Mannheim Tax Index

Summary

This executive summary presents the Mannheim Tax Index, an indicator for the effective tax levels of companies. More precisely, it benchmarks countries and regions from a tax perspective. In doing so, it provides a comprehensive picture of taxation by following two general strands: the taxation of domestic companies along with their shareholders and cross-border investments. Analysing the taxation of compa-nies is a traditional way of comparing the fiscal attractiveness of regions competing with one another in-ternationally. It concentrates on the tax rates borne by mobile capital and mobile companies. The Mannheim Tax Index covers locations in all European Member States, the United Kingdom, Norway, North Macedonia, Turkey, Switzerland, Canada, the United States, and Japan.

THE SCOPE OF THE MANNHEIM TAX INDEX

- First, effective tax burdens may differ significantly from statutory tax burdens. This Index is based on effective tax burdens for two reasons. They are more relevant to the investment decision than nominal rates and, due to their aggregated level, they are directly comparable with regard to different locations. Therefore, the analysis quantifies meaningful estimates of effective tax burdens. These estimates take into account the most important rules of all the relevant taxes. For company taxation, these include the corporation tax with surcharges, other profit-related taxes, real estate taxes, and specific taxes based on capital.

- Second, an effective tax rate is always the result of the underlying assumptions. To identify the gener-al context and to find out the most relevant tax provisions in different economic constellations, the so-called tax drivers, the study examines the effect of important tax provisions on effective tax burdens.

- Third, taxation is deemed to be an important location factor. In order to compare the attractiveness of different locations from a tax perspective, the Mannheim Tax Index compares effective tax burdens in-ternationally. Looking at effective tax rates over time provides an intuition about common trends and possible interdependences between locations.

METHODOLOGY

The measurement of the effective tax burden on companies is based on an approach introduced by Devereux and Griffith. This approach is a so-called forward-looking approach, which calculates the tax burden on a hypothetical investment project of a company considering the actual tax provisions. It provides a possibility of modelling the most relevant provisions of tax regimes in a systematic way. Using this approach, cost of capital, an effective marginal tax rate (EMTR) and also an effective average tax rate (EATR) can be computed.

Measuring the effective tax burden of a hypothetical corporate investment

The cost of capital and the EMTR are measures for the effective tax burden attributable to marginal investments, whereas the EATR indicates the effective tax burden on profitable investments. The **effective average tax rate** (EATR) indicates the effective tax burden on an infra-marginal investment in an economic sense, i.e., an investment that earns a net present value of more than zero. In other words: The profitable investment generates more than the minimum required pre-tax rate of return on investment, which is necessary to attain the after-tax return claimed by the investor. The main focus of the calculations of the EATR is on the choice of location, i.e., when internationally operating companies decide on where to locate profitable investment projects. When choosing between two or more mutually exclusive profitable investments, a company will favour the alternative with the highest post-tax net present value. Location decisions for subsidiaries of international corporations are the most relevant examples of this kind of decision. In this case, the EATR is an important indicator of the attractiveness of a location.
Therefore, the Mannheim Tax Index, which ranks company taxation internationally, is composed of the EATR. We measure the effective average tax rate (EATR) on a profitable investment that yields a standardized pre-tax rate of return on investment of 20%.

Effective average tax rate (EATR)

As additional information, the Mannheim Tax Index provides the **cost of capital** (CoC), which is a measure for the effective tax burden attributable to marginal investments. These are incremental corporate investments that display a net present value of zero, i.e., they yield a rate of return on the initially invested capital that is just sufficient to compete with an alternative investment. This minimum rate of return before taxes required by a shareholder is called cost of capital. As an alternative investment, we assume a financial asset that yields the market interest rate, assumed to be 5%. Thus in the absence of taxes, the cost of capital equals the real market interest rate. If taxation causes the cost of capital to fall below the real market interest rate, it favours the corporate investment over the financial investment. Otherwise, if taxation raises the cost of capital above the real market rate, the marginal corporate investment is discriminated and theoretically, taxation exerts an influence on the optimal level of investment activity. Furthermore, the cost of capital is an indicator for the competitiveness of a company, since it determines the long-term lower limit of potential prices at which the company can offer its products.

Cost of capital (CoC)

Besides the cost of capital, the **effective marginal tax rate** (EMTR) is another measure of the effective tax burden on marginal investments. The EMTR represents the relative tax-induced wedge between the minimum required pre-tax rate of return and the real market interest rate. Optimally, there will be investments in the company as long as investments – after corporate taxes – yield a return of at least this market interest rate. Thus, the lower the EMTR is at the corporate level, the lower is the required pre-tax rate of return necessary to yield – after taxes – at least the market interest rate, and the more investments will be undertaken, i.e., optimal investment levels will be higher.

Effective marginal tax rate (EMTR)

The following equation describes a particular relationship between the cost of capital, the EMTR, and the EATR:

$$EATR = \frac{(Cost\ of\ capital)}{(pre\ tax\ return)} * EMTR + \frac{(pre\ tax\ return - cost\ of\ capital)}{(pre\ tax\ return)} * statutory\ tax\ rate$$

The EATR equals the weighted average of the EMTR and the combined statutory corporate income tax rate. The weights are determined by the share of the pre-tax return that is covered by the cost of capital and the part that is above the cost of capital. Consequently, the EATR equals the EMTR if the assumed rate of return of an additional investment equals the cost of capital. In this case, we consider a marginal investment. The more the rate of return exceeds the cost of capital, the more the EATR converges against the combined statutory corporate income tax rate.

This results in different drivers of both effective tax rates. Whereas the EMTR is more sensitive to depreciation rules as well as property and capital taxes, the EATR is driven by the statutory tax rate. The aforesaid becomes intuitively clear if one keeps in mind that both investments, i.e., profitable and marginal, face the same initial cost but different levels of return. Thus, allowances and non-income taxes take away a smaller share of the return from a more profitable investment and also become less relevant. In summary, the statutory income tax rate becomes the dominant factor in determining the effective tax burden of a highly profitable investment.

The statutory income tax rate is a dominant factor for highly profitable investments

MODEL STRUCTURE

To estimate the effective tax burden of the Mannheim Tax Index, we assume a corporation, which undertakes investments in five different assets and uses a particular combination of sources of finance (see Figure 1). The types of investment assets considered are industrial buildings, intangibles (patents) bought from third parties, machinery, financial assets, and inventories. The types of assets are weighted equally. The financing policies of the corporation take into account three different sources of finance, which are, in sequence of their weight, retained earnings (55%), debt (35%), and new equity capital (10%).

Assuming a corporation, which invests in five different assets

FIGURE 1: STRUCTURE OF THE SUPPOSED INVESTMENT
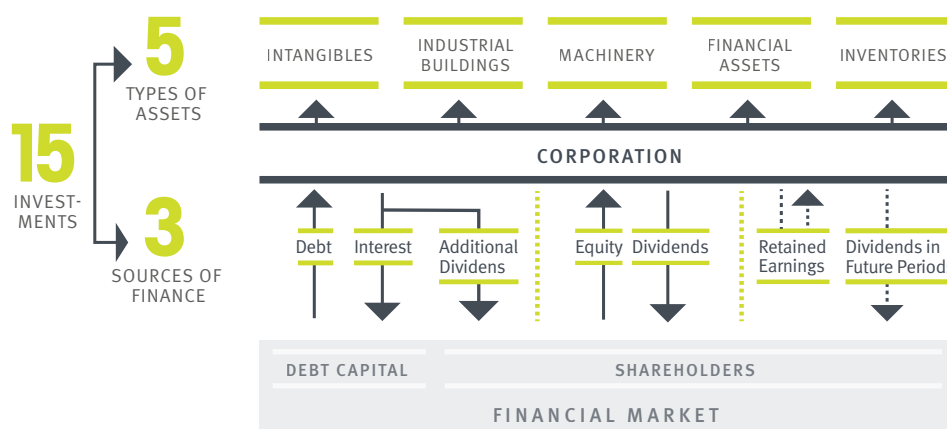
The calculations take account of the most relevant tax provisions of the national tax systems. With respect to the taxation of corporate profits, the approach considers headline statutory corporate profit tax rates as well as surcharges and some other special rates for particular types of income and expenditures. It takes into account the most important features of taxes on capital, e.g., real estate taxes. Generally, it assumes a level of corporate profits and capital at which the top-bracket statutory tax rates apply. Regarding the definition of the taxable base, the relevant rules concerning depreciation and amortisation allowances, valuation of inventories, and interest deductibility in case of debt financing are considered.

The calculations take account of the most relevant tax provisions of the national tax systems

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