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Abstract

Depositary receipts gained much popularity in the 1990s. After a slowdown in 2001/2002, years 2003 and 2004 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 depositary receipts by Central European companies and their respective actual shares are very closely correlated and the opportunity of arbitrage is therefore very limited.

To quantify the effects of a DR issue on the respective actual shares in the local market, we considered 19 shares of companies from the Czech Republic, Hungary and Poland, which issued depositary receipts. The results show that creation of a DR program may have a positive impact on the respective actual 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 respective actual shares in the local market, was confirmed. The daily trading volumes improved on average by 21% in the year subsequent to the listing.

JEL Classification: G14, G15, G29, G34

Keywords: Depositary Receipts, cross-listing, Central European stocks, market integration, stock performance, liquidity effects

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Introduction

Depositary receipts (mostly denoted as ADR or GDR), an equity instrument representing shares of a company listed on a foreign exchange, are still very little known in the Czech Republic (and not only there), although their history reaches back to 1927. DRs have gained much popularity in the 1990s. After a slowdown in 2001/2002, the years 2003 and especially 2004 brought a renewed progress of the DR markets, which seems to be sustained in 2005. Also the Central European companies are gradually becoming aware of the advantages of DR offering. There is, however, still enough unused potential.

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 tested is that the price of ordinary share in the local market and underlying 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 focused on the impact of DR program establishment on the price of Czech, Polish and Hungarian shares. We wanted to prove that a price increase would follow the DR offering.

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. We tested whether a positive reaction of the domestic markets to the DR offering in terms of trading activity can be observed on a sample of Central European shares.

The first chapter brings an insight into the DR world. In the second chapter we focus on prices of depositary receipts and the underlying shares. The two fields of interest are the 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 third chapter deals with liquidity effects subsequent to the DR listing. In the last chapter, we identify a few areas, where DRs are frequently employed and we suggest there is an unused potential of the instrument in the Czech Republic.

The instrument of depositary receipts

A depositary receipt (DR) is a negotiable financial security. It represents a publicly traded security, usually equity 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 traded on a foreign stock exchange. The DR, 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).\(^1\)

\(^1\) Besides these, some local alternatives, such as International Depositary Receipts (IDR) – listed in Brussels, Dutch Depositary Receipts (DDR), or Singapore Depositary Receipts (SDR), have developed. An example of instrument that represents debt rather than equity is American Depositary Debenture (ADD).
History of Depositary Receipts

American Depositary Receipts have been introduced to the financial markets as early as 1927. 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 to leave the UK.

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 DRs, which were available only to qualified institutional buyers (QIBs). This type of programs gained 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 GDR. The Hungarian company Fotex Rt. issued the first Eastern European depositary receipts in 1992. Among Czech companies, Komerční banka was the first one to discover the instrument of DR in June 1995.

Types of Depositary receipts

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 – ADS), 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. ADRs are being issued by an American bank, 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 NASDAQ or in the OTC market. ADRs are denominted and traded the dividends and other payments are made in US dollars. Investors receive annual reports and proxy materials in English.

GDRs are securities available in one or more markets outside the company’s home country. 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.

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

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2 On April 29, 1927 the investment bank J. P. Morgan launched the first-ever ADR program for the UK’s Selfridges Provincial Stores Limited.

3 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.
programs consists of a US tranche, which is privately placed and a non-US tranche that is sold to investors outside the United States, typically in the Euro markets. Each DR can represent one, more than one, or a fraction of underlying ordinary shares. The relationship between the DR and the ordinary share is referred to as the “ADR ratio”. The ratio is set in a way that the DR price is acceptable for the investors.

Several different types of DR have evolved over time. The first classification of DR facilities concerns involvement of the issuer, according to which these may be either sponsored or unsponsored. Unsponsored DR 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 DRs 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 DR holders. The unsponsored DRs issued after 1983 can be traded only in the OTC markets, but some listed unsponsored programs still exist. This kind was quite frequent at the beginnings of DRs, but has been diminishing in last decades. Thus, majority of the DR programs are issued as the sponsored ones. Sponsored DRs 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 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 different kinds of sponsored DR programs, which can be either listed, traded over-the-counter or privately placed, and differ with regard to the listing market, possibility to raise capital, registration and reporting requirements.

An overwhelming majority of DR programs by companies from Central and Eastern European countries are established as GDRs, typically listed in London and traded 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.

**Mechanism of DR issuance**

The new depositary receipts to be issued, the underlying shares must be deposited with the custodian (appointed by the Depositary Bank). The shares are either issued (capital-raising DR programs) or purchased in the local stock exchange (non-capital-raising DR programs). In the figure below, the mechanism of capital-raising DRs issuance and the parties involved are depicted. (In case of non-raising-capital DR program, the shares to be held with the custodian are purchased by a broker in the local stock exchange and that only when there is demand for the DRs by the investors.)

**Figure 1: Mechanism of capital-raising DR issuance**
Company (Issuer) chooses a Depositary Bank to launch its DR program. The two parties conclude a Deposit Agreement.

After placing the shares the Investment Bank (usually a syndicate of Investment Banks) delivers the shares to the Depositary Bank’s Custodian.

The Depositary Bank creates DRs and delivers them to the Investment Bank.

The Investment Bank credits the Investors with DRs and takes the DR price from them.

The price paid for DRs is transferred by the Investment Bank to the Issuer.

The Depositary is paid dividends by the Issuer in the local currency.

The Investors receive dividends in US dollars (Euro) from the Depositary.

Motivation for creating DR programs

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. The DRs help to overcome most of the disadvantages of investing internationally; DRs can trade freely on the major US and European exchanges, in accordance with US clearing and settlement conventions (or conventions of the relevant DR market), are quoted in US dollars (Euro) and dividends are paid in US dollars (Euro), enable large institutional investors who may be prohibited (or limited) from purchasing securities outside their local market to invest internationally, overcome barriers, which a foreign investor may face, when entering especially the emerging markets, eliminate global custodian safekeeping and settlement charges, avoid foreign tax on each transaction...

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 depositary 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. The liquidity of DRs often doesn’t reach the liquidity of underlying shares in local markets.

Motivation on the side of issuers

Also companies have several reasons to issue the DRs. Some of the major advantages, being associated with multiple listings, are as follows: extended potential investors base, broadened and more diversified investor exposure, stimulation of the local investors’ interest and subsequent increased liquidity of the securities, enhanced visibility of the company, improved image for the company’s products in a marketplace outside its home country, elimination of endangering by the risks of the local market...

Companies, which want to have their shares listed on several markets, must fulfill the requirements of all of them. It also imposes substantial multiple listing costs on them. Depositary receipts represent an easier way to enter foreign markets. The companies listing their equity through DRs on more exchanges do not need to satisfy all requirements of all exchanges. Moreover DR programs offer an opportunity to be designed to reflect needs of individual companies and given circumstances. ADR ratio can be set in a way, that the DRs are traded in similar values as the shares on the foreign market. DRs may also serve as a vehicle or currency for mergers and acquisitions, as well as privatizations.
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:

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\text{DR price} = \text{ADR ratio} \times \text{price of underlying share} \times \text{exchange rate} (\pm \text{transaction costs})
\]

In the first part of this chapter, we explain, why this equation should hold, as well as what the forces are that prevent the prices from being equal. Further on, empirical proof of the equation is presented. 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. We focus on the DR programs of companies from Central European countries (namely CR, Hungary and Poland).

**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 share’s price in the home market. The only difference could then appear due to 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, these should be corrected quickly.

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 and the other way round. 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.

The above-mentioned factors leading to price equality of DRs 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 markets’ segmentation, price deviations between DRs and underlying shares occur. The segmentation of financial markets is caused by multiple restrictions and trading barriers (including the psychological ones), e.g. restrictions on foreign ownership (usually for the institutional investors), barriers preventing foreign entities to purchase directly the local securities or indirect barriers, such as taxes, informational asymmetries, gaps in reporting and disclosure requirements. These market imperfections prevent arbitrage forces from wiping out the price discrepancy.

**Evidence on DR and underlying share’s prices correlation**

The integration of markets can be tested with use of multiple methods. In line with our topic, we measured the correlation between DRs and their underlying shares prices to assess the extent of integration. We examined 3 Czech, 3 Hungarian and 3 Polish stocks, to which DRs
have been issued4 (usually from the date of DR issue until recently5). We found that the prices of DRs and their underlying shares are very closely correlated. To describe the results in more detail, in case of Český Telecom, the correlation coefficient between the two time series reached value of more than 0.999 for the period from June 1998 until January 2004. 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 ±1% around the ordinary share’s price for longer than one day the last time in January 2002, and even then just for two days (see Figure 2). Prior to that, the price gaps were greater, longer lasting and more frequent. Nevertheless, the price difference always returned into the ±1% range at the latest after three days and never exceeded 8% in absolute value. 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. 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 2, Figure 3). 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 2: Difference between prices of Český Telecom ordinary share and GDR**

![Figure 2: Difference between prices of Český Telecom ordinary share and GDR](image)

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

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4 Komerční banka, České radiokomunikace and Český Telecom, Borsodchem, Gedeon Richter and Magyar Tavkozlesi, Prokom Software, KGHM and Telekomunikacja Polska

5 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.
Figure 3: 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

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 shares’ price in both directions persisting, which could be balanced first after seven days. It doesn’t seem there has recently been any great improvement with regards to the price differences, 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. In case of Borsodchem, where the correlation coefficient lags little behind reaching 0.996 (from March 1996 until May 2003), longer lasting price gaps between the two securities were 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 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.
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 DRs at the London Stock Exchange. Nevertheless, also here the two prices are getting closer to each other over time. This development can be observed very well on the example of Prokom Software. The correlation coefficients don’t reach so high values as in the 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 supports the hypothesis that the markets integration 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 older data, till 2000, the values decrease to 0.983 and 0.987. The prices seem to be increasingly correlated. With the proceeding market integration, the speed of adjustment of the price gaps increases and the space for arbitrage is reducing. 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 DRs and actual shares could generate profits.

**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 of a DR program 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 underlying shares is affected, the structure of the price behavior is largely variable across companies.
Several studies have examined the impact of launching a DR program on the price of the underlying shares and 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:

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

where $R_i$ stands for return of an individual share, $R_m$ is the return of the whole market and $\alpha_i$ and $\beta_i$ 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 bring the findings of some of them. Also we try to track some of the factors, which influence the share price development around DR program establishment. Finally we present evidence from several Central European (Czech, Hungarian and Polish) cases.

**Previous research**

To name some of the earlier studies, Jayaraman et al. (1993) observed positive significant AR on the listing day, suggesting there is value associated with ADR listing. Domowitz et al. (1997) 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 AR during the announcement period, negative significant AR after listing; at the same time, firms announcing an ADR listing in a large market experienced larger positive AR 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 AR than those coming from developed markets. The latter two findings were partially confirmed also by Foerster and Karolyi (2000). 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 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, a recent analysis by Oxford Metrica, considering 767 DR programs, brings entirely positive results of the DR program introduction (which could give raise to some suspicions).

**Factors behind the price reaction**

There is definitely not one single factor that affects the price behavior of the underlying shares around a DR issue. It is rather a complex set of forces, which result in a certain price development structure. That is the reason why stocks of firms issuing DRs from one market can behave completely differently than stocks domiciled in another market.

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 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 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 an upward share price reaction.

Also, 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 the company again lowers its cost of equity capital.

Similarly, the company 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 reduce the information asymmetry and the cost to outsider investors of monitoring the managerial actions. The readiness of a company to give away more information serves also as a signal to the local investors about prospects of the firm. And as already Merton in his model of capital market equilibrium with incomplete information showed the market value of a firm would always be lower with incomplete information.6 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 US markets are less marked than for the non-Canadian listings.) 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.

**Share price behavior around Central European DR issues**

In this section we examine, how listings of DRs 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 a 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 concentrate on two Czech shares.

**Price response to the DR program establishment**

We included in our sample 19 DR issues by Central European companies (from CR, 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 price increase following establishment of a DR program. 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 price increase (from the level of the day 20 prior to the issue) equaled 33.33% 250 days after the issue. Nevertheless, it doesn’t mean that prices of all shares increased. On contrary; 7 of the observed stocks lost some of their value, while the remaining 12 shares recorded value added. To show just the average values is therefore misleading. It is obvious from the median of the price increases (depicted with the dark line in Figure 5). 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 confirms the fact that after the 130th day after the DR issue, the price 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 our 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 price rose and that the average is not just distorted by an extreme growth of one stock.

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6 Merton (1987)
Figure 5: Price increase following DR program establishment in CE

These results are, however, only very rough. To be able to assess the pure impact of the DR issue on the share value, we would have to eliminate all other influences.

**Daily returns behavior around the DR listing**

On a broadened sample of equities, we observed the price behavior of the 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.7

We 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. Our expectations were that the daily returns should be significantly higher immediately after the DR listing than they were before. The initial price increase might dissipate over time, when the 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 Telecom8. 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 analysis to be able to say, which of them play the

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

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

**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 highlighted. To be able to separate from the market trends, the development of PSE index PX-50 is supplemented. (It can’t, however, be considered purely as the illustration of the “market driven” development, as the Český Telecom share is also involved and carries a great weight.)

*Figure 6: Price development of Český Telecom share compared to the market index*

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

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).

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 present some of the opinions and quantitative results of previous studies in the first part of
this chapter. In our own empirical analyses we deal again with the effects on Czech, Hungarian and Polish equities. Later in this chapter we focus on the total market liquidity development.

**Forces affecting liquidity**

Why should a cross listing enhance liquidity of the shares on the local market? There are several factors, most of which have already been dealt with in the previous chapters. First of all, it increases visibility of the company both in the local and foreign markets. The 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 Bohl\(^9\) 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 DR 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 the 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.

**Previous research**

From the earlier studies, Foerster and Karolyi (1998), 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. 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.

**Own results**

**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 shares traded in the local market) during the previous year.

The sample examined here contains 19 issues (same as used above). The observed period covered 20 days before the listing and 250 afterwards. An average daily multiple for all the

\(^9\) Korczak and Bohl (2003), p. 13
stocks reached very high level of 3.77, which represents an average increase in the daily trading volume by 277%. (The daily averages are depicted in the Figure 8 with the dark 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 Przemysłowo Handlowy). The result obtained after this alteration seems more feasible, at 92%.

Due to the 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 8 with the light line.) The average of the daily medians of multipliers across all stocks achieved value of just 1.21, which means an increase by 21%. This is already very similar result to those obtained in the previous studies on much larger samples.10

Figure 8: Impact of DR listing on liquidity

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

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, include two marginal

10 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.
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 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.

**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 9. 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 volume would rise substantially in the month of the listing.

**Figure 9: Average monthly trading volumes relative to the trading volumes in the month of DR program establishment**

![Figure 9: Average monthly trading volumes relative to the trading volumes in the month of DR program establishment](image)

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.
Overall impact on liquidity

Besides the increased trading activity in the share at the local market, trading in the DR 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 lay 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. At the same time, in case of some other DRs the trading activity is rather negligible.

The domestic markets may 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 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.”

Spillover effects on the domestic market liquidity

Besides the impact of DR listing on the given stock, also the spillover effects on the whole local market gained attention in the previous research. The findings again are not unique. 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 contribute to transformation of a segmented local equity market with low liquidity into an integrated market with high liquidity and capitalization. Fernandes (2002) finds a positive spillover effect of the first DR from the country, which is interpreted as an indirect market liberalization event.

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.

We look closer on the situation at the Prague Stock Exchange (PSE), although it is in no way the best representative. The overall liquidity is very low and the largest part of trading takes place on the main market. The main market constituted from 2000 to June 2004 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 accounted for around 70% of trading at the PSE between 1999 and 2004, and the individual stocks had substantial influence on the market liquidity. (E.g. the monthly trading with shares of Český Telecom made up for 27% of total trading volume from January 1999 until January 2004 on average, for Komerční banka the proportion was 30%.) 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.

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11 Baruch, Karolyi and Lemmon (2003), p. 15
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 Komercni 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%.

**Figure 10: Trading volumes of Český Telecom share and all shares on the Prague Stock Exchange (mil. CZK)**

Note: The highlighted columns indicate the months, in which DR offerings took place.  
Source: Prague Stock Exchange, Český Telecom
The liquidity of the “residual“ Czech equity market\textsuperscript{12} was deteriorating until mid of 2003, so that there did not seem to be any positive spillover effect on the whole market. Nevertheless, the market recorded a substantial growth of trading activity in 2004, certainly in part thanks to the primary issue of Zentiva in June 2004, which was accompanied by GDR introduction onto the London Stock Exchange.

Unused potential of DRs by Czech companies and government

There are still enough opportunities for the Czech companies in the DR markets. Until today, depositary receipts were issued just by Komerční banka, Český Telecom, České radiokomunikace (GDR program terminated in January 2005), Česká spořitelna (terminated in September 2002) and Zentiva. In comparison with Hungary or Poland, the number of Czech DR programs and the companies involved in them is negligible. (See the Table 1, which includes all Czech, Hungarian and Polish DR programs listed in the US or London as of July 31, 2005.)

\textsuperscript{12} Under residual Czech equity market all Czech shares at the PSE excluding those to which DRs have been issued are understood here.
<table>
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<th>DR ISSUE</th>
<th>COUNTRY</th>
<th>INDUSTRY</th>
<th>DEP. BANK</th>
<th>DR TYPE</th>
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<tr>
<td>ZALAKERAMIA RT.</td>
<td>Hungary</td>
<td>Building Materials</td>
<td>BNY</td>
<td>144A/Reg S</td>
<td>S</td>
<td>6.V.97</td>
</tr>
</tbody>
</table>

Notes: S stands for sponsored, U for unsponsored programs. The crossed DR programs have been terminated.
Source: The Bank of New York DR Directory

Table 1: Czech, Polish and Hungarian DR programs (as of July 31, 2005)
We deal here with the opportunities of DRs, which could be exploited by the Czech companies and governments, and which have been to some extent neglected so far. Firstly, the DRs serve (same as ordinary shares and other equity instruments) to raise capital necessary to finance investments. 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 get to the DRs as a useful tool for cross-border mergers and acquisitions (M&A).

**Financing investment**

The companies in need of funds to finance their investments look for them also in the capital markets. Nevertheless, there are limited resources available in the emerging capital markets. The Czech market is moreover not well functioning; until recently it has been 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, 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.

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 DR program provides credibility to the local offering and enhances thus the local investors’ interest. The opportunity to obtain capital from foreign investors through depositary receipts seems very attractive, but it is not available to all companies. First of all, 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.

**Privatizations**

Depositary 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 share issue method of privatization 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.)

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 local capital 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. 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.13

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.

By contrast, Polish or Hungarian governments employed DRs in the privatization process of several companies (e.g. Bank Przemysłowo Handlowy, Telekomunikacja Polska, Borsodchem, Gedeon Richter or OTP Bank). Many public offerings of the privatized companies were introduced into local and foreign stock exchanges simultaneously.

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. Among the others e.g. in case of ČEZ, ČSA, Česká správa letiště, Mero or Čepro a DR offering could be applied.

**M&A**

In the 21st century, the globalization has 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, DRs can be a useful instrument facilitating cross-border mergers and acquisitions around the world. The DRs have become a popular M&A instrument. There are two main modes of how depositary receipts can be involved in the M&A process: to finance the transaction or as an acquisition currency.

Depositary receipts are an alternative source of funding for M&As. 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 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.

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.

DRs 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. Employing depositary receipts in the acquisition may be advantageous also for the investors. 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 DRs 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. Another benefit of using DRs rather than cash in an M&A process is the opportunity for the shareholders to realize tax savings.

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13 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.
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 years 2003 and 2004 brought a renewed progress of DR markets. At the end of 2004, there were 1,858 sponsored DR programs issued by companies from 73 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 underlying 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, which supports the hypothesis of markets integration.

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’ price. 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 overweight the negative ones and thus the average annual return could reach over 25%. This is a hint not only to 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. The first Central and 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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