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Measuring the Effective Levels of Company Taxation in the New Member States: A Quantitative Analysis

by

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Executive Summary

This paper presents evidence on the effective levels of company taxation in the new member states. The focus is on a quantitative analysis of taxation of international mobile capital. In particular, it reveals the impact of taxation on the relative attractiveness of the acceding countries in isolation from other economic factors. The study relies on the measure of the effective average tax rate (EATR) derived from a forward-looking approach developed by Devereux and Griffith and recently applied by the European Commission.

Effective tax burdens are quantified for both, domestic investments in the new member states at subsidiary level and cross-border investments at the level of German based multinational enterprises operating through subsidiaries in the new member states. We examine the influence of different financing policies and accounting rules on the effective tax burdens. The effective level of company taxation in the acceding countries is significantly lower compared to Germany. Since Germany applies the exemption method for cross-border investments, German multinational enterprises can benefit from the tax differential and reduce their tax burden at parent company level. The ranking of the countries according to the EATR reflects the comparative tax advantage. The statutory corporate income tax rate in the source country is identified as the main tax driver. Withholding taxes on dividend payments impose an additional tax burden on cross-border investments and cause a change in ranking. With effect from entering the European Union, the national jurisdictions of the new member states will entirely comply with the Parent-Subsidiary Directive, and hence, dividend payments of wholly owned subsidiaries will no longer be exposed to withholding taxation. As a result, the countries' ranking of cross-border investments will not change compared to domestic investments. Withholding taxes on interest payments in case of debt financing of subsidiaries have - with respect to the assumptions of our model - no impact on the effective tax burden since these withholding taxes can be credited against German taxes. Therefore, the adoption of the Interest-Royalties Directive does not affect our results. The most tax efficient source of finance is to provide the subsidiary with equity and retain earnings at the level of the subsidiary located in the new member states.

The effective tax rates for domestic and cross-border investments are analysed for different levels of profitability to provide investors and policy-makers with further insight. The dispersion of effective tax rates for marginal and low profitable investments reflect differences in
tax accounting rules and additional taxes, e.g. real estate taxes imposed on industrial buildings. For higher profits, the effective tax rates approaches to the statutory income tax rate and the relative attractiveness of the countries may revert. With increasing profitability, the relative influence of the tax base decreases and the statutory tax rate becomes the dominant tax driver. This is valid for both, domestic and cross-border investments. Hence, countries imposing the lowest statutory corporate income tax rates are the most attractive locations for highly profitable subsidiaries.

Most of the new member states grant several tax incentives. Major tax incentives are incorporated in the model in order to quantify their impact on the effective levels of taxation. Tax incentives reduce the effective tax burden significantly and have a considerable influence on the ranking of the countries. The tax incentives then reveal to be the dominant tax driver. According to the exemption method, German multinational investors benefit from the incentives, even if profits are transferred to Germany. Several new member states, however, tend to cut back their tax incentives or let them expire in the near future. In order to continue to attract international mobile capital, there is a trend to compensate for abolishing tax incentives through tax rate reductions. Corporate income tax rates have been reduced recently or will be reduced in seven of the ten new member states. The tax rate reductions will increase the relative tax advantage of the new member states compared to Germany.

*JEL classification:* H25, K 34, M 21

*Keywords:* Corporate Taxation, European Enlargement, Effective Tax Burden, Location Decision
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1 Introduction

On 1 May 2004, ten new countries have entered the European Union: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, the Slovak Republic, and Slovenia, which are referred to as “new member states” in this paper. This enlargement is a historical step in establishing a new order in Europe built on the principles of peace, security, stability, and prosperity. In addition to political objectives, the key economic aim is to create a free-trade area between the current and the new members. The principles of free movement of goods, services, capital, and labour will apply to the new member states and stimulate economic cross-border activities. The latter comes in effect only gradually with transitional provisions, whereas the first three principles have to be implemented with entering the European Union. In addition, a single set of trade rules, a single tariff, and a single set of administrative procedures will apply to the Internal Market of the enlarged Union. The abolition of administrative and institutional obstacles is supposed to increase foreign direct investments to the new member states. Capital will become increasingly mobile between countries.

Amendments to the tax legislation have to be done in particular in the field of indirect taxation. Since the member states preserve their fiscal sovereignty, the new member states are allowed to retain their current corporate and personal income tax systems. There is only minor influence on direct taxation, e.g. the national tax rules have to comply with the Parent-Subsidiary Directive and the Interest-Royalties Directive after accession taking into account individual transitional provisions. However, the member states are still entitled to define the tax base, to set the statutory corporate income tax rates and to apply their corporate tax systems. At the same time, companies will face an environment of increasing harmonisation outside direct tax legislation. In addition to enhanced capital mobility, this is another reason why taxation will become increasingly significant for multinational enterprises doing business in the European Union.

The main purpose of this paper is to quantify the effective levels of company taxation in the new member states. The focus is on the taxation of international mobile capital. The paper is designed to reveal the impact of company taxation on the relative attractiveness of the acceding countries in isolation from other economic factors and to identify and assess the different tax drivers determining the tax burdens. A further objective is to quantify the effective tax burdens of foreign direct investments at the level of a German based multinational enterprise.
which operates through wholly owned subsidiaries in the new member states. The aim is to investigate the comparative tax advantage of the new member states concerning the location decision of subsidiaries of German multinational enterprises. Since empirical studies conclude that taxation has an impact on the location decision, this paper provides useful information for decision-makers of multinational enterprises and policy makers\(^3\).

The calculations are based on the methodology developed by Devereux and Griffith (1999) which is an extension of the well-known approach of King and Fullerton (1984) and enables to compute both, marginal effective tax rates (EMTR) and effective average tax rates (EATR), i.e. effective tax rates for investment projects generating an economic rent. Since location decisions involve mutual exclusive investment projects generating an economic rent, the relevant measure is the EATR\(^4\).

The structure of the study is as follows: Section 2 outlines the applied methodology, provides some technical notes and interpretations of the measure of the EATR, and outlines the assumptions of the model. Section 3 contains a qualitative description of company taxation in the new member states and summarises the tax rules incorporated in the theoretical model. The following sections quantify effective tax burdens based on the measure of the EATR. Section 4 analyses domestic investments, i.e. effective tax burdens imposed at the level of a subsidiary resident in the new member states. We present a country ranking and examine the impact of different financing policies and accounting rules on the effective tax burden. Furthermore we group the new member states by three geographical regions (Central European countries, Baltic countries, and Mediterranean islands) and present a comprehensive analysis of the effective tax rates and levels of profitability for the different regions. This will provide potential investors and policy makers with further insight about competitive advantages of the countries. Section 5 deals with cross-border investments of German based multinational enterprises to the new member states. We present a ranking of the relative attractiveness of the new member states with respect to the tax burden imposed at parent company level, and examine the influence of different financing strategies on the tax burden. The section is supplemented by an analysis of the distribution of the EATR for different levels of profitability for

\(^3\) Benassy-Quere/Fontagne/Lahreche-Revil (2001) carry out an econometric analysis of the sensitivity of inward foreign direct investments to tax rates and to tax regimes in the EU-15, USA and Japan and provide evidence for a significant impact of effective as well as nominal corporate tax rates on inward foreign direct investments. Devereux/Griffith (1998) investigate the location decision of US multinationals and show that the location choice is influenced by the effective average tax rate.

the three geographical regions. Section 6 contains an overview of selected tax incentives and quantifies their impact on the effective tax burdens. Finally section 7 considers recent and prospective developments in company taxation in the acceding countries. The study concludes with a summary.

2 Methodology and Theoretical Framework

2.1 Methodology

The effective tax rates reported in this paper are based on the methodology developed by Devereux and Griffith (1999) which is an extension of the well-known approach of King and Fullerton (1984). In contrast to King/Fullerton, the Devereux/Griffith approach allows to estimate the impact of taxation not only on marginal investments, but also on investments generating an economic rent. Therefore, the effective marginal tax rate (EMTR) based on the cost of capital, and the effective average tax rate (EATR) can be computed under one consistent framework. The Devereux/Griffith methodology is an internationally accepted approach which was applied in a number of recent studies to investigate company taxation. For example, these analytical investigations include studies of the European Commission about company taxation in the internal market, the Centre for European Economic Research (ZEW) and the German Council of Economic Experts (Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung).

In this paper we will not present technical details of the methodology instead refer to Devereux/Griffith (2003), the European Commission (2001), and Schreiber/Spengel/Lammersen (2002) where a comprehensive technical description of the approach is provided. We confine

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5 The European Tax Analyzer developed by the Centre for European Economic Research (ZEW) is another model approach for computing effective average tax rates, see Jacobs/Spengel (2002); European Commission (2001), pp. 138 – 141 and pp. 709 – 716.
6 The most prominent recent report about company taxation was prepared by the European Commission, see European Commission (2001).
7 Recently, the ZEW carried out two analytical studies, one comprehensive study about company taxation in the new member states in co-operation with Ernst & Young, see Ernst & Young/ZEW (2003), and the other was prepared for the IBC BAK International Benchmark Club of BAK Basel Economics, see Lammersen/Schwager (2003).
to the interpretation of the measure. In this study the impact of taxation is measured by the effective average tax rate (EATR). The EATR provides information about the effective tax burden on profitable investments, i.e. investments generating an economic rent. The EATR relies on a forward-looking approach which assumes a hypothetical investment project and estimates the tax payments of related decisions. It evaluates “ex ante” the tax consequences of alternative choices. In contrast to that, backward-looking measures are based on post data arising from aggregate macroeconomic accounts or from companies’ accounts.

The main purpose of this study is to investigate the impact of company taxation on location decisions. A location decision is characterised by mutual exclusive projects. A multinational investor will face the choice to establish a new subsidiary in one of several countries. Assuming that the investment project will generate the same pre-tax economic rent independent from the location, e.g. by exploiting firm specific know-how and intellectual property, and assuming further that the investor aspires to maximise post-tax profits, the investor will opt for the location which generates the highest post-tax income stream. The relevant measure is the effective average tax rate because it considers the influence of tax on total profits. The multinational investor will establish the new subsidiary in the country offering the lowest EATR. After having established the subsidiary the decision about the optimal size of the capital stock, i.e. how much to invest, will be based on the cost of capital and the marginal tax rate, respectively. The capital stock will be expanded until the pre-tax rate of return equals the cost of capital\textsuperscript{10}.

In the previous paragraph we have argued that the relevant measure for the location decision is the EATR. In the following we present a brief technical description and an interpretation of the EATR. The EATR is measured as the difference between the net present value (NPV) of the pre-tax income ($R^*$) and post-tax income ($R$) of a new investment project relative to the NPV of the pre-tax income stream ($\frac{P}{1+r}$) derived from the real pre-tax rate of return ($p$)\textsuperscript{11}:

\begin{equation}
EATR = \frac{R^* - R}{\frac{P}{1+r}}
\end{equation}

\textsuperscript{10} For the effective average tax rate as relevant measures for location decisions see Bond (2000), pp. 171 – 172; Devereux (2000), p. 113; Devereux/Griffith (2003), p. 108.

\textsuperscript{11} See Devereux/Griffith (1999), p. 20.
Given the real rate of return of the capital market \((r)\), the NPV of pre-tax economic rent \((R^*)\) is simply:

\[
R^* = \frac{P - r}{1 + r}
\]

The NPV of the after-tax economic rent \((R)\) is a more complex expression, including all relevant parameters of the tax system as well as macro-economic parameters of the model like the inflation rate and true economic deprecation. A detailed technical description is provided in the referred literature.

At corporate level, it can be shown analytically that the EATR can also be defined as a weighted average of the EMTR and the statutory tax rate \((\tau)\) where the weights reflect the share of the cost of capital \((\bar{p})\) in the pre-tax rate of return of the investment \((p)\):

\[
EATR = \frac{\bar{p}}{p} \cdot EMTR + \left( \frac{p - \bar{p}}{p} \right) \cdot \tau
\]

According to equation (3) the rate of return equal to the cost of capital is taxed at the EMTR whereas the economic rent is exposed to the statutory corporate income tax rate. Since the EMTR is determined considering the tax base, the influence of the tax base declines with rising profitability of the investment. Defining the EATR as in equation (3) reveals an important property of the measure: With increasing profitability the EATR will come closer to the statutory corporate income tax rate. The underlying economic reason is the easing relative influence of depreciation, interest deductibility and other tax accounting rules on the effective tax burden with rising profits.

### 2.2 Assumptions of the Model

The calculations are based on a hypothetical investment project. In order to carry out a comprehensive analysis the model considers five different types of assets: industrial buildings, intangibles, machinery, financial assets, and inventories. Furthermore, the model incorporates three different financing policies: new equity, retained earnings, and debt. The EATR is a weighted average about the five types of assets and three financing policies. With respect to cross-border investments it is assumed that a parent company resident in Germany establishes a subsidiary located in one of the new member states and conducts investments through its

\[\text{For further details see Schreiber/Spengel/Lammersen (2002), pp. 13 – 16; Devereux/Griffith (2003), pp. 112 – 113.}\]
wholly owned subsidiary. Therefore, the model considers only foreign direct investments and no portfolio investments. The subsidiary can finance its investments through profit retention or can obtain new equity or debt capital from its parent company but does not raise any funds in the capital market. Considering cross-border investments, there are five types of assets and three sources finance at subsidiary level and three different sources of finance at parent company level. This results in 45 possible combinations of assets and financing policies. The EATR is computed as an average of the 45 equally weighted combinations. Since the analysis is restricted to location decisions of multinational investors the taxation at the level of the individual shareholders in not taken into account. Figure 1 visualises the structure of the model for cross-border investments.

Figure 1: Structure of the Model for Cross-Border Investments

The economic data incorporated into the model is summarised in Table 1. The economic data is set equal to the European Commission’s report, *Company Taxation in the Internal Market* (2001) in order to produce comparable results.

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13 Spengel provides arguments for disregarding personal taxation in a location decision of a multinational company, see Spengel (2003), pp. 81 – 85.

14 The figure is based on Spengel (2003), p. 134.

<table>
<thead>
<tr>
<th>Economic Data</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation rate</td>
<td>2%</td>
</tr>
<tr>
<td>Pre-tax nominal interest rate</td>
<td>7.1%</td>
</tr>
<tr>
<td>Pre-tax rate of financial return (real)</td>
<td>20%</td>
</tr>
<tr>
<td>True economic depreciation</td>
<td></td>
</tr>
<tr>
<td>Industrial Buildings</td>
<td>3.1% on a declining-balance basis</td>
</tr>
<tr>
<td>Intangibles</td>
<td>15.35% on a declining-balance basis</td>
</tr>
<tr>
<td>Machinery</td>
<td>17.5% on a declining-balance basis</td>
</tr>
</tbody>
</table>

Table 1: Economic Data of the Model

The theoretical model includes corporate income tax, real estate tax, local business tax, and covers the most relevant tax provisions in addition to the tax rates. The model considers depreciation rules, the valuation of inventories, interest deductibility, withholding taxes in the new member states in the case of cross-border investments, as well as the tax treatment of foreign source dividends and interest payments at the level of a German parent company. The relevant information about the tax systems is based on the study *Company Taxation in the New EU Member States* carried out by the Centre for European Economic Research (ZEW) in co-operation with Ernst & Young. This report has been updated and aligned to the jurisdictions prevailing as at 1 January 2004. Details about the tax systems and tax data used for the calculations are provided in the following section.

3 Corporate Taxation in the New Member States

3.1 Overview of the Corporate Income Tax Systems

There are a number of different corporate income tax systems in Europe. A logical classification of the theoretical models of corporate taxation will be introduced to present the tax systems in a logical manner. The classification provides a useful technique to illustrate that the tax treatment of corporations and their shareholders in the new member states is similar to those in the current member states. Regarding the extend of integration of the corporate income tax into the personal income tax of the individual shareholder, three main categories can be distinguished: the classical system, double taxation reducing systems and double taxation avoiding systems.

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16 See Ernst & Young/ZEW (2003), pp. 9 – 14.
17 Classification in accordance with Jacobs, see Jacobs (2002), pp. 116 – 118.
The classical system results in a double taxation of dividends at shareholder level with corporate income tax and personal income tax. Within the European Union, the classical system currently is only applied in Ireland. It does not exist in any of the new member states.

By contrast, double taxation avoiding systems ensure that profits are only taxed once either at corporate level (and exempt dividends at the shareholder level) or at shareholder level (full imputation system). Malta is the only new member state that applies a full imputation system. Dividends received by individual shareholders are grossed-up by the underlying corporate income tax and taxed progressively. At the same time, the corporate income tax is credited against the personal income tax. As a result, there is full relief from corporate income tax on distributed profits, and dividends are only subject to personal income tax.

Figure 2: Corporate Income Tax Systems in the European Union

Estonia, Latvia, and since the beginning of the year 2004 the Slovak Republic eliminate double taxation through a system of dividend exemption at shareholder level. Therefore, profits are only subject to corporate income tax and consequently the corporate income tax rate determines the tax burden of both retained and distributed profits. The system applied by Estonia, however, is unique in a sense that there is no per se corporate tax on profits or income, i.e. retained earnings are exempt from taxation. Only distributed profits are subject to corpo-
rate income tax. This discrimination of distributed profits may lead to economic inefficiency because there is an incentive to avoid taxation through profit retention and the profits may not be utilised for the most efficient way but invested in less productive projects (lock-in effect). At shareholder level, dividends are exempt from personal income tax, as it is the case in Latvia.

Most of the new member states, as well as the majority of the current member states grant only partial relief from double taxation on dividends. In Cyprus, the Czech Republic, Hungary, Lithuania, Poland, and Slovenia shareholders receive - compared to other sources of personal income - preferential treatment for their dividend income (shareholder relief system). Different relief provisions have been introduced in the six contemplated countries to reduce personal income tax on dividends:

- In Cyprus, the Czech Republic and Lithuania a final withholding tax of 15% is imposed on distributed profits. The final withholding tax of 15% reflects a preferential treatment because it corresponds to the lowest personal income tax rate. Hence, the personal income tax rate for taxpayers in higher tax brackets exceeds the withholding tax rate. In Poland, dividends are subject to a final withholding tax of 19%. This is also a preferential treatment since the tax rate in the first tax bracket is set to 19%. The same applies to Hungary where the final withholding tax of 20% equals the tax rate of the first tax bracket.

- Another provision of shareholder relief applies in Slovenia where 40% of the dividends are deductible from the personal income tax base. Consequently, only 60% of the dividend is subject to personal income tax.

- Until the end of 2003 the Czech Republic diminished double taxation not only at shareholder level as described above but also at company level. The distributing corporation was allowed to credit 50% of the withholding tax levied on distributed profits against its corporate income tax liability. This provision has been abolished with effect of 1 January 2004.

The alleviation of double taxation of domestic law is not applicable, as a rule, to cross-border dividends. For this reason, the corporate income tax system is not relevant for multinational investors. The tax burden of foreign direct investments of a multinational enterprise depends
mainly on taxes imposed at subsidiary level, i.e. tax rates and tax bases in the source country. In addition to taxes at subsidiary level, the overall tax burden is also determined by the taxation of repatriated profits in the source country (withholding taxes) and home country, where the method for mitigation international double taxation has striking influence (credit method versus exemption method).

### 3.2 Statutory Corporate Income Tax Rates in the New Member States

Table 2 outlines the statutory (nominal) tax rates of the years 2003 and 2004. The spread between the statutory corporate income tax rates in the new member states is 20 percentage points compared to 26.85 in the EU-15 in 2004. Corporate income tax rates are proportional except for Cyprus where the standard tax rate is 10%. Until the end of 2004 an additional 5% tax is imposed on taxable income in excess of an amount corresponding to EUR 1.7 million. In Estonia, distributed profits are taxed at a rate of 26%, whereas retained earnings are exempt from taxation.

<table>
<thead>
<tr>
<th>Countries</th>
<th>CY</th>
<th>CZ</th>
<th>EE</th>
<th>HU</th>
<th>LV</th>
<th>LT</th>
<th>MT</th>
<th>PL</th>
<th>SI</th>
<th>SK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statutory Tax Rate 2003 (%)</td>
<td>15(^{18})</td>
<td>31</td>
<td>26(^{19})</td>
<td>19.6(^{20})</td>
<td>19</td>
<td>15</td>
<td>35</td>
<td>27</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Statutory Tax Rate 2004 (%)</td>
<td>15(^{18})</td>
<td>28</td>
<td>26(^{19})</td>
<td>17.7(^{20})</td>
<td>15</td>
<td>15</td>
<td>35</td>
<td>19</td>
<td>25</td>
<td>19</td>
</tr>
</tbody>
</table>

Table 2: Statutory Tax Rates on Corporate Profits in the New Member States

There is a trend of corporate income tax rate reduction in the new member states. Through recent reforms, five of the ten new member states reduced their corporate tax rates. Thus, corporate tax rates in the acceding countries declined from an average of 23.8% in 2003 to 21.5% in 2004. The average is more than 10 percentage points lower than in the EU-15 (31.7% in 2003 and 31.6% in 2004). Poland and the Slovak Republic cut their corporate tax rates most significantly by 8 and 6 percentage points, respectively. Malta remains the only country imposing a tax rate above the average of the current EU-15 member states. Considering the tax exemption of retained earnings in Estonia, seven countries impose tax rates below 20%.

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\(^{18}\) Basic Rate is set at 10%.

\(^{19}\) Retained earnings are exempt from taxation.

\(^{20}\) Including a surcharge of local business tax.
3.3 Tax Bases

In all new member states the profits liable to corporate income tax are determined on the basis of financial accounting standards and are adjusted to a different extend to obtain the corporate income tax base. All countries have in common that taxable income is based on the accrual principle due to the linkage between tax accounting and financial accounting. Cyprus and Estonia use International Financial Reporting Standards (IFRS) for financial accounting.

- **Industrial Buildings** may be depreciated for tax purposes in all new member states. The depreciation periods vary between 20 and 40 years. The declining-balance method is allowed in the Latvia and Lithuania. In the Czech and the Slovak Republic companies have the option to use a particular accelerated depreciation method based on coefficients. The accelerated coefficient method can be classified as a declining-balance method because both methods yield to similar results. In the remaining countries, the straight-line method is compulsory. In Malta an initial allowance of 10% in addition to the annual rate of 2% is allowed.

- In all new member states purchased **intangibles** (e.g. brands, patents, know-how) have to be capitalised and depreciated over the useful economic life (Cyprus, Czech Republic, Hungary, and Malta) or the depreciation method stated in the tax law has to be applied. The depreciation periods specified in the tax law varies from 3 years in Poland to 5 years in Latvia, the Slovak Republic, and Slovenia. In Lithuania, intangibles are treated with favour as they are depreciated with a rate of 66.67% based on the declining-balance method.

- **Tangible fixed assets** such as plant, machinery, and office equipment may be depreciated in all new member states. In most countries, companies are allowed to apply the declining-balance method. In the Czech and Slovak Republic, the amount of amortisation is determined due to the accelerated depreciation method, which is based on coefficients. Companies located in the Czech Republic benefit from a first year deduction of 10% in addition to the annual allowances for the acquisition of new machinery. Cyprus, Hungary, Malta, and Slovenia restrict depreciation to the straight-line method.
Inventories are recorded at their costs. The amount at which inventories are carried in the accounts depends on the extend overheads are attached to the products. Changes in stock of finished goods and work in progress are valued on basis of alternative cost flow assumptions. In Cyprus, Lithuania and Malta the FIFO method is compulsory. The Czech Republic, Latvia, and the Slovak Republic provide the option to use the weighted average cost method. Moreover, Hungary, Poland, and Slovenia permit the LIFO method. As long as the price level increases and the stock of goods do not decrease LIFO is advantageous. The items most recently purchased at the higher price are matched against revenues. Hence, the taxable income decreases and corporate income tax will be deferred.

Due to the diversity of different tax treatments of provisions, it is not possible to develop a comprehensive overview. Rather the focus is on provisions for bad debts and uncertain (contingent) liabilities. In all new member states, provisions for contingent liabilities are not deductible for tax purposes. Furthermore, in Cyprus, Hungary, Latvia, Malta, and Slovenia provisions for bad debts are prohibited. Merely in the Czech and Slovak Republic, and Poland, companies are entitled to deduct provisions for bad debt. In Latvia, only financial institutions are entitled to such a provision.

Concerning the tax treatment of losses neither of the new member states allows a loss carry-back; however, all countries grant a loss carry-forward. In six new member states the loss carry-forward is limited to five consecutive years. Cyprus, Hungary, and Malta allow an unlimited loss carry-forward.

A unique tax system prevails in Estonia. The tax base is not linked to any profits. Taxable income equals the amount distributed to the shareholders and the amount considered as hidden profit distribution. Distributable profits are assessed according to the International Financial Reporting Standards (IFRS) but there are no special rules for tax purposes.
### Table 3: Most Important Rules for the Determination of Taxable Income in the New Member States

<table>
<thead>
<tr>
<th>Countries</th>
<th>Depreciation Buildings</th>
<th>Amortisation Intangibles</th>
<th>Depreciation Machinery</th>
<th>Valuation of Inventories</th>
<th>Reserves for:</th>
<th>Losses carry-forward</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
<td>FIFO</td>
<td>–</td>
<td>unlimited</td>
</tr>
<tr>
<td>Cyprus</td>
<td>25 years</td>
<td>12.5 years</td>
<td>10 years</td>
<td></td>
<td></td>
<td>–</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>DB</td>
<td>SL</td>
<td>DB</td>
<td>weighted average</td>
<td>allowed</td>
<td>5 years</td>
</tr>
<tr>
<td></td>
<td>30 years</td>
<td>12.5 years</td>
<td>6 years</td>
<td></td>
<td></td>
<td>–</td>
</tr>
<tr>
<td>Estonia</td>
<td>financial accounting (IFRS)</td>
<td>financial accounting (IFRS)</td>
<td>financial accounting (IFRS)</td>
<td>financial accounting (IFRS)</td>
<td>not necessary since retained earnings are tax exempt</td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
<td>LIFO</td>
<td>–</td>
<td>unlimited</td>
</tr>
<tr>
<td></td>
<td>25 years</td>
<td>12.5 years</td>
<td>14.5%</td>
<td></td>
<td></td>
<td>–</td>
</tr>
<tr>
<td>Latvia</td>
<td>DB</td>
<td>SL</td>
<td>DB</td>
<td>weighted average</td>
<td>–</td>
<td>5 years</td>
</tr>
<tr>
<td></td>
<td>10%</td>
<td>5 years</td>
<td>40%</td>
<td></td>
<td></td>
<td>–</td>
</tr>
<tr>
<td>Lithuania</td>
<td>DB</td>
<td>DB</td>
<td>DB</td>
<td>FIFO</td>
<td>allowed</td>
<td>5 years</td>
</tr>
<tr>
<td></td>
<td>25%</td>
<td>66.67%</td>
<td>40%</td>
<td></td>
<td></td>
<td>–</td>
</tr>
<tr>
<td>Malta</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
<td>FIFO</td>
<td>–</td>
<td>unlimited</td>
</tr>
<tr>
<td></td>
<td>45 years</td>
<td>12.5 years</td>
<td>5 years</td>
<td></td>
<td></td>
<td>–</td>
</tr>
<tr>
<td>Poland</td>
<td>SL</td>
<td>SL</td>
<td>DB</td>
<td>LIFO</td>
<td>allowed</td>
<td>5 years</td>
</tr>
<tr>
<td></td>
<td>40 years</td>
<td>3 years</td>
<td>14%</td>
<td></td>
<td></td>
<td>–</td>
</tr>
<tr>
<td>Slovak Republic</td>
<td>DB</td>
<td>SL</td>
<td>DB</td>
<td>weighted average</td>
<td>allowed</td>
<td>5 years</td>
</tr>
<tr>
<td></td>
<td>20 years</td>
<td>5 years</td>
<td>6 years</td>
<td></td>
<td></td>
<td>–</td>
</tr>
<tr>
<td>Slovenia</td>
<td>SL</td>
<td>SL</td>
<td>SL</td>
<td>LIFO</td>
<td>–</td>
<td>5 years</td>
</tr>
<tr>
<td></td>
<td>20 years</td>
<td>5 years</td>
<td>4 years</td>
<td></td>
<td></td>
<td>–</td>
</tr>
</tbody>
</table>

DB: declining-balance
SL: straight-line

3.4 **Additional Company Taxes**

Additional profit and non-profit related taxes may impose a further tax burden in excess of corporate income tax. The most important additional taxes are real estate taxes, property taxes and local business taxes.

Real estate tax is imposed in all new member states except for Estonia, Poland, and Slovenia. The tax base constitutes of land and buildings and is derived either from market prices, lower
standard tax values or the area of land (square meters). Hence, there is considerable dispersion in the tax base even though it comprises the same items. A general conclusion is that real estate taxation varies from country to country but has no significant impact on the effective tax burden. None of the new member states levies a property tax (net wealth tax) at corporate level.

<table>
<thead>
<tr>
<th></th>
<th>Local Business Tax on Income</th>
<th>Real Estate Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyprus</td>
<td>no</td>
<td>YES</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>no</td>
<td>YES</td>
</tr>
<tr>
<td>Estonia</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Hungary</td>
<td>YES (tax rate max. 2%)</td>
<td>YES</td>
</tr>
<tr>
<td>Latvia</td>
<td>no</td>
<td>YES</td>
</tr>
<tr>
<td>Lithuania</td>
<td>no</td>
<td>YES</td>
</tr>
<tr>
<td>Malta</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Poland</td>
<td>no</td>
<td>YES</td>
</tr>
<tr>
<td>Slovak Republic</td>
<td>no</td>
<td>YES</td>
</tr>
<tr>
<td>Slovenia</td>
<td>no</td>
<td>no</td>
</tr>
</tbody>
</table>

Table 4: Local Profit Taxes and Non-Profit Taxes at Corporate Level

Only Hungary imposes an additional local business tax. The tax base includes the net sales revenues and interest income. Costs of goods sold, costs of services (subcontractor fees) and costs of materials are deductible. However, neither depreciation, nor interest deductibility is allowed. A given municipality is authorised to charge its own tax rate but the maximum rate for local business tax may not exceed 2%. The local business tax is deductible for corporate income tax purposes.
4 Effective Tax Burdens on Domestic Investments in the New Member States

4.1 Overall Tax Burdens on Domestic Investments

The main purpose of this study is to quantify the effective tax burden on investments in the new member states. Therefore the EATR is computed based on the methodology of Devereux and Griffith as outlined in section 2. The EATR provides information about the effective tax burden on investment projects generating an economic rent and hence, suited to evaluate location decisions.

Figure 3: Effective Average Tax Rates for Domestic Investments in the New Member States

Figure 3 illustrates the EATR at the level of a company resident in the related country (domestic investments). There is a wide range of EATR within the new member states. The overall spread amounts to 19.7 percentage points. Lithuania (13.1%) is the most tax attractive country closely followed by Latvia (14.4%), and Cyprus (14.5%). Malta imposes the highest effective tax burden (32.8%). The mean of the effective tax rates amounts to 19.7%. German
companies bear a tax burden which is at least 10 percentage points higher compared to the new member states when Malta remains out of consideration.

4.2 Impact of Different Sources of Finance

The fourth to sixth columns in Table 5 illustrate the impact of different financing policies on the effective average tax burden and reveal distortions between profit retention, new equity and debt financing. Debt financing is treated more favourable compared to equity because interest payments are deductible at corporate level. Interest payments only shield profits from taxation at an amount which complies with the arm’s length principle, i.e. the market interest rate in the model. Any profits exceeding the normal rate of return are exposed to taxation at the statutory corporate income tax rate. The result is a positive EATR for inframarginal investments despite of interest deductibility\textsuperscript{21}. The value of the tax shield of interest payments rises with the statutory tax rate and vice versa. The results in Table 5 exhibit that the tax saving from debt financing is highest for Malta, the Czech Republic, and Slovenia, at the same

\textsuperscript{21} The result would be different for marginal investments. When the allowances for tax purposes exceed the true economic depreciation the effective tax rate would be negative for marginal debt financed investments, because at the margin the tax system would subsidise the investment.
time the countries with the highest nominal tax rates. The impact of the interest relief is low for countries with modest statutory tax rates, e.g. Cyprus, Latvia, and Lithuania.

Hungary is the only country applying restrictions on interest deductibility since interest payments are not deductible for local business tax purposes. However, this constraint has little impact on the effective average tax burden because the maximum rate of the local business tax is set at 2% and therefore the local business tax has only minor influence on the overall tax burden. In Estonia, interest payments do not account for tax purposes because the tax base is determined by the amount of distributed profits. There is only an indirect impact of interest payments on the tax burden since interest payments decrease the amount of profits available for distribution. All other new member states grant full interest deductibility for tax purposes.

In contrast to debt capital, financing through retained earnings and new equity is disadvantageous, as neither of the new member states allows a deduction from the taxable income for the corresponding dividend payments. The effective tax rate for both financing policies almost equal the statutory tax rates on profits. Deviations from the statutory tax rate are due to the accounting rules incorporated in the model beside from interest relief. These accounting rules have no critical impact on the EATR since they do not result in tax exemptions but in timing differences and hence, tax deferrals. This is evidence for the important role of the statutory tax rate in estimating the impact of taxation on investment decisions.

Equity financing policies will result in the same effective tax rates if the corporation tax system does not differ between retained and distributed earnings, i.e. the same tax rate is applied on profits regardless if they are retained at corporate level or distributed to shareholders. This is true for all countries except for Estonia.

In Estonia profits are trapped inside the corporation because retained earnings are exempt from taxation and only distributed profits are exposed to corporate income tax. Profit retention and debt financing result in the same effective tax rate because taxable income is determined by the amount of distributed profits and furthermore, the model assumes that the economic rent generated by the corresponding investment is distributed to the shareholders. At the same time this is the reason for a positive effective average tax rate. The most tax effi-

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22 The marginal investment financed through profit retention or debt capital does not impose any tax burden on companies in Estonia.
cient financing policy for an Estonian based company is to finance investment projects through retained earnings or debt.

4.3 Impact of Different Types of Assets

The following paragraphs investigate the dispersion of effective tax burdens among the different kind of assets. In all the new member states buildings, intangible assets and machinery may be depreciated for tax purposes. In most countries allowances for machinery and industrial buildings far exceed true economic depreciation. The preferential depreciation for tax purposes leads to modest EATR. However, in seven countries real estate tax imposes a further tax burden on industrial buildings and thus, increases the measure of the EATR. Despite of advantageous depreciation rules for industrial buildings in Hungary and Latvia, industrial buildings report the highest EATR relative to the other assets in both countries. Real estate taxation can be identified as the main tax driver. The effective rate of real estate tax is equal to 1.3 in both Hungary and Latvia, which is at least 3 times higher than in the remaining countries. This rate seems to be low but relative to a company’s profits, a fairly high effective tax burden will result. Considering the average tax burden of a company, the real estate taxation is of minor importance. The effective average tax burden is based on a corporation modelled by an investment mix of equally weighted assets. Hence, there is only very little impact of real estate taxation on the EATR of a firm.

The tax systems offer similar generous allowances for purchased intangibles leading to the result that the EATR for intangibles and machinery is approximately the same and among the lowest in most of the new member states. A different conclusion applies to Cyprus, the Czech Republic, Hungary, and Malta where intangibles have to be depreciated over their useful economic life on a straight-line basis. As a result the EATR is close to the statutory tax rate.

Analysing the tax burden of non-depreciable assets, i.e. financial assets and inventories, the impact of inflation on the EATR becomes evident. Inflation increases the nominal sales price and nominal costs. Only LIFO avoids the taxation of inflationary gains. Under the FIFO and weighted average cost flow assumption taxable income is measured by the difference between nominal sales price and nominal cost valued at a lower price level. Thus, taxable income rises

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23 Note that the treatment for self created intangibles is different since the underlying costs can be expensed immediately in many countries (i.e. same effect as an allowance of 100%).
with inflation. The same applies to financial assets. However, there is no preferential cost flow assumption for financial assets. As a result, the EATR for investments in inventories do not exceed the EATR of investments in financial assets.

In Estonia accounting rules do not have any influence on the taxable base which is determined by the amount distributed to the shareholders. All assets are treated equally and EATR is the same for all types of assets.

On average, depreciable assets bear a lower tax burden than non-depreciable assets due to the tax deferral resulting from allowances. The dispersion of the effective tax rates within the countries is relative low reflecting minor impact of the tax base on the EATR in the model.

4.4 Investigating Effective Tax Burdens in Different Geographical Regions

4.4.1 Overall Effective Tax Burdens

A multinational enterprise might be interested in establishing a new subsidiary in a certain geographical region, but not have any preferences for a particular country. Therefore, we group the new member states by three different geographical regions: Central European countries (Czech Republic, Hungary, Poland, Slovenia, and Slovak Republic), the Baltic countries (Estonia, Latvia, and Lithuania), and the two Mediterranean islands (Cyprus and Malta). We investigate the tax burden in the different countries of a specific regional area. This can provide a potential investor with further insight and reveals the relative attractiveness of the countries within the three regions.

It is assumed that the investment project will generate the same pre-tax economic rent independent from any location, e.g. by exploiting firm specific know-how and intellectual property. The tax systems will not induce economic inefficiencies, since the investment is inframarginal and hence, earns at least the cost of capital. However, the investor will earn higher after-tax profits when he chooses the country offering the lowest effective tax burden. Therefore, the measure of EATR provides a useful tool to investigate the relative attractiveness of the countries for the location decision of subsidiaries of multinational enterprises.
The two Mediterranean islands Cyprus and Malta figure the most disparate picture. The former is among the most tax attractive countries, the latter is characterised by the highest effective tax rate. However, beyond tax planning considerations, e.g. establishing holding companies, both countries seem to be too small in order to allow a clear interpretation of the impact of taxation on location decisions.

Through the tax reform which came into effect on 1 January 2004 the Slovak Republic offers the lowest EATR within the Central European countries. The comparative advantage is limited, since Poland (17.5%) and Hungary (18.4%) follow closely. The Czech Republic imposes the highest effective tax burden on investments within this regional area. The spread of EATR between the Slovak Republic and the Czech Republic amounts to 8.8 percentage points. It is the lowest spread among the three different geographical regions. It is remarkable that tax reforms came in effect with 1 January 2004 in four of the five Central European countries, partly with tremendous tax rate reductions: Poland cut the corporate income tax rate by 8 percentage points, the Slovak Republic by 6 percentage points, the Czech Republic by 3 percentage points and Hungary by 2 percentage points. The decrease in statutory tax rates aims at providing attractive tax offerings to multinational investors and might be evidence that there is an increasing tax competition for international mobile capital among the Central European countries. The lowest spread in EATR within the Central European countries confirms this conclusion.
The Baltic countries impose the lowest levels of company taxation on average. The results displayed in Table 6 even underestimate the attractiveness of these countries. According to the theoretical model, the EATR computed in this study are based on the assumption that part of the profits is distributed. An Estonian based firm can thus defer taxation into future periods because retained earnings are exempt from taxation. The associated increase in the net present value of the investment will reduce the effective tax rate significantly below 22.5\%\textsuperscript{24}.

4.4.2 Effective Tax Burdens and Levels of Profitability

The measure of EATR has the useful property that it is equal to the EMTR at corporate level for marginal investments\textsuperscript{25} and approaches towards the statutory tax rate with increasing profitability. The underlying economic effect for this development is the declining influence of the tax base and additional non-profit related taxes (e.g. real estate taxes) with rising profitability. Depreciation is restricted to the initial costs of the investment and the deductibility of interest payments is limited to the arm’s length principle and hence, both allowances do not increase in value with profitability. This means that the impact of the allowances will decrease relative to the profits.

Allowances in excess of true economic depreciation will result in a low or even negative EMTR if the marginal investment is debt financed because at the margin the tax system subsidise the investment. However, this is only true for the marginal investment and the subsidy ease quickly with rising profits. Since all new member states grant generous allowances and the EATR is computed as a weighted average of all three sources of finance, which means that debt financed investment are incorporated to one-third, the EATR is fairly below the statutory tax rate for low profitable investments\textsuperscript{26}. However, there is an exemption: Hungary is the only new member state where the effective tax rate exceeds the statutory tax rate at the margin. In Hungary neither interest payments, nor depreciation allowances are deductible for the local business tax. Both allowances are limited to corporate income tax. This restriction drives the mean of the effective tax rate above the statutory tax rate for marginal investments. However, the relative influence of this restriction declines with rising profits and the statutory

\textsuperscript{24} To estimate the quantitative impact of profit retention on the EATR in Estonia, see section 7.2.

\textsuperscript{25} See equation (3): For marginal investments, where $p = \tilde{p}$, the EATR equals the EMTR.

\textsuperscript{26} For further descriptions about the relationship between the EATR and the levels of profitability see Devereux/Griffith (2003), pp. 113–115; Giannini/Maggiulli (2002), pp. 641–642; Lammersen (2002), pp. 23–26.
tax rate will gain in weight. Since the statutory tax rate in Hungary is among the lowest in the new member states, Hungary becomes an attractive location for highly profitable investments, despite of a high effective tax rate at the margin.

Low profitable investments bear approximately the same effective tax burden in the Czech Republic and in Hungary. With rising profitability, Hungary will gain quickly a significant comparative tax advantage. This development reflects both the rising influence of the corporate income tax rate which is more than 10 percentage points higher in the Czech Republic and the declining impact of the local business tax in Hungary.

Slovenia imposes a moderate tax burden on low profitable investments due to very generous allowances. With rising profits the relative high tax rate of 25% causes Slovenia to fall back from the second to the fourth tax attractive country within Central Europe and the gap to the Slovak Republic, Poland, and Hungary increases. The distribution of the EATR for the range of levels of profitability implies that a multinational investor facing the location decision for a highly profitable subsidiary might be indifferent between the Slovak Republic, Poland, and Hungary from a tax point of view and non-tax related factors might become more important.

Figure 4: Effective Average Tax Rates and Profitability in the Central European Countries (Domestic Investments)
Within the Baltic countries, Lithuania imposes the lowest tax burden irrespective of the level of profitability, since the theoretical model underlying the reported results assumes that part of the profits are distributed to the shareholders. The effective tax rate is about the same in Latvia and Estonia for the marginal investment. With increasing profits, the EATR in Estonia rises steeply towards the statutory tax rate of distributed profits at a rate of 26%, while the EATR in Lithuania remains at a low level of about 15% and approaches the Lithuanian corporate income tax rate. The difference in the effective tax rates between Lithuania and Latvia is caused by more favourable tax treatment of industrial buildings and intangibles and a lower real estate tax rate. In Lithuania industrial buildings are allowed to be depreciated with a rate of 25% p.a. on a declining-balance basis compared to 10% p.a. in Latvia, and intangibles are allowed to be amortised with a rate of 66.67% p.a. on a declining-balance basis in the former country compared to 5 years on a straight-line basis in the latter. Furthermore, in Latvia industrial buildings face a three times higher real estate tax burden compared to Lithuania. It is important to note, that an investor can reduce the tax burden of investments in Estonia significantly by profit retention. Therefore, the distribution of Figure 5 does not allow a final conclusion about the most tax attractive location within the Baltic countries.\footnote{According to the theoretical model, the results illustrated in Figure 5 are based on the assumption that part of the profits is distributed.}
There is a significant gap between the EATR of the two Mediterranean islands. In both countries, Malta and Cyprus, the relative flat distribution of the EATR indicates only minor influence of the tax accounting rules on the average over all types of assets and all three sources of finance.

Figure 6: Effective Average Tax Rates and Profitability in the Mediterranean Islands (Domestic Investments)
5 Effective Tax Burdens on German Outbound Investments to the New Member States (Parent Company Level)

5.1 Taxation of Cross-Border Investments: Fundamental Rules

The following section quantifies and analyses the impact of taxation on cross-border investments to the new member states. In particular, we examine the effective tax burden at the level of a German based multinational enterprise which operates through a wholly owned subsidiary located in the new member states. Therefore, the theoretical model was extended to measure effective tax rates for cross-border investments. The investment project at subsidiary level can be financed through retained earnings, or the required fund can be raised by the German parent company through the injection of new equity or debt capital. The investment project generates revenues which either can be repatriated through inter-company dividends or interest payments. This approach enables to investigate effective tax rates at German parent company level with respect to different financing policies.

The tax burden on foreign direct investments of a multinational enterprise is determined by the taxation of the subsidiary, and the taxation of inter-company dividends and inter-company interest payments in the source country (withholding taxes) as well as in the home country. Considering the tax treatment of foreign source dividends in Germany, German tax law exempts dividends from taxation, irrespectively if they result from domestic or foreign participations. However, an amount equal to 5% of the dividends is assumed to be non tax deductible expenses which mean that - in fact - only 95% of the dividends are tax exempt. Due to the exemption of dividends, withholding tax on dividends can neither be deducted from nor credited against corporate income tax in Germany. In addition to the tax burden at subsidiary level, withholding taxes on dividends imposed in the source country therefore increase the tax burden on cross-border investments of German multinational enterprises.

In contrast to that, withholding taxes on interest payments do not have any impact on the effective tax burden. The German tax system grants a foreign tax credit for withholding taxes levied on interest payments. As a result, there is no additional tax burden since German tax

\[28\] Similar provisions exist in other member states, e.g. France. For an overview see Spengel (2003), pp. 41 – 45.
burden exceeds the level of withholding tax rates. Double taxation is eliminated in case of interest payments.

The second and third column of Table 7 display the withholding tax rates on dividends and interest payments for qualifying participations according to the double taxation treaties concluded by the new member states with Germany. All of the Central European countries impose withholding taxes on dividend payments, four of them at a rate of 5%. In addition to the Central European countries, Latvia as well sets the withholding tax rate at 5%. In Slovenia, the repatriation of profits by means of dividends faces a comparatively high withholding tax rate of 15%. Withholding taxes on interest payments are merely levied in the Baltic countries (Estonia, Latvia, and Lithuania). All three jurisdictions set the rate at 10%. As argued in the preceding paragraph, it is to note that these withholding taxes on interest payments in general do not have any influence on the tax burden at the level of a German parent company²⁹.

5.2 Overall Effective Tax Burdens Considering Withholding Taxes and the Alignment to the Parent-Subsidiary Directive

Table 7 reports in column 4 the overall mean of the EATR for cross-border investments at German parent company level. In addition, the EATR for German domestic investments is included in the last row as a benchmark for German investors. Compared to the EATR for domestic investments at subsidiary level, the average EATR rises from 19.7% to 24.4% because the subsidiary is partly debt financed which means, that part of the tax base is shifted to the parent company through interest payments and therefore subject to the higher German tax rate. The spread from the highest to the lowest EATR is 19.3 percentage points and hence, almost equal to the spread at subsidiary level (19.7 percentage points).

There are two countries with a significant low level of taxation. The EATR for cross-border investments to Lithuania and Cyprus amounts to 15.3% and 16.7%, respectively. Cross-border investments to a second group of countries are faced quite a low effective average tax burden with a spread of 4.3 percentage points: Latvia (20.1%), the Slovak Republic (22.3%), Poland (23.0%), Hungary (23.9%), and Estonia (24.5%). The Czech Republic, Slovenia, and Malta constitute a third group of countries with a fairly similar EATR ranging between 30.6%

²⁹ There might be an excess tax credit if debt financed investments of the subsidiary are refinanced with debt at parent company level. This situation, however, is not covered in detail by the underlying model.
and 34.6%. Compared to domestic investments in Germany (36.0%), cross-border investments to each of the new member states are exposed to a lower tax burden. This result reveals a comparative tax advantage of the new member states regarding the impact of taxation on the location decision.

### Results Considering Withholding Taxes

<table>
<thead>
<tr>
<th>Countries</th>
<th>Withholding Tax Rate on Dividends</th>
<th>Withholding Tax Rate on Interest Payments</th>
<th>Effective Average Tax Rate (in %)</th>
<th>Source of Finance (Subsidiary)</th>
<th>Change in Ranking</th>
<th>Change in EATR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CZ</td>
<td>5</td>
<td>0</td>
<td>Overall Mean: 30.6</td>
<td>Ranking: 8</td>
<td>27.5</td>
<td>25.9</td>
</tr>
<tr>
<td>HU</td>
<td>5</td>
<td>0</td>
<td>Overall Mean: 23.9</td>
<td>Ranking: 6</td>
<td>20.5</td>
<td>17.5</td>
</tr>
<tr>
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<td>0</td>
<td>Overall Mean: 23.0</td>
<td>Ranking: 5</td>
<td>19.6</td>
<td>17.0</td>
</tr>
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<td>Overall Mean: 33.4</td>
<td>Ranking: 9</td>
<td>29.3</td>
<td>21.7</td>
</tr>
<tr>
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<td>0</td>
<td>Overall Mean: 22.3</td>
<td>Ranking: 4</td>
<td>19.0</td>
<td>16.2</td>
</tr>
<tr>
<td>EE</td>
<td>0</td>
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<td>Overall Mean: 24.5</td>
<td>Ranking: 7</td>
<td>16.8</td>
<td>16.8</td>
</tr>
<tr>
<td>LV</td>
<td>5</td>
<td>10</td>
<td>Overall Mean: 20.1</td>
<td>Ranking: 3</td>
<td>16.4</td>
<td>13.4</td>
</tr>
<tr>
<td>LT</td>
<td>0</td>
<td>10</td>
<td>Overall Mean: 15.3</td>
<td>Ranking: 1</td>
<td>12.2</td>
<td>12.2</td>
</tr>
<tr>
<td>CY</td>
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<td>0</td>
<td>Overall Mean: 16.7</td>
<td>Ranking: 2</td>
<td>13.6</td>
<td>13.6</td>
</tr>
<tr>
<td>MT</td>
<td>0</td>
<td>0</td>
<td>Overall Mean: 34.6</td>
<td>Ranking: 10</td>
<td>33.8</td>
<td>33.8</td>
</tr>
<tr>
<td>DE</td>
<td>36.0 (Domestic Investment)</td>
<td>36.0 (Domestic Investment)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7: Effective Average Tax Rates for German Outbound Investments at Parent Company Level (Cross-Border Investments)

The theoretical analysis identifies foreign withholding tax rates on dividends as the main tax driver on cross-border investments in addition to the local tax burden imposed on the subsidiary. The results of the study confirm this conclusion. In reference to the full implementation of the Parent-Subsidiary Directive, which eliminates withholding taxes on dividends, the EATR is between 3.1 and 3.6 percentage points higher for countries imposing a 5% withholding tax on dividends. Cross-border investments to Slovenia bear the most significant additional tax burden which amounts to a further 9.8 percentage points due to the highest withholding tax rate equal to 15%. This extra burden also causes the most obvious decline in ranking: Slovenia falls back from the seventh to the ninth rank compared to the ranking based on domestic investments at subsidiary level. The other changes in ranking are of minor importance.
The outlined situation will change as soon as the Parent-Subsidiary Directive is adopted by the new member states. The Parent-Subsidiary Directive is aimed at eliminating double taxation of profits distributed by group companies resident in the member states. This is done by removing withholding taxes in the source country and by requiring either tax exemption of the received dividends or full tax credit in the home country of the parent company. However, the Parent-Subsidiary Directive does not apply to all dividends; the application is subject to certain requirements (e.g. participation thresholds and restrictions to certain legal entities). Key for a German based multinational enterprise is the abolition of withholding taxes on dividends in the new member states. The six countries levying withholding taxes on dividends applied the Parent-Subsidiary Directive when receiving full membership on 1 May 2004. This means that profits can be repatriated to a German parent company via dividend payments without any additional tax burden stemming from withholding taxes as of this date.

The amendment of national rules to the Parent-Subsidiary Directive and thus, the abolition of withholding taxes on dividends will reduce the average EATR from 24.4% to 21.8% by 2.6 percentage points. The ranking of the countries will become the same as the ranking of domestic investments at subsidiary level. The underlying reason is the dominant influence of the effective tax burden imposed at subsidiary level in the source country on German outbound investments due to the exemption method applied in Germany. In particular Slovenia will become more attractive for German multinational enterprises, since the tax burden will decrease by 9.8 percentage points. Compared to domestic investments in Germany (36.0%), the tax burden at German parent company level can be reduced significantly through foreign direct investments to subsidiaries located in the new member states. The EATR at the level of the German multinational enterprise amounts to 27.5% when the subsidiary is established in the Czech Republic, 20.5% in Hungary, 19.6% in Poland and declines to 15.3% in Lithuania.

Withholding taxes on interest payments in case of debt financing of subsidiaries have – with respect to the assumptions of our model – no impact on the effective tax burden since these withholding taxes can be credited against German taxes. Therefore, the adoption of the Interest-Royalties Directive does not affect our results.
5.3 Impact of Different Financing Policies on Effective Tax Burdens at German Parent Company Level

The financing policy has a major impact on the effective tax burden. The German parent company can provide funds to the subsidiary through equity or debt capital. After the subsidiary has invested abroad, the German multinational faces the subsequent decision to repatriate generated cash flows or to reinvest them abroad. Supposing there are sufficient retained earnings at subsidiary level, investments can be financed through three different sources: retained earnings, new equity, or debt capital.

Table 7 illustrates the advantage of providing funds through equity. Associated earnings are subject to taxation in the source country and exempt from taxation in Germany according to the 95%-exemption of dividend income granted by the German tax code. Equity financing is a suitable policy to shield profits from taxation in Germany. The strategy of shifting income from high-tax to low-tax jurisdictions enables multinational enterprises to benefit from tax differentials between Germany and the new member states.

If a German parent company aims at reducing its tax load it is recommended to retain earnings at the level of foreign subsidiaries and reinvest them in the source country. The additional tax associated with dividend payments can be deferred into future periods. The extra tax burden stems from the rise in German taxable income equal to 5% of the dividends. Table 7 gives evidence for the value of the tax deferral in case of profit retention. The EATR is slightly lower for retained earnings compared to new equity as a source of finance. This is because the model assumes that earnings are distributed immediately if a subsidiary is financed through new equity. By contrast, profit retention reduces the mean of the EATR to 18.8%\(^{30}\) compared to 21.8%\(^{30}\) if all three sources are weighted equally.

5.4 Effective Tax Burdens and Levels of Profitability

In the preceding section we argued theoretically and proved by our results that the most tax efficient source of finance for a subsidiary of a German parent company is profit retention at the level of the subsidiary. This chapter investigates the effective tax rates for a range of levels of profitability. The EATR is measured at the level of a German based parent company.

\(^{30}\) The results consider the alignment of the national jurisdictions to the Parent-Subsidiary directive.
The subsidiary is financed by retained earnings, since this financing policy minimises the tax burden (most tax efficient source of finance). Furthermore, the distributions outlined in the following figures are based on the assumption that the jurisdictions of the new member states entirely comply with the Parent-Subsidiary (and the Interest-Royalties) Directive. The parent company itself is refinanced through a policy-mix, where profit retention, new equity, and debt capital are weighted equally.

In chapter 4.4.2 we emphasised the property of the used measure, that the EATR approaches the statutory tax rate with rising profitability at corporate level, i.e. when shareholders are not considered. This property sustains valid for cross-border investments. The EATR for cross-border investments goes towards a combined statutory tax rate. For German outbound investments the relevant combined statutory tax rate is determined by the statutory corporate income tax rate in the source country, and by 5% of the German statutory corporate income tax rate on inflowing dividend payments. In the following we just refer to the “combined statutory tax rate”.

First, we present an analysis for the Central European countries. According to the distribution provided in Figure 7, the results are basically the same as for domestic investments at subsidiary level (see Figure 4). However, there is a remarkable difference between the distribution of most tax-efficient financed outbound investments to Hungary and the distribution at domestic level of the subsidiary: the distribution does not deviate from above the combined statutory tax rate for marginal investments and does not converge top down, but starts from a level far below the combined statutory tax rate and rises with profitability. This is a result of counter effects. At subsidiary level the non deductibility of interest payments and depreciation allowances for local business tax purposes serve to raise the effective tax rate. However, there is a second effect offsetting the former. The model investigates the tax burden of an incremental profitable investment project of a parent company which already generates taxable profits in Germany. Establishing a new subsidiary is a typical example for such an incremental profitable investment project. As the model assumes that the German parent company is partly refinanced through debt capital, the corresponding interest payments shield part of the profits, which exist independent from the incremental investment, from the high tax burden in Germany at parent company level. The value of the tax relief of interest payments rises with the tax rate. Since the statutory tax rate in Germany (39.35%) exceeds by far the tax rate

\[ \text{See Devereux/Griffith (1999), pp. 29 – 30.} \]
of the local business tax in Hungary (2%), the tax saving at parent company level dominates the disadvantage of limited deductibility of expenses in Hungary for local business tax purposes and drives down the effective tax burden on low profitable cross-border investments.

The Slovak Republic, Hungary, and Poland offer the most attractive locations for highly profitable subsidiaries with respect to taxation. The differences in effective tax rates among these three countries become less significant the higher expected earnings are. However, there is a rising gap to Slovenia and the Czech Republic revealing a comparative tax disadvantage regarding the location of highly profitable subsidiaries.

Among the Baltic countries, the tax relief triggered by interest deductibility at the level of the German parent company accounts for a negative effective tax rate on marginal investments. Taxation shifts to a subsidy for low profitable investments. In particular, this effect is from high significance in Estonia according to the tax exemption of retained earnings. For investment projects with an expected rate of return up to 10% Estonia would be the best location. For higher expected rates of returns the relative attractiveness reverts and Estonia loses the comparative tax advantage to Latvia and Lithuania, whose tax burdens converge. However, it is not possible to draw a final conclusion based on the outlined graphs. The investor can bene-

Figure 7: Effective Average Tax Rates and Profitability for German Outbound Investments to Central European Countries at German Parent Company Level (Subsidiary is Financed through the Most Tax Efficient Source)
fit from the tax exemption of retained earnings in Estonia through long-term profit retention and therefore, reduce the effective tax burden on highly profitable projects fairly below the illustrated distribution.

![Effective Average Tax Rates and Profitability for German Outbound Investments to the Baltic Countries at German Parent Company Level (Subsidiary is Financed through the Most Tax Efficient Source)](image)

The effective tax burdens of the two Mediterranean islands Cyprus and Malta show a high spread. According to interest deductibility at German parent company level, the effective tax rates for outbound-bound investments to Cyprus and Malta are lower on marginal investments and advance more steeply with rising profitability in contrast to the distributions of the EATR at subsidiary level.
Figure 9: Effective Average Tax Rates and Profitability for German Outbound Investments to the Mediterranean Islands at German Parent Company Level (Subsidiary is Financed through the Most Tax Efficient Source)
6 Tax Incentives in the New Member States

6.1 Overview of Tax Incentives

Offering tax incentives is still a common policy of the new member states to attract foreign direct investments. Many of these incentives are very generous. There is a range from a reduction in tax base (accelerated depreciation) to a tax exemption for a certain number of years (tax holiday). Overall, a joint survey of Ernst & Young and the ZEW based on questionnaires which were sent to local tax experts from Ernst & Young revealed almost 30 major incentives in the new member states.\(^{32}\)

<table>
<thead>
<tr>
<th>Countries</th>
<th>Tax Incentives Considered for the Calculations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyprus</td>
<td>Profits of International Business Companies are exposed to a reduced tax rate of 4.25% for the years 2004 and 2005.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Tax exemption for ten years for newly established entities.</td>
</tr>
<tr>
<td>Estonia</td>
<td>Tax exemption of retained earnings. The period of tax exemption is restricted to five years, since the preferential treatment of retained earnings has to be abolished as of the year 2009.</td>
</tr>
<tr>
<td>Hungary</td>
<td>A tax credit equal to 35% – 50% of the investment value is granted within the first five years.</td>
</tr>
<tr>
<td>Latvia</td>
<td>An 80% tax rebate is granted for corporate income tax in special economic zones until the year 2017.</td>
</tr>
<tr>
<td>Lithuania</td>
<td>Profits are tax exempt for the first five years and the tax rate will be reduced to 50% of the normal rate for the following ten years for companies resident in special economic zones (Free Enterprise Zones).</td>
</tr>
<tr>
<td>Malta</td>
<td>Until the end of 2008 a reduced tax rate of 5% is imposed on qualifying companies.</td>
</tr>
<tr>
<td>Poland</td>
<td>Accelerated depreciation of 30% in the first year allowed for certain newly acquired fixed assets (the model assumes that machinery qualifies for the benefit).</td>
</tr>
<tr>
<td>Slovenia</td>
<td>Investment reserve of 10% which must be used within two years for the acquisition of new fixed assets.</td>
</tr>
<tr>
<td>Slovak Republic</td>
<td>Newly established entities and expanded existing establishments benefit from a corporate income tax exemption of ten years.</td>
</tr>
</tbody>
</table>

Table 8: Summary of Tax Incentives in the New Member States Considered for the Calculations

From these incentives we have chosen one for each country displayed in Table 8 which we considered as representing a typical country specific measure. This procedure is admittedly arbitrary and therefore the following calculations rather provide an overview of the impact of different conceptual measures for tax incentives on the effective tax burden than a comprehensive analysis of all investment incentives granted by the new member states.

\(^{32}\) See Ernst & Young/ZEW (2003), pp. 31 – 35.
6.2 Impact of Tax Incentives on Effective Tax Burdens

The model outlined in section 2 was extended to quantify the impact of tax incentives on company taxation. A tax holiday for a certain number of years does not reduce the effective tax rate to zero because the model is based on a going concern assumption and hence, profits are subject to taxation after the tax relief has expired.

![Figure 10: Impact of Tax Incentives on Effective Average Tax Rates for Domestic Investments in the New Member States](image)

The highest relief in tax burden are related to tax incentives which exempt profits from taxation for a certain period of time (Czech Republic, Lithuania, and Slovak Republic). Latvia grants a tax rebate over an extended period of time (until 2017) which is comparable to an 80% tax exemption. Furthermore, a large reduction in tax rate given a relative high normal rate leads to a significant tax relief in Malta. The tremendous reduction in EATR in Estonia is caused by full profit retention and hence, tax exemption until the end of the year 2008\(^33\). The tax rebate granted in Hungary has not as much impact on the effective tax level as a tax holi-

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\(^{33}\) According to the ECJ the tax rate of 26% is considered as a withholding tax, which is not in line with the Parent-Subsidiary Directive. There is an agreement between the European Union and Estonia that a transitional period is granted until the end of 2008 to comply with the directive. Therefore, investors can benefit from the tax exemption of retained earnings until the end of 2008 and the model assumes that profit retention until that date in order to quantify the associated tax relief. For further details see p. 44.
day because the tax rebate is limited to an amount equal to 35% to 50% of the investment value and furthermore, can only be utilized in the first five years.

According to a ten years tax exemption and a relative high statutory corporate income tax rate, the Czech Republic gains the most significant rise in relative attractiveness, advancing three places in overall ranking from the 9th to the 6th attractive location. Furthermore, it is remarkable that all three Baltic countries grant generous tax incentives. In Cyprus, Poland, and Slovenia, tax incentives are from minor importance.

From the perspective of a German based multinational enterprise, the tax incentives have considerable influence on the effective tax burdens. As dividends are 95% tax exempt in Germany, a German parent company also benefits from the tax incentives even if profits are transferred to Germany. Figure 11 outlines the reduction of effective tax burdens on cross-border investments at German parent company level, when the subsidiary is entitled to the tax incentives. There is also a change in ranking when tax incentives are taken into account. Since the calculations assume an entirely conformity with the Parent-Subsidiary (and the Interest-Royalties) Directive (i.e. no withholding taxes are imposed on dividend (and interest) payments), the relevant tax burden determining the ranking is imposed at subsidiary level. For both, domestic and cross-border investments, the tax incentives reveal to be the dominant tax driver.
7 Recent and Prospective Developments in the New Member States

7.1 Overview of Recent and Prospective Tax Changes

The quantitative analysis of the preceding section revealed the attractiveness of tax incentives for location decisions. Several new member states, however, tend to cut back their tax incentives or let them expire in the near future. In order to continue to attract international mobile capital, there is a trend to compensate for abolishing tax incentives through tax rate reductions. Recently, there started a first wave of tax rate cuts. Half of the new member states lowered their statutory corporate income tax rates with effect as of 1 January 2004: Poland reduced its tax rate from 27% to 19%, the Slovak Republic from 25% to 19%, Latvia from 19% to 15%, the Czech Republic from 31% to 28%, and Hungary from 18% to 16%. The second wave of tax changes includes the following amendments:
• **Cyprus:** The additional 5% tax on the amount in excess of EUR 1.7 million will be eliminated as of 2005 and the basic rate of 10% will be applied on the whole tax base.

• **Czech Republic:** A gradually reduction of the corporate income tax rate from 28% (2004), to 26% (2005), and to 24% (2006) is intended.

• **Estonia:** An incremental reduction of corporate income tax rate has been announced: The tax rate on distributed profits will be reduced from 26% (2004), to 24% (2005), to 22% (2006), and finally to 20% (2007). Further amendments will be necessary. According to a judgement of the European Court of Justice in the Greek Athinaiki Case\(^\text{34}\), the tax rate of 26% on distributed profits is considered as a withholding tax, which is not in line with the Parent-Subsidiary Directive. There is an agreement between the European Commission and Estonia that a transitional period will be granted until 31 December 2008 to comply with the directive\(^\text{35}\).

### 7.2 Impact of Proposed Tax Changes on Effective Tax Burdens

It is evident, that the reduction of corporate income tax rates will decrease the effective tax burdens. In contrast to tax incentives, there are no prerequisites to fulfil. As a result, the new member states will become more attractive to numerous foreign investors who will benefit from a lower tax burden regardless of the type and volume of the investment, sector, or region.


The quantitative impacts of the proposed tax changes are illustrated in the following two figures. **Figure 12** reports the effective tax burdens at subsidiary level (domestic investments). The highest impact of the tax changes on the tax burden as well as on the ranking attributes to Estonia. The incremental reduction of corporate income tax rate on distributed profits from 26% to 20% by 6 percentage points reduces the effective average tax burden from 22.5% to 17.3% by 5.2 percentage points. The corresponding improvement in ranking by three places reflects the enhancement in relative attractiveness in reference to the remaining countries. The withdrawal of the five percent additional tax rate in Cyprus will reduce the tax burden by 4.8 percentage points. Cyprus will offer an effective level of company taxation of 9.7% in 2005 and become the most tax attractive new member state, supposing there will be no further amendments beyond the changes specified in this study. The Czech Republic will decrease the effective tax burden by 3.6 percentage points to 21.9%. It cannot improve in ranking since Estonia, currently preceding the Czech Republic, also cut tax rates. However, the gap to the neighbouring countries Slovenia, Hungary and Poland will become closer as well as the comparative tax advantage to German based companies spreads.

**Figure 13** measures the EATR at the level of a German parent company for cross-border investments to the new member states. The calculations assume that the national jurisdictions of
the new member states entirely comply with the Parent-Subsidiary (and the Interest-Royalties) Directive. The prospective lowering in corporate income tax rates will also reduce the effective tax burdens at German parent company level. For tax purposes the new member states will increase the relative advantage compared to Germany and will become even more attractive as a location for subsidiaries.

Figure 13: Impact of Prospective Tax Changes on Effective Average Tax Rates at German Parent Company Level (Cross-Border Investments)
8 Summary

1. The study carries out a comprehensive quantitative analysis of company taxation in the new member states. The main objective is to reveal the impact of taxation on the relative attractiveness of the countries in isolation from other economic factors and to identify the driving factors behind the tax burdens. The study relies on the measure of the effective average tax rate (EATR) derived from a forward-looking approach developed by Devereux and Griffith (1999). The EATR summarises the impact of taxation in isolation from other economic factors. Since location decisions concern mutual exclusive investments projects, the EATR is the relevant measure in such choices.

2. Most of the new member states operate a shareholder relief system which imposes corporate income tax at corporate level and personal income tax on dividends at shareholder level. In order to alleviate double taxation, such a system grants preferential treatment of dividend income compared to other sources of income at shareholder level. The application of a shareholder relief system follows the trend in the current member states. Regardless of the corporate income tax system, the tax base is determined on the basis of financial accounting profits and adjusted according to specific tax accounting rules. There is one remarkable deviation from this common approach: In Estonia, retained earnings are fully exempt from taxation. The Estonian tax system only imposes corporate income tax on distributed profits. The average of statutory corporate income tax rates amounts to 21.5% in 2004 and is more than 10 percentage points lower compared to the related average in the EU-15 (31.6% in 2004).

3. All new member states impose a lower tax burden on domestic investments compared to Germany. For most of the countries there is a significant tax advantage. German companies bear a tax burden which is at least 10 percentage points higher compared to the new member states when Malta remains out of consideration. Lithuania (13.1%), Latvia (14.4%), Cyprus (14.5%), and the Slovak Republic (16.7%) offer the lowest EATR. Malta (32.8%) accounts for the highest EATR. The tax burden on domestic investments in Germany amounts to 36.0%.

4. On average, depreciable assets bear a lower tax burden than non-depreciable assets due to the tax deferral of allowances. In seven countries real estate tax imposes an additional tax
burden on industrial buildings. At subsidiary level, i.e. neither considering shareholders nor the parent company, debt financing is treated more favourable than equity financing due to the deductibility of interest payments. With rising profitability, the relative influence of tax accounting rules and additional non-profit taxes (i.e. real estate taxes) on the effective tax burden ease and the statutory corporate income tax rate becomes the dominant tax driver at corporate level.

5. Since profits of foreign subsidiaries are not taxable in Germany and only 5% of foreign source dividends are subject to German corporate income tax, a German based multinational enterprise can benefit from the lower tax level in the new member states and reduce the tax burden to an average mean of 24.4%. Providing the subsidiary with equity capital results in a lower tax burden compared to debt financing because corporate income taxes in each of the new member states are lower than in Germany. The most tax efficient financing strategy is to choose equity financing and retain profits at the level of the subsidiary in the new member states. The additional taxes on dividends are deferred to future periods.

6. The Czech Republic, Hungary, Latvia, Poland, Slovenia, and the Slovak Republic levied withholding taxes on dividend payments. According to the Parent-Subsidiary Directive, these withholding taxes were abolished at the event of EU accession. As a result, the additional tax burden stemming from withholding taxes on dividends has been eliminated and the tax burden at the level of a German parent company reduces to an average mean of 21.8%. In particular cross-border investments to Slovenia will become more attractive due to the abolition of a relative high withholding tax rate on dividends which is currently set at 15%. The EATR on cross-border investments to Slovenia declined by 9.8 percentage points as of 1 May 2004. The effective tax burdens on cross-border investments to the remaining countries imposing withholding taxes on dividends decreased in a range between 3.1% and 3.6%. Since the national tax rules of the new member states entirely comply with the Parent-Subsidiary Directive, the countries’ ranking is the same as the ranking for domestic investments at subsidiary level. The underlying reason is the dominant influence of the effective tax burden imposed at subsidiary level in the source country on German outbound investments because the exemption method (which is applied in Germany) prevents transferred profits from taxation in Germany in case they are repatriated by dividend payments.
7. Offering tax incentives is still a common policy of the new member states to attract foreign direct investments. Many of these incentives are very generous. The tax incentives have a considerable impact on both, the level of effective tax burden and the ranking of the countries. The Czech Republic gains the most significant rise in relative attractiveness, advancing three positions in the ranking. Furthermore, tax incentives in all of the three Baltic countries yield to a considerable relief of the tax burden. Also Malta, the country where investments face the highest tax burden in the new member states, grants generous tax incentives and reduce the EATR below 25%. In Cyprus, Poland, and Slovenia, tax incentives are from minor importance.

8. Several new member states tend to cut back their tax incentives or let them expire in the near future. To compensate for the annulment of the tax incentives, there is a trend to reduce statutory tax rates.

9. With effect from 1 January 2004 the Czech Republic, Latvia, Hungary, Poland, and the Slovak Republic have reduced their statutory corporate income tax rates. A further wave of tax cuts have been announced in Cyprus, the Czech Republic and Estonia, whereas the latter two countries will decrease tax rates gradually over a period until 2006 and 2007, respectively. Seven of the 10 new member states have reduced recently or will reduce corporate income tax rates in the near future. It is remarkable that four of the five Central European countries have cut tax rates partly tremendously with effect from the beginning of 2004. This might be evidence that there is an increasing competition for international mobile capital within the new member states, in particular among the Central European countries. The reductions of corporate income tax rates will increase the comparative tax advantage of the new member states compared to Germany and the acceding countries will become even more attractive as a location for subsidiaries.
9 References


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