with the days, when the opposite happened. While in case of Komerční banka and Český Telecom, the days when the GDR price was slightly higher prevailed, for České radiokomunikace, the opposite holds, even with the most marked dominance. On contrary, from the watched Hungarian stocks, only Gedeon Richter recorded a prevalence of days, on which the GDR price was higher. Moreover, there is quite marked change of the Borsodchem price gaps' character. While earlier, the GDR traded with premium, more recently, the price of actual shares in the domestic market has been rather higher. With two of the three Polish shares, price of actual shares reaches more frequently higher level, but it is the other way round for KGHM. However, as there doesn't seem to be any general pattern of price gaps, we are not able to say anything about the character of the barriers between the markets, as Suh (2001) in his theory of price premium or discount suggests.

3.3. DR INDICES

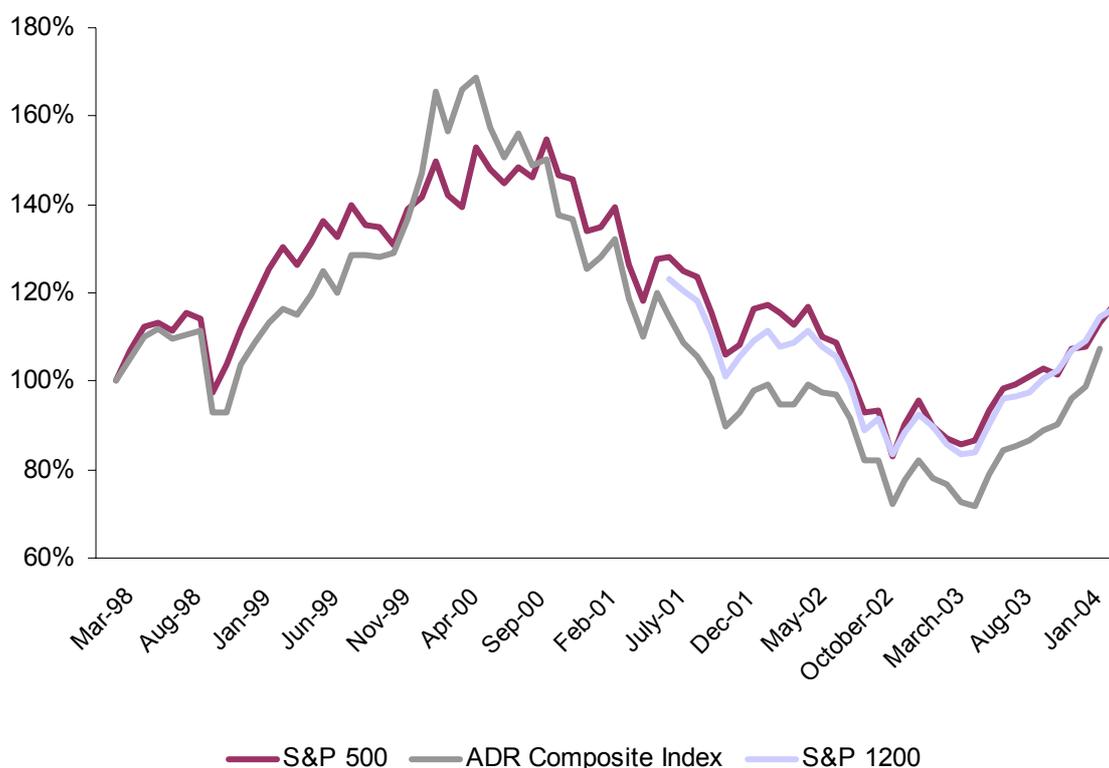
The overall development of DR prices is represented by several indices. Perhaps the best-known ADR index was created by The Bank of New York (BNY ADR Index) in March 1998. This BNY ADR Composite Index tracks all depositary receipts and New York Shares traded on the main American exchanges. (It is composed of approximately 500 companies from 42 countries.) The ADR Index falls typically in line with global equity markets (Figure 16). The correlation coefficient with the S&P 1200 Global index is more than 0.91³³. The development of the BNY ADR Index is even stronger related to the American market's performance, which is supported by its correlation with the S&P 500

³³ Own calculation based on monthly data from June 2001 till December 2003.

Index (correlation coefficient over 0.95³⁴). Later on, several more specific ADR sub-indices were developed by The Bank of New York, such as regional, country or industrial ADR indices.

The BNY ADR Index reversed in 2003 the three-year downward trend, rising by 37.1%. The best performing regional sub-index was the Latin America Index, which posted a 71.46% increase over 2003. The second best ranked the Emerging Markets Index. Generally, all the ADR indices outperformed the US markets in 2003.

Figure 16: Development of BNY ADR Index compared to indices S&P 500 and 1200



Note: The BNY ADR Index was launched March 3, 1998. Prior values have been backcasted. S&P 500 Index comprises of 500 leading companies in leading industries of the US economy. S&P Global 1200 Index consists of S&P 500 and 6 regional indices, combining 29 local markets. It represents approximately 70% of the world market capitalization.

Source: The Bank of New York, Standard & Poor's, Yahoo Finance

Some other institutions have established ADR indices as well³⁵. An example of another index following the price development of depositary receipts is the Bloomberg

³⁴ Own calculation based on monthly data from January 1998 till December 2003.

ADR Index. It is a price-weighted index of 42 ADRs. The index was developed with a base value of 100 as of December 31, 1996.

The S&P ADR Index was launched June 3, 2002, as an investable index. It represents some 266 US exchange-listed foreign issuers from 26 markets, covering Level II and Level III ADRs, Global Shares and Canadian equities listed in the US. The S&P ADR Index is a dollar-denominated version of the US-listed, but foreign domiciled, constituents of the S&P Global 1200. Investing in the ADR Index brings the advantage of diversified international portfolio, accompanied by cost savings. The benefits for ADR issuers involve the potential for enhanced program liquidity and ownership diversification among US investors.

Although constituents of the two indices, BNY ADR Index and the S&P ADR Index, differ a lot, their performance is very similar. The correlation coefficient is as high as 0.99³⁶.

3.4. UNDERLYING SHARES' PRICE REACTIONS

The price of actual shares, underlying the depositary receipts, usually reacts to introduction of a DR program. The reaction doesn't always wait for the issuance of the certificates, but reflects already the announcement that a DR program is going to be launched or the moment, when information on the planned DR program introduction leaks into the market. While it is common to almost all issues that the price of actual shares is affected, the structure of the price behavior is largely variable across companies. The performance depends on the home and the listing markets' specifications and company-specific features.

Several studies have examined the impact of launching a DR program on the price of the underlying shares. In these studies almost all possible results have been achieved. Most of them observe the Abnormal and/or Cumulative Abnormal Returns (AR or CAR) to view the results. Abnormal returns represent risk-adjusted performance, free of market-wide influences and can be calculated with the following formula:

$$AR_i = R_i - (\alpha_i + \beta_i R_m),$$

³⁵ The indices are called ADR, although they comprise of both ADRs and GDRs, usually also New York Shares and sometimes also Global Shares or even Canadian stocks. This shows, that the term ADR is used rather generally.

³⁶ Given the S&P calculations, from January 1998 till January 2003.

where R_i stands for return of an individual share, R_m is the return of the whole market and α_i and β_i are coefficients obtained from a regression on the historical data. The CARs are cumulated ARs over time and can be computed over various windows.

We will bring the findings of some of them. Also we will try to track some of the factors, which influence the share price development around the DR program establishment. Finally we present evidence from several Central European (Czech, Hungarian and Polish) cases.

3.4.1. Previous research

To name some of the earlier studies, Jayaraman et al. (1993) observed positive significant ARs on the listing day, suggesting there is value associated with ADR listing. Domowitz et al. (1995) on contrary didn't find any significant externality on the price of pure local stocks; a little price effect was observed just with regard to Level III ADRs. Miller (1996) recorded positive significant Abnormal Returns during the announcement period, negative significant ARs after listing; at the same time, firms announcing an ADR listing in a large market experienced larger positive ARs than firms launching ADR programs on the OTC market. In line with the market segmentation hypothesis, he found that firms located in emerging markets show larger increase in ARs than those coming from developed markets. The latter two findings were partially confirmed also by Foerster and Karolyi (1999). They examined a sample of 333 global equity offerings from 35 countries with US tranches and found that they underperform their local market benchmarks of comparable firms. They show further that private placement DR issuers typically underperform their respective benchmarks; investors tend to penalize those among them that come to the US from countries with lower home-market accounting standards. By contrast, firms that issue equity on major public exchanges in the US modestly outperform their benchmarks, but those among them that come from emerging markets with low accounting standards significantly outperform their benchmarks. "Post-issuance returns are significantly and positively related to the ability of the firm to capture a proportionately larger share of US trading volume."³⁷

Karolyi (1998) concludes, that empirical evidence generally indicates an increase in market value in the month around listing. In the post-listing period, however, the price

³⁷ Foerster and Karolyi (1999), p. 5

performance differs from firm to firm and for large number of stocks the price declines and the initial increase dissolves during the first year of listing.

On the other hand, there were also studies evidencing clear results indicating in one direction. Recently, company Oxford Metrica executed value analysis of depositary receipts, considering 767 DR programs covering the period 1980-2003. The analysis brings entirely positive results of the DR program introduction (which could give raise to some suspicions). To summarize the findings³⁸:

- a) DRs add on average up to 10% of shareholder value³⁹ in their first year of trading (for OTC programs it is slightly less than for the listed ones)
- b) An upgrade to a US listed program adds further 15% of value
- c) Delisting a program of Level II or III destroys value by over 25% over the following year, while terminating a DR program destroys just 20% of the value

3.4.2. Factors behind the price reaction

How can be the different price movements associated with introduction of a depositary receipt program explained? There is definitely not one single factor that affects the price behavior of the actual shares. It is rather a complex set of forces, which, combined, result in a certain price development structure. That is the reason why stocks of firms issuing depositary receipts from one market can behave completely differently than stocks domiciled in another market. Nevertheless, some typical patterns can still be observed.

One channel, through which the price is affected, can be called the liquidity effect. A cross-border listing has almost in all cases impact on liquidity. Typically, the cross-border listing enhances liquidity of trading with the underlying stocks in the home market, but there is also evidence that the cross listing shifts liquidity from the home towards the DR market. (We will address this issue in the next chapter in more detail.) The increased liquidity leads to lower transaction costs, causing lower expected returns, which as a result of lower costs of capital imply higher shareholder value of the stocks and thus bring on an upward reaction of the share price.

³⁸ Oxford Metrica (2003), p. 3

³⁹ Shareholder value is represented by the share price, which is the market's best estimate of the firm's long-term future cash flow. In the model share price reaction in the local market was taken, where market-wide influences have been stripped out and returns have been risk adjusted.

Also, changes in risk exposure of the stocks play an important role. The DR listing reduces the exposure to domestic market risk. At the same time, the exposure to the global market risk increases. The risk reduction, however, typically prevails. As a consequence of the reduced risk exposure, the company again lowers its cost of equity capital and lower capital costs lead to higher company value.

Similarly, a company that gains access external capital markets becomes much less dependent on the home market sources. This reduces its sensitivity of investment to cash flow, which might be quite high in particular in emerging markets. This is another reason, why the firms from emerging markets can decrease their costs of capital by listing abroad.

Firms issuing DRs are obliged to submit more information to the market. The stricter disclosure rules they are subject to reduce the information asymmetry and the cost to outsider investors of monitoring the managerial actions. At the same time, the readiness of a company to give away more information serves as a signal to the local investors about prospects of the firm. And already Merton in his model of capital market equilibrium with incomplete information showed that the market value of a firm would always be lower with incomplete information.⁴⁰

It has been examined recently how the legal protection of minority shareholders on a given market affects the firm value and e.g. La Porta et al. (2001) found evidence, that in countries with better protection of minority shareholders and in firms with higher cash flow ownership by the controlling shareholder, firms are valued higher. Following this trend, Doidge, Karolyi and Stulz (2001) find that cross-listing firms are valued higher than firms that do not list and argue the reason is that the firms that list are those with lower controlling shareholder agency costs.

The extent to which the price is affected might be influenced by the level of market segmentation between the home and the DR markets. This theory is supported by several studies, e.g. Alexander et al. (1988), which found evidence that the reactions to the Canadian listings in the American markets are less marked than for the non-Canadian listings. Although not all studies bring the same results, it sounds quite logic. In case, when there are less capital barriers between the two markets, the DR listing does not mean such a dramatic change as in the case of segmented markets.

⁴⁰ Merton (1987)

3.5. SHARE PRICE BEHAVIOR AROUND CENTRAL EUROPEAN DR ISSUES

In this section, we will examine how listings of depositary receipts affect the share prices of involved Central European companies in the local market. Our hypothesis was that the stock value should increase substantially following the DR issue. We expected an extraordinarily high value increase mainly due to the improved access to capital and liquidity, as the emerging Central European markets suffer from low liquidity and the possibilities of company financing are limited. First we consider a sample of shares as a whole and later we will concentrate on two Czech shares.

3.5.1. Price response to the DR program establishment

I included in my sample 19 DR issues by Central European companies (from Czech Republic, Poland and Hungary). For these stocks daily quotations of at least one year after the issue were available. All of them are traded over the counter and an overwhelming majority of the programs was established under the Rule 144A and Reg S.

The first objective was to find out, whether there can be observed a systematic value increase following establishment of a DR program, as e.g. the study performed by Oxford Metrica suggests. We analyzed the share price 20 days before and one year (251 trading days, including the day of the issue) after the issue.

The simple average of value added to the share price one year after establishment of the DR program reached very high, positive value; the value increase (from the level of the day 20 prior to the issue) equaled 33.33% 250 days after the issue. This result confirms the findings of Oxford Metrica, which achieved very similar value reaction that seems to be very positive. Nevertheless, it doesn't mean at all that all of the share prices increased. On contrary, 7 of the observed stocks lost some of their value, while the remaining 12 shares recorded value added. It would thus not be quite fair to claim, that a DR program establishment generally creates value.⁴¹

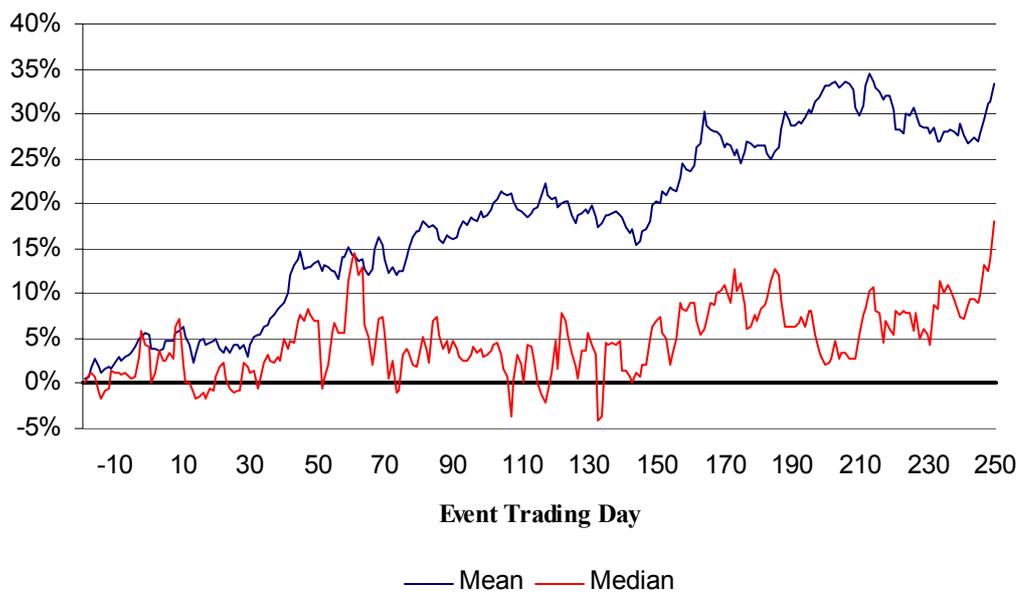
To show just the average values is therefore little misleading. It is obvious from the median of the value increases (depicted with the red line in the Figure 17). Within the first half year after the issue, negative median values are frequent and first on the day 130 following the event the median price change takes an upward trend. The positive median

⁴¹ This holds for our observation. We can't say anything about the detailed results of the Oxford Metrica study, as only the average values were made public.

confirms the fact that after the 130th day after the DR issue, the value increases (compared to the value 20 days prior to the listing) in more cases than it decreases.

The price development 20 days before the listing is important, in order to track the information leakage to the market. The stock value rises in my sample during the 20 days before the issue by over 5.5% on average, which could be thanks to the positive reaction of the market to the awaited DR issue. The growth is most marked during the three days preceding the event, which could be explained by the fact that the programs are announced usually just short before their introduction. Even the median of the sample shows a price increase in the 3 days prior to the listing, which proves that in majority of cases the share value rose and that the average value is not just distorted by an extreme growth of one stock.

Figure 17: Price increase following DR program establishment in CE



Source: Prague Stock Exchange, Budapest Stock Exchange, Warsaw Stock Exchange

3.5.2. Daily returns behavior around the DR listing

On a broadened sample of equities, we observed the price behavior of the actual shares underlying the depositary receipts around the date of DR listing. It may be more appropriate to watch the price development around the day, when it was announced that the DR program was going to be launched, rather than the very day of the offering. It is, nevertheless, extremely difficult to collect such data, as it is not clear when the information was made public for the first time. Another trouble is that the information may somehow

leak into the market without being officially announced. These are the reasons why most works on this topic prefer the listing day.⁴²

I calculated an average daily performance on 50 days after the offering for each issue and compared it to the average performance 50 days before the event. My expectations were that the daily returns should be significantly higher immediately after the DR listing than they were before. One of the factors behind would be the positive expectations of the market, stemming from the enhanced access to capital, increased liquidity, lower cost of capital ... The initial price increase might dissipate over time, when the named positive expectations do not fulfill.

The observed sample included the same issues as in the calculation above, plus two other: Telekomunikacja Polska and the 2003 offering of Český Telecom⁴³. Our hypothesis was absolutely confirmed by the Czech issues. For the initial as well as seasoned offerings of DRs, average daily returns rose substantially. (The difference between average daily return 50 days after and before the event ranged from 10 to 92 basis points.) It did, however, not always hold for the Hungarian and Polish stocks; Hungarian stocks corresponded with the expectations in 5 out of 8 cases, the Polish even only by 2 out of 7 shares. Several explanations suggest themselves and it would need much deeper analyses to be able to say which of them play the most important role. First of all, we might have chosen too long period after the event and the initial positive reaction already started to disappear during it. When we examined this hypothesis and shortened the observed post-listing period to 20 days, the result changed in case of two Polish and two Hungarian shares. (At the same time, for one Polish and one Hungarian share, the result changed in the opposite direction.) Another likely explanation seems to be that, due to information leakage into the market, the price already contains it on the date of issue.

3.5.3. Concrete example of two Czech shares

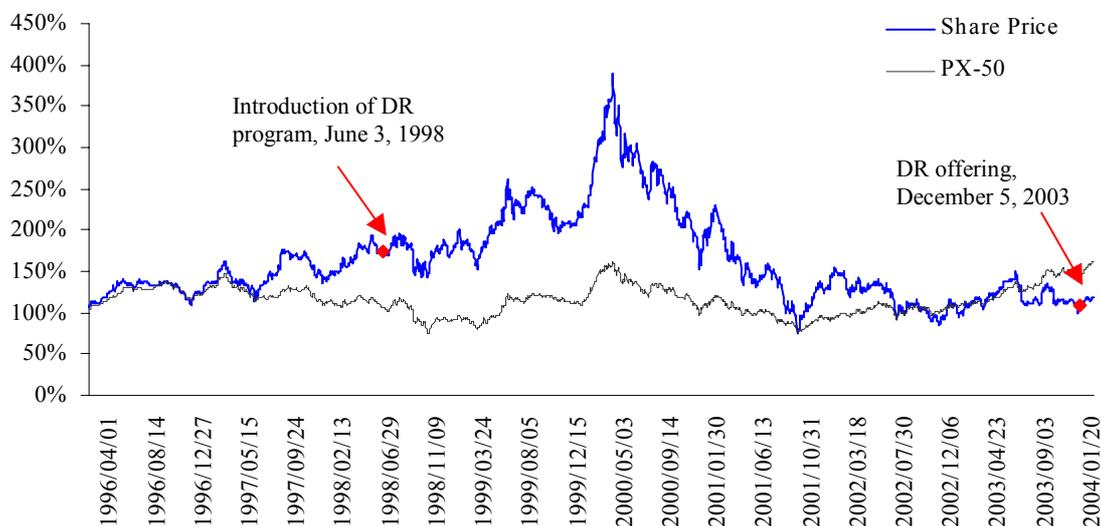
In the figure below, price behavior of the Český Telecom share is depicted, with the days of DR offerings marked red. To be able to separate from the market trends, the development of PSE index PX-50 is supplemented. (It can't, however, be considered

⁴² One of the few studies, which considered the announcement date as the event day, was Miller (1996).

⁴³ These two offerings couldn't be included in other calculations, as not enough observations were available after the event.

purely as the illustration of the “market driven” development, as the Český Telecom share is also involved and carries a great weight.)

Figure 18: Price development of Český Telecom share compared to the market index



Note: The share price and value of the index on December 5, 1996 are taken as base values (100%).

The second DR offering in December 2003 was not a new DR program, but an offering within the first GDR program.

Source: Český Telecom, Prague Stock Exchange

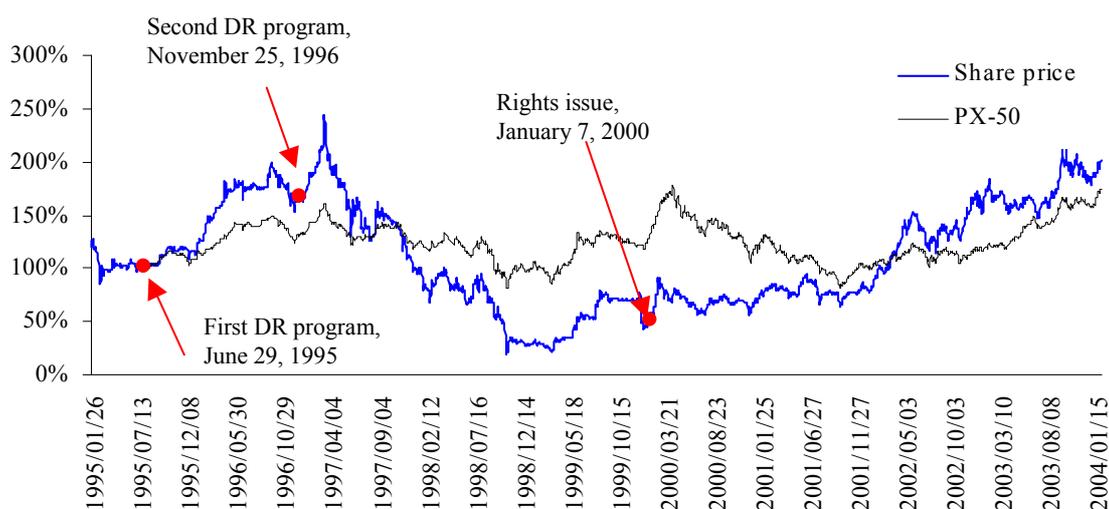
We can observe a significant value increase during the two years after the listing (although with some temporal drops during the first year). During the first year, the share’s price increased by 38% and at the end of the second year the price change climbed to +75%. The market as a whole achieved less than half of the appreciation, when in addition a part of the increase must be accounted just for the Telecom’s share price increase. It is questionable whether the DR issue stands behind this price behavior. In our opinion, the DR program pushed the share price upward, but it should by no means sound as if it was the only driving force.

The second DR offering has taken place only very recently. Perhaps only from the data at the end of 2004 we will be able to say, whether a similar price pattern will appear. At the same time, a seasoned offering must naturally have slightly different impact, as it for example doesn’t contribute any more that much to the company’s visibility.

The first Czech DR program was established by Komerční banka in June 1995. Subsequent to that date, the price of the share of Komerční banka was rising (except for the first month’s decline) steeply. After one year of trading, the value increased by more than

70%. Half a year later, another DR issue took place with subsequent sharp price increase of up to 42% in the first 60 days. (The PX-50 index gained during the same period 15%.) Then, however, a sudden fall followed, which was reversed first after two years, when the share reached a historical minimum. Since the rights issue in 2000, the share has been achieving almost uniquely better performances than the market.

Figure 19: Price development of Komerční banka share compared to the market index



Note: The share price and value of the index on July 3, 1995 are taken as base values (100%).

Source: Prague Stock Exchange

Interestingly, prior to all of the above-discussed DR offerings, the share price dropped down and first after the event started to head upwards (sometimes with a delay). From these findings we could conclude an investment recommendation to purchase shares of companies listing depositary receipts on the date of the issue and hold them 1-2 months. There are, however, too few observations to be able to make such a strong conclusion. Moreover, in a few cases of Hungarian and Polish shares, this theory doesn't hold and even great losses were recorded, which means that it would be too risky to bet on this horse. At the same time, taking the results on average value creation following the DR offering (section 3.5.1.), it seems reasonable to purchase the shares as soon as the information on DR issue leaks into the market and hold them one year. If applied this practice with all DR issues, the aggregate return would be significantly positive and we could achieve appreciation of more than 25 percent annually (as the results above suggest).

4. LIQUIDITY EFFECTS

As we have already mentioned above, it is generally expected that the cross-border listing will be accompanied by an increase in liquidity of the underlying stock. There are, however, also other voices, which argue the opposite. Either they claim that trading with the given stock migrates to the DR market or they even worry about the impact on the overall market quality. We will present some of the opinions and quantitative results from previous studies in the first part of this chapter. In our own empirical analyses we will deal again with the effects on Czech, Hungarian and Polish equities. Later in this chapter we focus on the total market liquidity development.

4.1. FORCES AFFECTING LIQUIDITY

Why should a cross listing enhance liquidity of the actual shares on the local market? There are several factors, most of which have already been dealt with in the previous chapters. First of all, a DR program introduction increases visibility of the company both in the local and foreign markets. This event supports the analysts' coverage of the stock, which helps to reduce the information asymmetry and improve the future development predictions and thus enhances the investors' interest. In particular for companies from emerging markets "international cross-listing works as an advertisement and draws attention of the international investment community", as Korczak and Bohl⁴⁴ note.

The DR listing brings the possibility of cross-border trading. The increased trading volumes might be result of exploiting arbitrage opportunities from temporal price gaps between stock price in the local market and equivalent price of depositary receipt in the foreign market, Smith and Sofianos (1997) suggested. The fact that the possibility of cross-border trading has a marked influence on the share's liquidity is obvious from the increased trading activity, which can be observed during overlapping trading hours.

Market expectations drive the demand for shares already in the pre-listing period. The most active trading around the issue indicates strong reaction of investors to the event. These forces driven by expectations play an especially important role before and around the listing, but they are gradually weakened in the post-listing period.

⁴⁴ Korczak and Bohl (2003), p. 13

4.2. PREVIOUS RESEARCH

From the earlier studies, Foerster and Karolyi (1996), among others, dealt with the effects of cross-border listing on liquidity of the stock. They examined a sample of 52 Canadian stocks listing in the US. Their results suggested an overall increase in trading volume, more than half of the shares, however, realized a home-market trading volume decline.

Karolyi (1998) also recorded post-listing increase in trading volume on average, but for many issues also growth of the home market trading activity in the underlying share. He finds that the scale of the home market liquidity effect depends on the increase in total trading volume, the listing location and the scope of foreign ownership restrictions in the home market.

Recent evidence was presented by Oxford Metrica in its empirical study. Their results show an increase in liquidity in ordinary shares by an average of 23% for Level I DR programs and of 32% for listed (Level II and III) programs.

The findings of Quiohilag (2003) also support the hypothesis of increased liquidity of the underlying stock subsequent to a DR listing. Moreover, his empirical results bring evidence that stocks from emerging markets experience significant positive effects on liquidity, while the impact on stocks domiciled in developed markets is not clear.

4.3. OWN RESULTS

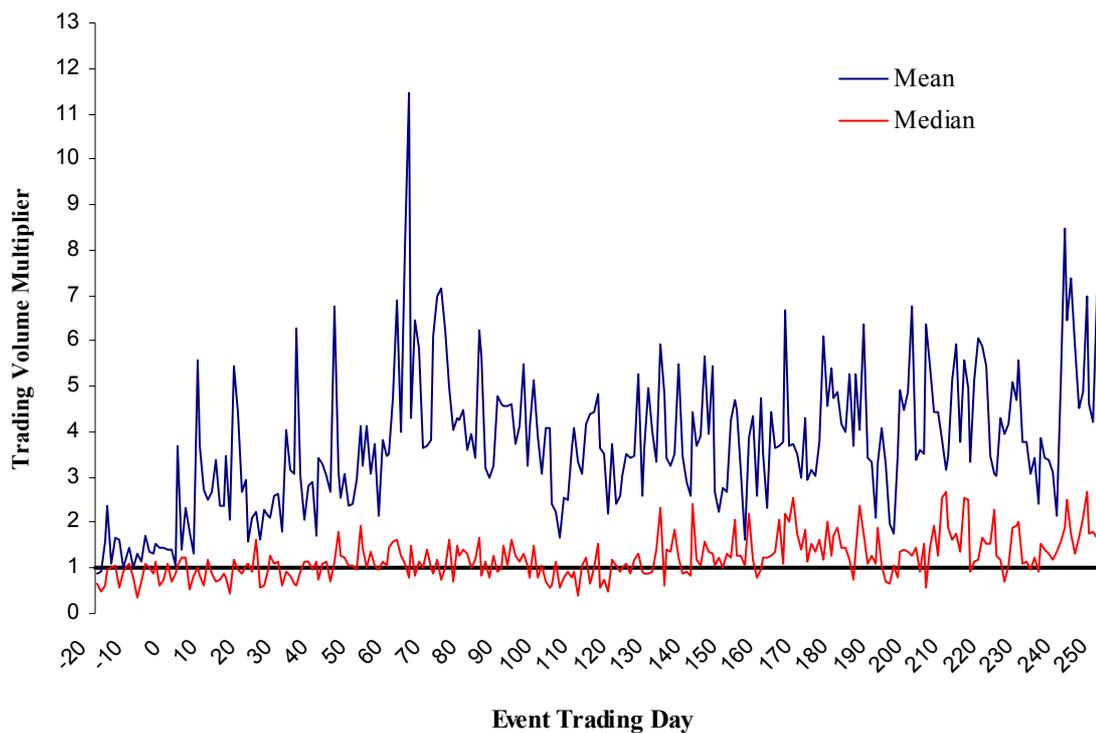
4.3.1. Trading volume multipliers

Firstly we draw on the analysis of Oxford Metrica and apply the method used there. The indicator calculated to observe the effects of DR listing on liquidity in the stock is called “Trading Volume Multiplier”, which is defined as the multiple of the average daily trading volume (number of actual shares traded in the local market) during the previous year.

The sample examined here contains 19 issues (the same sample as was used above). The observed period covered 20 days before the listing and 250 afterwards. An average daily multiple for all the stocks reached very high level of 3.77, which represents an average increase in the daily trading volume of 277%. (The daily average values are depicted in the Figure 20 with the blue line.) This extremely high number is partly due to small count of stocks included in the sample. Every large variance does then have a significant influence on the overall result.

In order to get rid of some of the outliers, which distort the sample average, we eliminated three stocks, by which the trading volumes recorded a substantial jump up (namely Český Telecom, Gedeon Richter and Bank Przemyslowo Handlowy⁴⁵). The result obtained after this alteration seems more feasible. The average increase for the observed period equals 92%. Due to this significant impact of large variations at the individual stocks, a median of the daily multipliers seems to be more appropriate tool than the average in this case. And in fact the difference between average and median turned out to be very marked. (The daily median values are depicted in the Figure 20 with the red line.) The average of the daily medians of multipliers across all stocks achieved value of just 1.21, which means an increase of 21%. This is already very similar result to those obtained in the previous studies on much larger samples.⁴⁶

Figure 20: Impact of DR listing on liquidity



Source: Prague Stock Exchange, Budapest Stock Exchange, Warsaw Stock Exchange

⁴⁵ As it happens, each of these three stocks is domiciled in another market, so that for every country one share was eliminated.

⁴⁶ The great number of stocks included in the sample allowed the authors to use simple average without being exposed to distortions caused by individual share's variations.

A significant upward reaction appears already in the 20 days prior to the listing (an average increase for all stocks by 35%). This increase is, however, rather marginal, compared to the volumes observed during the subsequent months.

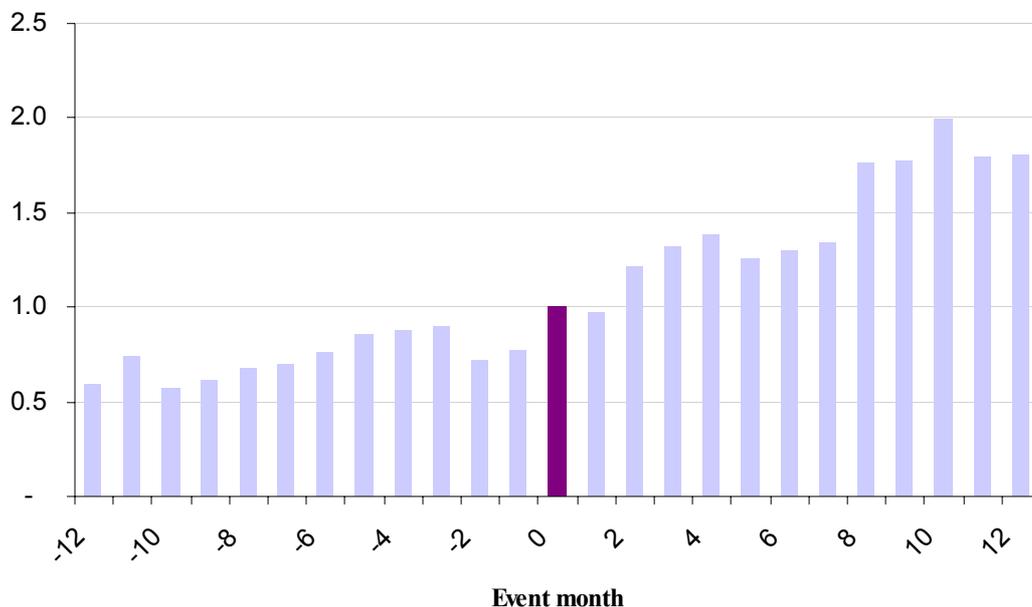
When we look at the results stock by stock, 14 out of 19 issues show an increase in trading volumes. The five shares, in which the trading volumes decreased, contain two very small decreases (average multiplier of 0.96 and 0.92) and three greater declines, in case of MOL, Česká spořitelna and Borsodchem (average multiplier 0.4, 0.66 and 0.75 respectively).

There is one more reason why the multiplier reaches such high values. A DR issue is often associated with a new issue of actual shares and resulting increased number of shares outstanding may then have impact on the trading volumes. When we accept this hypothesis, the increase of trading activity in the pre-listing period gains then relatively higher importance.

4.3.2. Another approach to assess the liquidity effect

In order to avoid the large daily variances in traded volumes, we can observe average monthly rather than daily values. We explored this method on the same sample as before. We calculated total monthly trading volumes 12 month prior to the issue, the month of the program establishment and 12 month after that. Then we related the value for each month to the trading volume in the month, in which the listing occurred and computed an average over the whole sample. The result is depicted in Figure 21. Clearly this simplification would not work, if the trading volumes in the month of listing reached extreme values in any direction. This turned out to hold just for the stock of České radiokomunikace (trading volume in the month of listing was very low), which was for that reason eliminated from the sample so as not to distort the illustration. Surprisingly, it couldn't be observed in case of any issue, that the trading of the share would rise substantially in the month of the listing.

Figure 21: Average monthly trading volumes relative to the trading volumes in the month of DR program establishment



Note: The stock of České radiokomunikace was eliminated, as the trading volumes around listing were extremely low and thus it is not appropriate to relate volumes of other months to the listing month's value.

Source: Prague Stock Exchange, Budapest Stock Exchange, Warsaw Stock Exchange

From the picture above it is obvious that a DR offering had on average a positive impact on liquidity of selected shares. As this sample represents the larger part of all Czech, Polish and Hungarian companies, which issued depositary receipts, it is not too daring to say that in these countries establishment of a DR program by a company typically increases liquidity of its ordinary shares in the local market.

4.3.3. Overall impact on liquidity

Besides the increased trading activity in the share at the local market, trading in the depositary receipts on the foreign market adds. This provides another loop of liquidity to the company's equity. It would be helpful to know the usual proportion in which the DR markets contribute to the stock's liquidity. In case of the Czech DRs - Komerční banka, Český Telecom and České radiokomunikace - the monthly trading values at the London Stock Exchange lie between 1/3 and 1/2 of the monthly trading values in the underlying

shares at the Prague Stock Exchange. The trading with DRs thus adds substantially to the overall liquidity in the equity of these Czech companies. On the other hand, in case of some depositary receipts the trading activity is rather negligible.

The domestic markets may also concern that all trading with the stock shifts abroad. In this area, there is still much space for further research; studies analyzing the liquidity in the DR markets are very rare. One of the reasons may be very bad availability of the data, e.g. due to low liquidity of the instrument compared to other stocks in the relevant markets.

One of the papers dealing with liquidity of internationally cross-listed stocks in the U.S. (comprising also, but not uniquely, ADRs), by Baruch, Karolyi and Lemmon (2003), finds that the trading structure is very variable across countries as well as across sectors within one market. They derive a model, which predicts that “trading volume migrates to the exchange in which the cross-listed asset returns have greater correlation with returns of other assets traded on that market.”⁴⁷

4.4. SPILLOVER EFFECTS ON THE DOMESTIC MARKET LIQUIDITY

Besides the impact of DR listing on the given stock, also the spillover effects on the whole market gained attention in the previous research. The findings again are not unique at all. On one side, Hargis (2000) develops a theoretical model showing, that an international cross-listing can alter incentives of companies and individuals to participate in the market and can that way attribute to transformation of a segmented local equity market with low liquidity to an integrated market with high liquidity and capitalization. On the other hand, concerns are frequently expressed that migration of major share of market capitalization and value traded from small emerging stock exchanges to leading financial centers has adverse consequences on the overall quality of the local market (e.g. Claessens, Klingebiel and Schmukler, 2002). The investors lose interest to trade the remaining less liquid stocks and it becomes more difficult, particularly for the small exchanges, to survive. Fernandes (2002) on contrary finds a positive spillover effect from the first ADR from a country, which is interpreted as an indirect market liberalization event. The effects of liberalization are, however, asymmetric across companies.

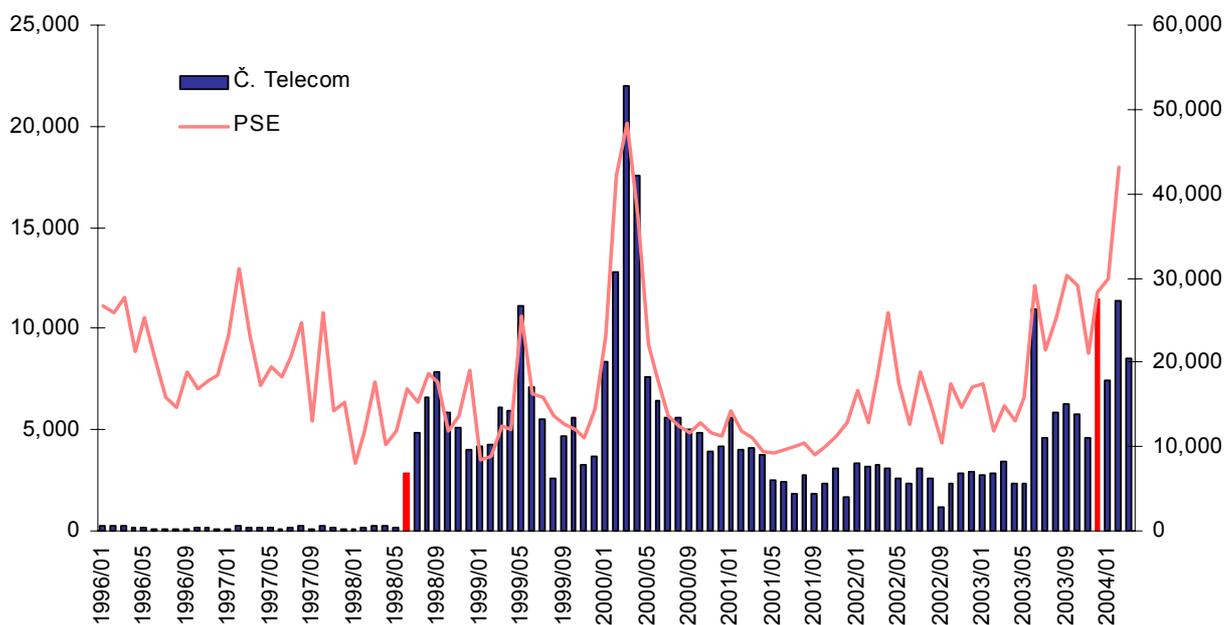
We will look closer on the situation at the Prague Stock Exchange, although it is in no way the best representative. The overall liquidity is very low and the largest part of

⁴⁷ Baruch, Karolyi and Lemmon (2003), p. 15

trading takes place on the main market. The main market constitutes since 2000 of 5 shares, out of which 3 (Český Telecom, Komerční banka and the Austrian Erste Bank) issued DRs. The stocks of companies with a DR program account for around 70% of trading at the Prague Stock Exchange and the individual stocks have substantial influence on the market liquidity. (E.g. the monthly trading with shares of Český Telecom made up for 30% of total trading volume since 1999 on average, for Komerční banka the proportion is 26%.) From the figures below it is obvious, how tightly the whole market activity development is connected with the behavior of the two shares. We can therefore not easily differentiate between the market wide and stock-specific influences.

When we focus on the immediate response of the market to the DR program establishment, we can deduce slightly positive tendency. With exception of the first issue of Komerční banka, the trading volume of the rest of the market in the month of the issue increased compared to the previous month, on average by 20% (including the decline).

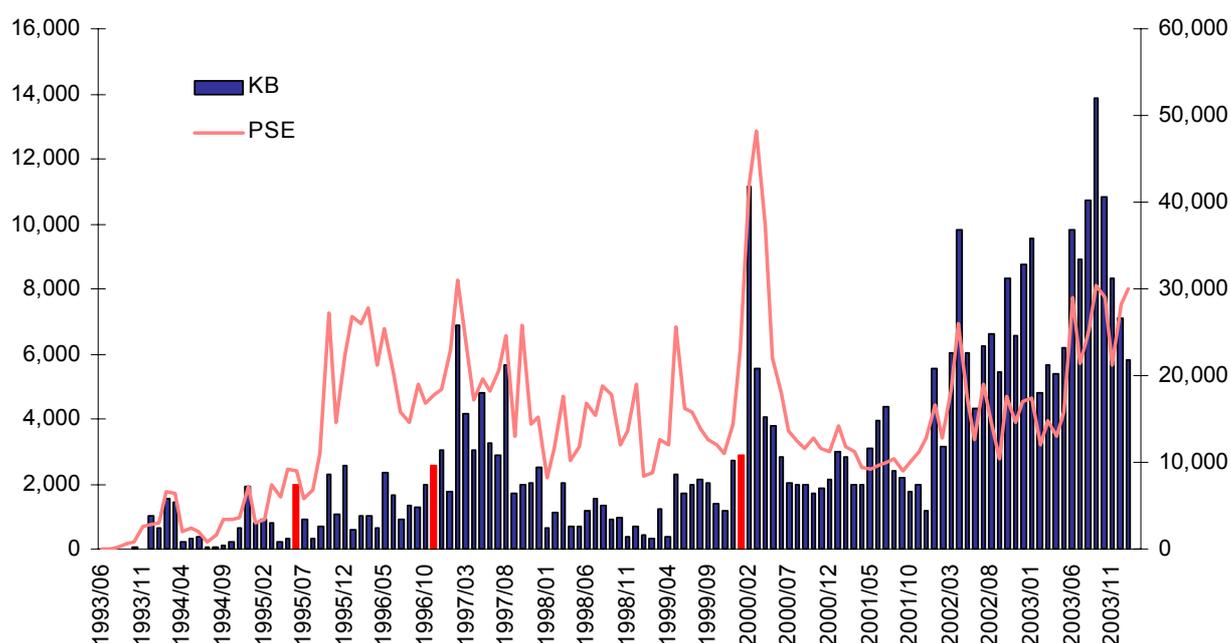
Figure 22: Trading volumes of Český Telecom share and all shares on the Prague Stock Exchange (mil. CZK)



Note: The red marked columns indicate the months, in which DR offerings took place.

Source: Prague Stock Exchange, Český Telecom

Figure 23: Trading volumes of Komerční banka share and all shares on the Prague Stock Exchange (mil. CZK)



Note: The first two red marked columns indicate months, in which DR programs were established, the third is the month of DR rights offering (January 2000).

Source: Prague Stock Exchange

The liquidity of the “residual“ Czech equity market⁴⁸ has been deteriorating permanently (with exception of the last few months). There does not seem to be any positive spillover effect on the whole market. Rather the opposite would seem to be true. (See Annex 3.) The only significant revival of the trading activity on the Prague Stock Exchange, which followed a DR offering, occurred in February 2000, a month after the DR rights offering of Komerční banka. This was, however, mainly driven by trading in Česká spořitelna share and was most likely due to other factors. As we can observe in the Figure 22 above, also the stock of Český Telecom recorded more intensive trading, particularly in March and also April 2000.

⁴⁸ Under residual Czech equity market all Czech shares at the PSE excluding those to which DRs have been issued are understood here.

5. UNUSED POTENTIAL OF DRS BY CZECH COMPANIES AND GOVERNMENT

There are still enough opportunities for the Czech companies in the DR markets. Until today, just Komerční banka, Český Telecom, České radiokomunikace and Česká spořitelna issued depositary receipts⁴⁹. In comparison with Hungary or Poland, the number of Czech depositary receipt programs and the companies involved in them is negligible. (See the Table 8, which includes all Czech, Hungarian and Polish DR programs listed in the US or London as of April 2004.)

The advantages of establishing a DR program have already been discussed in the first chapter and thus we do not want to repeat them here. We will rather pick up some of the opportunities of DRs, which could be exploited by the Czech (and other Central and Eastern European) companies and governments, and which have been to some extent neglected so far. Firstly, the depositary receipts serve (same as ordinary shares and other equity instruments) to raise capital necessary to finance investments... We will deal with this function in the first section of this chapter. The DRs play another important role in the process of privatizations and have been widely used in this context by governments all over the world. As the last point, we will get to the DRs as a useful tool for cross-border mergers and acquisitions (M&A).

5.1. FINANCING INVESTMENT

The companies in need of funds to finance their investments can look for them in the capital markets. Nevertheless, there are limited resources available in the emerging capital markets. The Czech market is moreover not well functioning; it is almost impossible to raise capital there through an initial public offering (IPO) and also the seasoned offerings have difficulty to succeed there. At the same time, the banks are not very keen on giving credits, as they are afraid of the repayment failure. Sufficient funds can't be therefore always obtained in the local market and companies must look for capital abroad.

Not only insufficient funds in the local market can motivate the companies to raise capital internationally. There are several other factors, most of which have already been

⁴⁹ ČEZ has an unsponsored DR program, established by a depositary bank without initiative of the company, which means it didn't serve to acquire new equity capital.

mentioned above, that support the company's decision to list its equity outside the domestic market. To review just a few, a cross-border listing helps to increase visibility of the company, both in the international and domestic markets; listing in the company's export markets improves the ability to penetrate the market; an offering in a market, where a related company is domiciled, enables to create tighter links between the firms.

When a DR listing accompanies local share offering, the potential investors' base increases, which might help the offering to succeed and get a higher price for the shares. A depositary receipt program provides credibility to the local offering and enhances thus the local investors' interest. A multiple listing is an effective method, how to diversify the risk for the issuer.

The opportunity to obtain capital from foreign investors through depositary receipts seems very attractive, but it is not available to all companies. Firstly, quantitative restrictions are imposed on companies willing to list DRs. Only larger companies are able to fulfill the disclosure requirements and can afford the costs associated with a cross-listing. Although these requirements prevent lots of companies from listing the DRs, it is obvious that there still remain many, to which the opportunity is available, but has not been utilized yet. One reason may be the reluctance of the managers or controlling shareholders to give up some of their private benefits of control (Reese and Weisbach, 2002). Another factor might be the access of companies to foreign capital by other means. Many large Central European firms are partly or fully owned by foreign companies and are provided with necessary funds by them (among the Czech companies e.g. Škoda Auto, Transgas...). Nevertheless, the Czech companies do considerably lag behind their counterparts from the neighboring countries. So far, several times more Polish and Hungarian DR issues took place than the Czech ones (for list of them see Table 8).

Table 8: Czech, Polish and Hungarian DR programs (as of April 2004)

DR ISSUE	COUNTRY	INDUSTRY	DEP. BANK	DR TYPE	S/U	EFF. DATE
CESKE RADIOKOMUNIKACE	Czech Rep.	Broadcasting	BNY	144A/Reg S	S	3/Mar/98
CESKA SPORITELNA	Czech Rep.	Banks	DB	144A/Reg S	S	31/May/96
CESKY TELECOM	Czech Rep.	Fixed Line Comm.	BNY	Reg S	S	3/Jun/98
KOMERCNI BANKA	Czech Rep.	Banks	BNY	144A/Reg S	S	29/Jun/95
KOMERCNI BANKA A.S.	Czech Rep.	Banks	BNY	Level I	S	25/Nov/96
AGORA SA	Poland	Publishing	DB	144A/Reg S	S	4/Mar/99
BANK HANDLOWY W WARSZAWIE S.A.	Poland	Banks	BNY	144A/Reg S	S	17/Jun/97
BANK MILLENNIUM	Poland	Banks	BNY	144A/Reg S	S	28/Jul/97
BANK POLSKA KASA OPIEKI SA	Poland	Banks	BNY	144A/Reg S	S	26/Oct/00
BANK PRZEMYSLOWO HANDLOWY	Poland	Banks	BNY	144A/Reg S	S	31/Dec/01
EUROPEJSKI FUNDUSZ LEASINGOWY	Poland	Diversified Finan.	DB	144A/Reg S	S	1/Feb/00
EXBUD S.A.	Poland	Heavy Construction	DB	144A	S	12/Feb/98
KGHM POLSKA KASA MIEDZ S.A.	Poland	Mining & Metals	DB	144A/Reg S	S	14/Jul/97
KREDYT BANK PBI S.A.	Poland	Banks	DB	144A/Reg S	S	24/Dec/97
MOSTOSTAL EXPORT CORP.	Poland	Household Products	BNY	Level I	S	18/Feb/97
MOSTOSTAL WARSZAWA S.A.	Poland	Heavy Construction	DB	Reg S	S	21/May/98
NIF 11 - REG S	Poland	Diversified Finan.	BNY	N/A	U	11/Jun/97
NIF DRUGI-REG S	Poland	Diversified Finan.	BNY	N/A	U	16/Jun/97
NIF EUGENIUSZ KWIATKOWSKI - REG S	Poland	Diversified Finan.	BNY	N/A	U	16/Jun/97
NIF FOKSAL -REG S	Poland	Diversified Finan.	BNY	N/A	U	16/Jun/97
NIF FORTUNA - REG S	Poland	Diversified Finan.	BNY	N/A	U	16/Jun/97
NIF HETMAN - REG S	Poland	Diversified Finan.	BNY	N/A	U	16/Jun/97
NIF JUPITER - REG S	Poland	Diversified Finan.	BNY	N/A	U	16/Jun/97
NIF KAZIMIERZ WIELKI - REG S	Poland	Diversified Finan.	BNY	N/A	U	16/Jun/97
NIF MAGNA POLONIA - REG S	Poland	Diversified Finan.	BNY	N/A	U	16/Jun/97
NIF OCTAVA - REG S	Poland	Diversified Finan.	BNY	N/A	U	16/Jun/97
NIF PIAST - REG S	Poland	Diversified Finan.	BNY	N/A	U	16/Jun/97
NIF PIERWSZY - REG S	Poland	Diversified Finan.	BNY	N/A	U	16/Jun/97
NIF PROGRESS - REG S	Poland	Diversified Finan.	BNY	N/A	U	16/Jun/97
NIF VICTORIA - REG S	Poland	Diversified Finan.	BNY	N/A	U	16/Jun/97
NIF ZACHODNI - REG S	Poland	Diversified Finan.	BNY	N/A	U	16/Jun/97
POLSKI KONCERN NAFTOWY ORLEN	Poland	Energy	BNY	144A/Reg S	S	20/Nov/99
POLSKI KONCERN NAFTOWY ORLEN S.A.	Poland	Energy	BNY	Level I	S	9/May/01
PROKOM SOFTWARE S.A.	Poland	Software	BNY	144A/Reg S	S	25/Nov/97
SOFTBANK S.A.	Poland	Software	BNY	Reg S	S	8/Apr/98
STALEXPORT	Poland	Mining & Metals	BNY	144A/Reg S	S	3/Jul/98
TELEKOMUNIKACJA POLSKA SA	Poland	Fixed Line Comm.	BNY	144A/Reg S	S	9/Nov/98
UNIVERSAL S.A.	Poland	Retail	BNY	Level I	S	29/Apr/97
BORSODCHEM RT	Hungary	Chemicals	BNY	144A/Reg S	S	28/Feb/96
BORSODCHEM RT. - EURO REG S	Hungary	Chemicals	BNY	Reg S	S	26/Mar/99
DEMASH RT	Hungary	Electric Utilities	MGT	Reg S	S	6/Apr/98
FOTEX RT	Hungary	Retail	MGT	Level I	S	1/Jul/92
GEDEON RICHTER	Hungary	Pharmaceutical	BNY	144A/Reg S	S	1/Nov/95
GRABOPLAST RT.	Hungary	HomeConstruc&Furnish	DB	Reg S	S	22/Oct/97
MAGYAR TAVKOZLESI RT	Hungary	Fixed Line Comm.	MGT	Level III	S	19/Nov/97
MOL MAGYAR	Hungary	Energy	MGT	144A/Reg S	S	8/Jan/01
NORTH AMERICAN BUS INDUSTRIES RT.	Hungary	Industrial Transport	BNY	Level I	S	11/Feb/99
OTP BANK	Hungary	Banks	BNY	144A/Reg S	S	27/Oct/97
PANNONPLAST RT.	Hungary	Chemicals	BNY	Level I	S	1/Oct/97
PICK SZEGED	Hungary	Food	BNY	144A	S	23/Oct/97
PICK SZEGED	Hungary	Food	BNY	Reg S	S	9/Dec/97
SYNERGON INFORMATION SYSTEMS LTD.	Hungary	Software	DB	144A/Reg S	S	29/Apr/99
TISZAI VEGYI KOMBINAT RT.	Hungary	Chemicals	BNY	144A/Reg S	S	1/Jul/96
ZALAKERAMIA RT.	Hungary	Building Materials	BNY	144A/Reg S	S	6/May/97

Note: S stands for sponsored, U for unsponsored programs.

Source: The Bank of New York DR Directory

5.2. PRIVATIZATIONS

Depository receipts have been increasingly used by the governments privatizing state owned enterprises, in developed as well as developing countries. Among the variety of methods used in the privatization process all over the world, DR offerings proved to be particularly attractive and are representing large proportion of successful privatizations.

The growing privatization literature identified several sources of motivation for the governments to list a privatized company in international markets through depositary receipts.

Privatizations of state owned enterprises have been very frequent recently with the governments worldwide. When the government decides to privatize a company, various alternative approaches, how to transfer the state property into private hands, might be considered. The share issue method has become very popular, among others thanks to its transparency and flexibility and accounted for significant portion of the privatization revenues in the past two decades (approximately 70%). It has been used especially by privatizations of large state owned enterprises, often combined with other methods like direct sales to strategic investors.

Nevertheless, the share issue privatization requires reasonably developed equity markets with a sound trading infrastructure and adequate institutional support system. These prerequisites are not fulfilled in case of emerging markets, as the institutions of capital markets are not yet developed, the liquidity is very low and it is not easy to place an issue there. (To privatize a large company through the capital market can be, however, problematic also in the developed countries.) The barrier of underdeveloped capital market is perfectly obvious in the Czech Republic, where the liquidity is very low and it is practically not possible to introduce a new stock there.

There are several reasons, why it might be inevitable or at least advantageous to address foreign capital when privatizing a state owned company. First of all, the local markets are limited by the domestic absorption capacity and even some developed markets may have difficulty to absorb a large issue, which occurs when a whole company is privatized. It is not surprising then, that during the 1980s and 1990s almost half of the offerings associated with privatization were international offerings. (Bortolotti et al., 2000) As it can be expected, countries with small and less liquid markets resort to cross listings more, due to the need to circumvent the problems associated with domestic market inefficiency.

The tendency of emerging countries' governments to sell the shares internationally can be, however, driven also by other motivations. The governments may be willing to attract foreign capital inflow, which might support further foreign investments, e.g. in form of foreign direct investments. An international privatization could also improve the government's visibility in the international markets.

The domestic market doesn't dispose of much capital, so it can be expected that the local investors won't be willing to pay too a high price for the offered shares. Selling the shares in another market can be an opportunity to get higher price for the equity. When, in addition, the shares are offered in a form of depositary receipts, the foreign investors may be willing to pay higher price, as the shares are targeted to them and structured in a way they are accustomed to.

On the other hand, it is often suggested that market development might be the motivation for privatization via share offering. When, however, the shares are listed abroad, the liquidity shifts away and the privatization doesn't then support market development. The solution of this problem may be to list on domestic and foreign market at the same time. The simultaneous listing on both markets may even enhance liquidity more than listing solely domestically. It may be understood as a signal of quality to the local market, establishing credibility of the privatization programs. The local investors might then trust that the governments are committed to privatization, stabilization and structural adjustment policies. However, as was discussed in the previous chapter, there are also opposite opinions, which claim that the liquidity migrates to that market where more trading takes place.⁵⁰

A few studies concentrated on short and long run performance of share issue privatizations and recorded significantly positive effects in terms of post-listing performance (in contrast to some other studies of ADR effects generally, which found ambiguous or even negative effects). Surprisingly, better results were achieved by the developed markets than emerging markets privatizations, but it can be due to other factors, like risk and return characteristics, proportion of shares privatized, etc.

One more reason, why so many governments have decided to sell the state owned enterprises abroad recently, is that the increased privatization activity overlapped with the globalization of international financial markets. An offering of shares on a foreign market was then a good tool to build an international presence.

Different approaches of governments to privatizing abroad can be observed. It is obvious that the governments with fiscal problems tend to privatize more and are willing to maximize revenues. Interesting is the empirical evidence discovered by Bortolotti et al. (2000), reporting that the left wing governments are more inclined to maximize revenues.

⁵⁰ Our results above suggest that the DR listings from Central Europe improved liquidity of the stocks in local market; but not many of them resulted from the privatization process.

And opening the way for foreign investors generally leads to higher revenues from the privatization. Additionally, governments with low credibility and lax securities regulations may borrow institutional credibility of another government through cross listing.

When taking the decision whether to choose depositary receipts as an appropriate privatization instrument, a few important company-specific factors must be considered, such as company size, industry openness, level of global integration, competition, etc. Furthermore, desirable type of DR program and target market must be selected. We would recommend to offer initial tranches through less demanding Rule 144A and Reg S or Level I programs, which may be sufficient to achieve the required visibility and credibility; later it is possible to switch to the more sophisticated Level II and III programs.

Privatizations through share issues haven't attracted much attention in the Czech Republic yet. The Czech governments have never used the opportunity to privatize a state owned company with help of depositary receipts. It was contemplated to sell the 45 percent stake of the National Property Fund in Česká spořitelna through a GDR issue, but the government rejected the plan at the end. The GDR issue was intended to finance the bank's restructuring program as well as financing new investment, however, privatization, and not the raising of funds, was the principal aim of the GDR issue. By contrast, Polish or Hungarian governments employed depositary receipts in the privatization process of several companies (e.g. Bank Przemyslowo Handlowy, Telekomunikacja Polska, Borsodchem, Gedeon Richter or OTP Bank). Many public offerings of the privatized companies in Hungary and Poland were introduced into local and foreign stock exchanges simultaneously.

In the beginnings of privatization processes in the Czech Republic, the governments were not willing to sell state owned companies to foreign investors at all, as they wanted to keep the "national silver" in Czech hands. Later on, it was understood that we can't do without foreign capital and the state property was sold directly to selected strategic investors. The choice of the strategic investor is, however, not always transparent, there is space for corruption and may not always be the best solution.

There are just a few large companies left to be privatized in the Czech Republic, but it could be considered to sell part of the stakes in a form of DR. Český Telecom is one of them and as the last tranche issued in December 2003 was sold off very quickly and it recorded large interest, both in the local and international markets, at least a part of the remaining state stake could be also listed abroad. Among the others e.g. in case of ČEZ, ČSA, Česká správa letišť, Mero or Čepro a DR offering could be applied.

5.3. M&A

The end of 20th century brought a surge of globalization and in the 21st century, the globalization has already become an inevitable reality. Cross-border acquisitions involving US-targets seem to be the quickest way to ensure global presence. For foreign companies making acquisitions in the US, an ADR can be a useful tool and also other types of depositary receipts serve as an instrument facilitating cross-border mergers and acquisitions around the world. The DRs have become a popular M&A instrument, as they provide capitalization, flexibility and convenience to the acquiring company. There are two main modes of how depositary receipts can be involved in the M&A process: to finance the transaction or to be used as acquisition currency.

It should be considered what is the more appropriate sequence, whether the DR program should be established or the decision on acquisition made first. Usually, the DR program is launched prior to the acquisition. “Having a NYSE or NASDAQ listed DR program can pave the way for cross-border initiatives.”⁵¹ On the other hand, some companies do not consider a DR feasible unless it is accompanied by an acquisition, because they fear that their DR program will suffer from low liquidity unless it could attract the target company’s shareholders.

5.3.1. Financing M&A

Depositary receipts are an alternative source of funding for mergers and acquisitions. DRs can be used to raise cash for acquisitions (mainly in the US), as the acquiring companies have rarely enough funds available to purchase another enterprise. The acquiring corporations can conserve cash with use of DRs and avoid costly borrowing of funds or issuing bonds to finance an acquisition. Using DRs can be also substantially less expensive than issuing ordinary local shares.

5.3.2. DRs as acquisition currency

The most common way, in which depositary receipts are employed at the acquisition process is their distribution in a stock-for-stock transaction. Shareholders of the acquired company obtain DRs representing share of the acquiring company in exchange for the ordinary shares they held prior to the transaction. The shareholders may be given a choice between ordinary shares or cash, in addition to DRs.

⁵¹ Parish (2001), p.2

Depository receipts have become so popular instrument used in M&As, also thanks to their flexibility and possibility to structure them in a way, that suits the issuer and at the same time addresses the investors' demands, with regards to ease of trading and settlement. DRs facilitate corporate actions such as payment of dividends, the structuring of rights offerings or solicitation of votes. "It is possible to issue preferred DR shares that are convertible, DR shares that provide a fixed dividend and DR shares that are redeemable on a specific date or upon the occurrence of a specific event."⁵² Using DRs in the cross-border acquisition gives the issuers a chance to support their future initiatives in the target market.

Employing depository receipts in the acquisition may be advantageous also for the investors. The companies have become aware that they are not acquiring only the assets, but also the shareholders of the acquired entity. The shareholders are affected substantially by the transaction, as they will become shareholders of another company than the one they decided to invest in. The acquisition might also have influence on their direct purchase and dividend reinvestment plans, shareholder voting rights and dividend policies. Offering the shareholders depository receipts instead of local shares in exchange for their holdings in the acquired company is more acceptable to them, as they represent an instrument nearly as familiar to them as the one they replace. Providing the investors with an equity interest in the global entity may also work to ease public concern for the takeover.

Another benefit of using DRs rather than cash in an M&A process is the opportunity for the shareholders to realize tax savings. When receiving DRs in exchange for the common shares, the tax on capital gains can be usually deferred until the moment, when the investor sells the DRs. On the other hand, when cash is paid to the shareholders in exchange for shares of the acquired company, the tax is levied in the year of the transaction.

Many of the shareholders may also be employees of the company, who form a very sensitive group, and their interests must be taken into account. Their employee stock ownership plans and stock options might be involved. Replacing the stock options with DRs can encourage the employees to accept the merger and reduce their concerns.

An overwhelming majority of the M&A transactions, by which DRs are being employed, represent acquisitions of US companies by European ones. Some of such large recent transactions were: buyout of VoiceStream Wireless Corp. by Deutsche Telekom AG in 2001, Vivendi SA's purchase of Seagram Co., Stora Enso's acquisition of Consolidated

⁵² Citibank (2001)

Paper in 2000, acquisition of Collateral Therapeutics, Inc. by Schering AG in 2002 or exchange of common shares of Sicor, Inc. by ADRs of Teva Pharmaceutical Industries Ltd. and cash in January 2004.

CONCLUSIONS

Although depositary receipts were introduced already in 1927, they achieved the greatest recognition first in 1990s, alongside with the trend towards financial markets globalization. After a slowdown in 2001/2002, the year 2003 brought a renewed progress of DR markets and, according to preliminary data from 2004 and experts' forecasts, the initiated upward trend is likely to continue. At the end of 2003, there were over 2,000 DR programs issued by companies from 79 countries.

A range of different DR types has evolved to satisfy the needs of all investors and issuers. Each of the available DR programs has specific characteristics with regards to its objectives, conditions on trading, registration and disclosure requirements and costs. The most frequently chosen approach by the CE companies was a simultaneous offering to institutional investors in the US and in London (or Luxembourg) pursuant to Rule 144A and Reg S. This type of DR offering allows the companies to avoid the strict disclosure requirements and reconciliation of financial reports. On the other hand the disadvantage of this DR program may be its low liquidity. Based on the observed absolute prevalence of this least strict form of DR program we suggest that Central European companies are not ready to accept the level of disclosure required in the developed markets and that the advantages of higher liquidity and visibility available to US-listed stocks may not offset the costs associated with Level II or III DR issues.

Due to the possibility of cross-border trading, the fact that the DRs and the underlying shares have virtually the same pay-offs and they reflect the same information, the price of ordinary share in the local market and respective local currency equivalent of the DR price should lie very close to each other. This hypothesis proved true, using a sample of Central European shares. The DR and underlying share's prices turned out to be almost perfectly correlated, hence there don't seem to be many opportunities for profitable arbitrage. Such a result supports the hypothesis of markets integration, but this is just one of multiple methods and there is still space for further research, in which another method could be employed.

It is usually expected that a DR issue lowers cost of capital to the company, for the reason of enhanced liquidity, reduced risk exposure... Lower cost of capital implies higher shareholder value, which is reflected in the DR price. Most of the studies testing the share

price reaction of companies subsequent to the DR offering found some positive reaction to the event; nevertheless results on the long-term effect were rather ambiguous. We considered 19 shares of companies from the Czech Republic, Hungary and Poland, which issued depositary receipts, and showed that creation of a DR program had on average very positive impact on the underlying shares' value. At the same time, in 7 out of 19 shares, no positive effect on price could be observed. Therefore we can't claim that a DR issue generally creates value; rather, the positive reactions are strong enough to outweigh the negative ones and thus the average annual return could reach over 25%. This is a hint not only to/for the investors to purchase depositary receipts, but also to the issuers that DRs could serve as a very useful tool to them to overcome the limitations of local markets and provide them with sufficient capital at lower costs.

On the same sample we also wanted to confirm the hypothesis that a DR listing enhances liquidity of the underlying shares in the local market. Among the factors leading us to form this hypothesis belong increased visibility, better analysts' coverage and cross-border trading. On the other hand, some argue that the trading in the stock shifts to the DR market and thus the local market quality suffers from the DR listings. In our analysis, liquidity improved significantly on average and declined largely only in case of 3 stocks out of 19 (trading volume of two shares remains virtually constant). As we observed majority of the Czech, Polish and Hungarian shares of companies, which issued DRs, we can conclude that there doesn't occur any shift in trading from the local markets. The DR market therefore complements rather than replaces the home market trading in the stock. DR listings could also improve the overall quality of the underdeveloped CE stock exchanges, as they attract attention of foreign portfolio investors to the local markets. This is, however, still an open topic, which I leave as a subject for further research.

The first Eastern European DR issue took place in 1992, when the Hungarian company Fotex Rt. launched an ADR program. The Czechs had to wait for their first DR issue until 1995, when Komerční banka listed its equity through GDR in London and offered it to institutional investors in the US. And Czech companies continue to lag behind their Central European counterparts – from Poland and Hungary – in the number of DR programs. The advantages and opportunities of depositary receipts have been, however, even more ignored by Czech governments. In contrast to Polish and Hungarian governments, the Czech ones have never employed DRs in the privatization process so far. As most of the state owned enterprises in the Czech Republic have already been sold to private hands, there doesn't remain much potential for utilization of DRs in privatizations.

On the other hand, several larger companies could exploit the chance to enhance their visibility abroad, improve their image in the local market or raise equity capital internationally and overcome that way the limitations of the local market.

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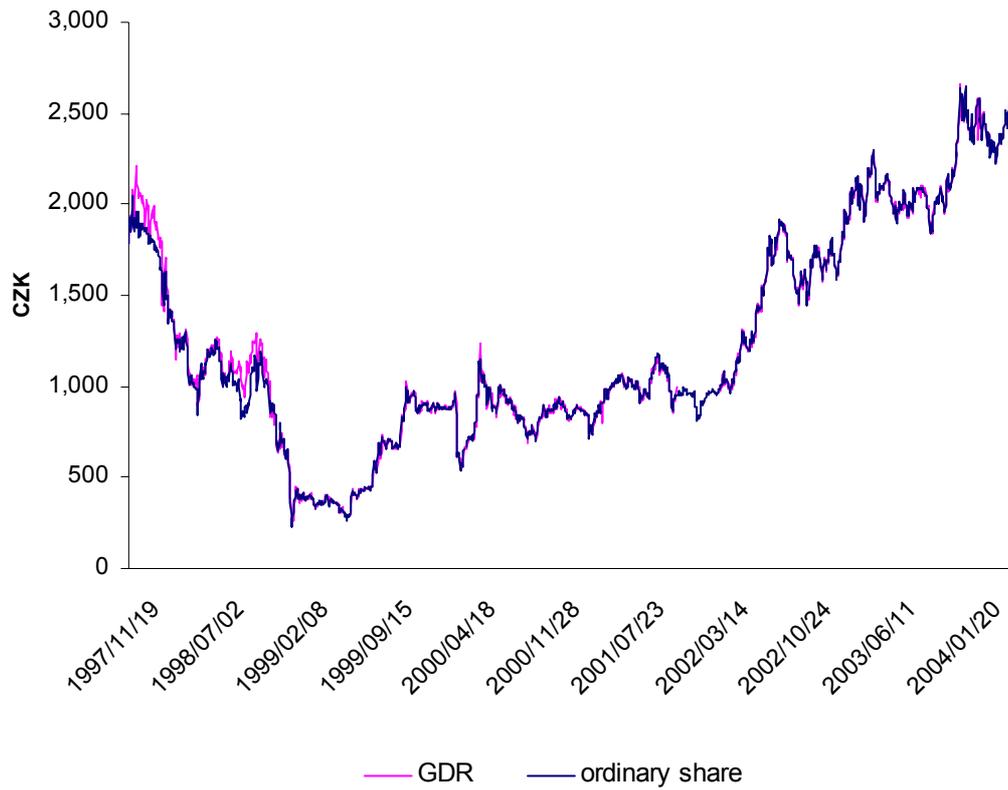
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ANNEX 1

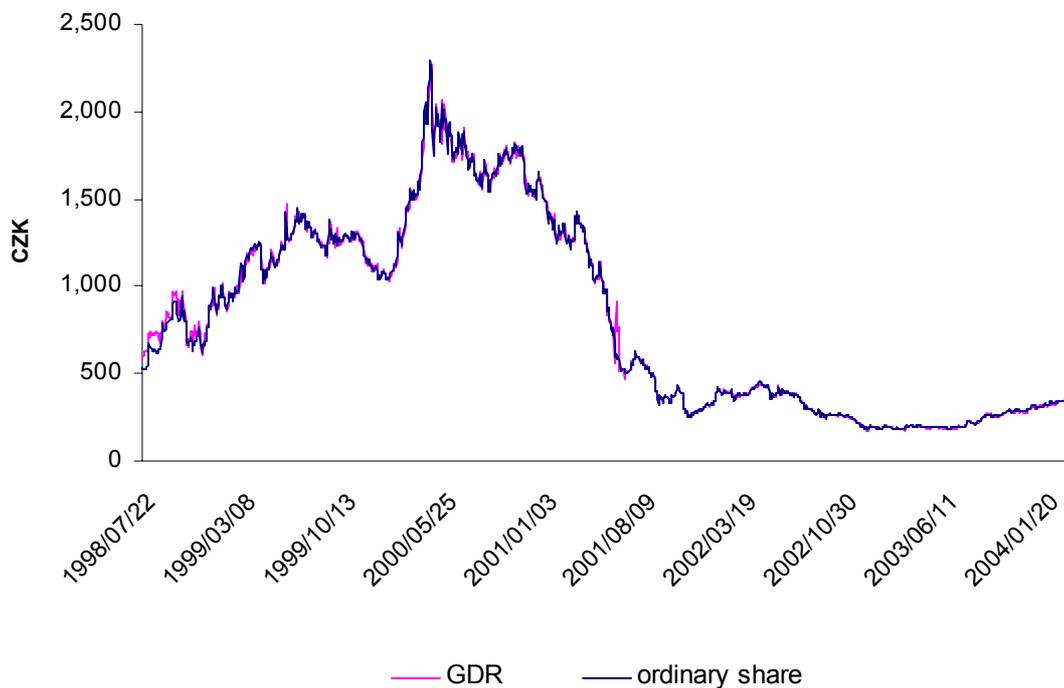
Illustration of selected GDRs and respective actual share's prices development

Figure 24: Development of prices of Komerční banka GDR and actual share



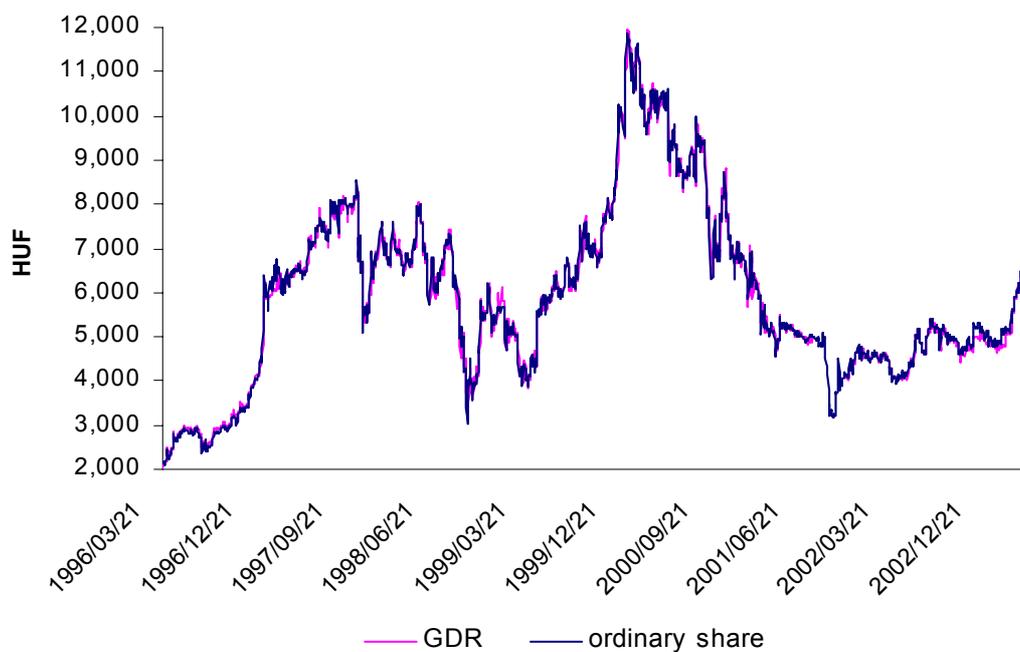
Source: Prague Stock Exchange, Yahoo Finance, Czech National Bank

Figure 25: Development of prices of České radiokomunikace GDR and actual share



Source: Prague Stock Exchange, Yahoo Finance, Czech National Bank

Figure 26: Development of prices of Borsodchem GDR and actual share



Source: Budapest Stock Exchange, Yahoo Finance, National Bank of Hungary

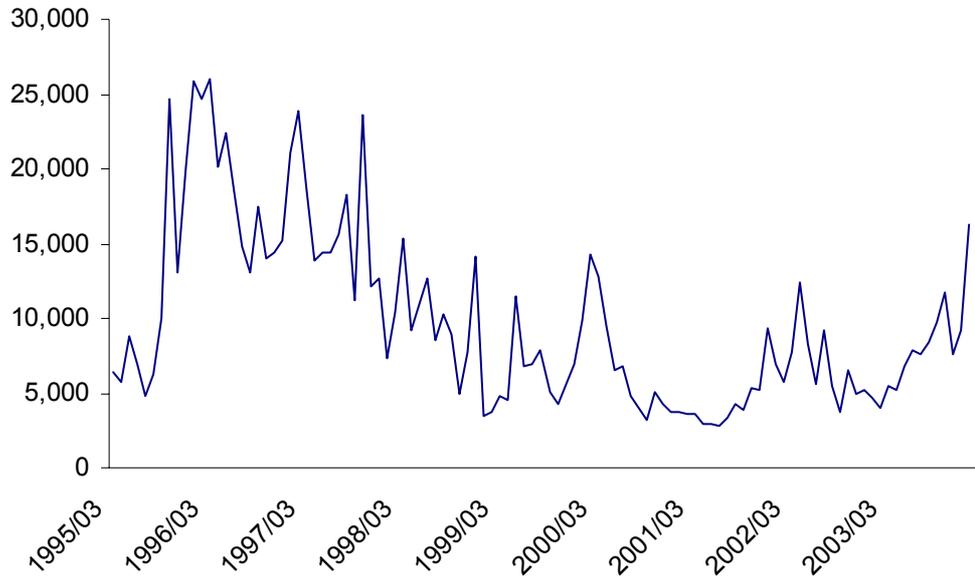
ANNEX 2

Overview of main results for individual companies

Company (year of DR offering)	Value added one year after the issue	Avg. Returns 50 days after the issue	Avg. Reutrms around the issue (61 days)	Average returns 50 days prior to the issue	Average liquidity multiplier one year after the issue
Komerční banka (1996)	70.2%	0.180%	0.010%	0.014%	1.44
Komerční banka (1998)	-36.8%	0.458%	0.133%	-0.220%	2.14
České radiokomunikace	228.4%	0.834%	0.198%	0.051%	1.93
Česká spořitelna	-3.3%	0.523%	0.082%	0.269%	0.66
Český Telecom (1998)	28.9%	0.078%	0.163%	-0.022%	26.75
Český Telecom (2003)		0.614%	0.042%	-0.310%	
Borsodchem (1999)	136.3%	0.883%	0.342%	-0.337%	0.75
Graboplast	-85.6%	-0.050%	-0.274%	-0.139%	2.75
MOL	15.6%	-0.328%	0.251%	-0.064%	0.40
OTP	34.4%	0.423%	0.076%	-0.068%	1.88
PICK	-42.3%	-0.241%	-0.070%	0.289%	2.65
Pannoplast	-57.0%	-0.183%	-0.728%	0.134%	1.24
Gedeon Richter	247.9%	0.815%	-0.162%	0.016%	3.98
Zalakeramia	21.4%	0.055%	-0.143%	-0.224%	3.83
Bank Przemysłowo Handlowy	18.0%	-0.173%	0.034%	0.445%	11.29
Exbud	-6.8%	0.212%	0.490%	0.670%	3.53
Mostostal Export	59.4%	0.980%	0.494%	0.745%	0.96
PKN	6.6%	-0.104%	-0.023%	-0.027%	1.39
Stalexport	23.3%	-0.823%	-0.622%	0.135%	3.18
Telekomunikacja Polska		0.244%	0.162%	-0.330%	
Universal	-25.4%	-0.267%	0.216%	0.254%	0.92

ANNEX 3

Figure 27: Trading volumes of all shares on the PSE, except for Český Telecom, Komerční banka and České radiokomunikace (mil. CZK)



Source: Prague Stock Exchange