TAX DEDUCTIBILITY OF INTEREST UNDER THE ATAD IN INVESTMENT DECISIONS

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Abstract

In 2019, the Czech Republic implemented some of the provisions under Council Directive (EU) 2016/1164, also called the ATAD (Anti-Tax Avoidance Directive). Since then, professionals in the field have been following the impact of this directive on tax legislation and accounting. However, this paper aims to show that in addition to the tax rates and the profit after tax, the ATAD will also impact financial management, specifically investment decision-making. The paper analyses a model situation based on the implementation of these regulatory measures and focuses on the effects of the new EU legislation on the interest tax shield and the overall borrowing costs. The methodology used in the paper is described in more detail in section 2 ("research commentary") and is based on comparing the net present value of an investment financed with debt capital before and after the ATAD implementation. The calculations use the accounting data of an existing company including information that is not available to the public. This example is used to demonstrate the point by calculating the net present value with regard to the impact of the interest tax shield based on the method of financing. The calculations in the paper follow the applicable rules used in the Czech Republic before and after the ATAD came into force. The results confirm that the net present value (NPV) of investments have decreased. Due to the default parameters set for the calculation, the results also show a comparable decrease in the NPV when the investment is financed with debt capital. With comparable conditions and initial parameters (i.e. zero down payment and identical borrowing costs), the decrease in the NPV is higher when the investment is financed with a bank loan. The analysis shows that investment planning under the new legislation will be more complex and will have to take into account the financial results of the whole firm and whether the borrowing costs are tax deductible. All in all, this analysis suggests that economic calculations have to focus more on the details and the wider context of the tax deductibility of interest.

Keywords: borrowing costs; financing; interest limitation; investment; tax shield
JEL Classification: G31, K20, M20

Introduction and theoretical background

In today's fast-paced and globalised world, only firms that are able to change and develop quickly can surpass their competitors. This approach requires investments, which in turn require a significant amount of capital. In addition to investment planning and the process of

profit distribution, decisions about the amount and structure of a firm's capital are one of the most important parts of financial management.

The process of investment decision-making and the long-term financing that accompanies it is called capital budgeting. Capital budgeting is the process of evaluating and selecting long-term investments that are consistent with the firm's goal of maximizing owners' wealth (Gitman and Zutter, 2015, p. 442). Capital budgeting is a multifaceted activity involving a number of phases. This paper focuses on the phases of planning the project cash flows and evaluating the economic efficiency of investment projects based on their net present value.

Net present value is the standard valuation model that is the basis of valuation in finance (Brigham, Ehrhardt, and Fox, 2016, p. 277). NPV is the present value of all the cash flows of a given investment. To evaluate investment opportunities, financial managers must determine the relevant cash flow and discount rate (Gitman and Zutter, 2015; Brealey, Myers, and Allen, 2017). The cash flows used to evaluate the economic efficiency of a project consist of all the income and costs generated by the project over the course of its lifetime from acquisition to running and eventually closing the project. Besides the cash flows, another key variable for calculating the NPV is the discount rate. The discount rate is derived from the opportunity cost of the investment and from the firm's discount rate (Fotr and Souček, 2011). In essence, the company's discount rate equals the company's cost of capital, while the cost of capital is calculated as the weighted average of the company's cost of equity and cost of debt (i.e. capital provided to the company for a charge). If the NPV is positive, it is considered a good investment. According to Asquith and Weiss (2016), a positive NPV means that the future returns on the investment are greater than the risk the investment assumes.

To a large extent, any financial decisions are affected by the tax environment in which the business operates, primarily by corporate tax. This paper examines the important role that taxation plays in investment decisions and in deciding the capital structure. Setting the capital structure involves choosing between debt capital and equity capital and the tax implications for each type of capital are very different. As opposed to dividends, loan interest is tax deductible and businesses can use it to decrease their tax base. According to MacKie-Mason (1990), this gives companies an incentive to finance their operations with debt rather than equity, especially in countries with high taxation rates.

The tax benefits of debt are not affected by whether the company is national or multinational and increase with the increasing corporate tax rates. With regard to this, the impact of tax regulations on debt location has been the subject of many academic studies. In general, tax research analysing national and global corporate tax supports the hypothesis that companies in high-tax countries implement policies to obtain tax benefits (Graham, 2003; 2005). The capital structure of multinational companies depends on the tax rates in the individual countries in which it operates, which causes debt financing to move into countries with high tax rates (Huizinga, Laeven and Nicodeme, 2008). An analysis of 32,000 European companies revealed that on average, multinational companies have a higher ratio of debt to equity compared to national companies. Moreover, this difference in the debt ratio increases with the increasing tax rate in the country in question (Egger et al., 2010). According to Møen et al. (2011, p. 2), multinational companies can exploit the tax advantage of debt more aggressively than national companies by shifting debt from affiliates in low-tax countries to affiliates in high-tax countries.

Since multinational corporations operate in a number of countries with different tax regimes, they have the opportunity to create structures that use the different tax rules to their advantage and gain tax savings. This involves using loopholes in international law in ways not originally intended by the law. According to the Organisation for Economic Cooperation and Development (OECD), debt is one of the easiest ways to transfer profit available in international tax planning due to the mobility of money (Tell, 2017). Keen, Klemm and Perry (2010) point out that the tax benefits of debt can lead to higher indebtedness of financial institutions and investors, which might make them a cause of any future global financial crises.

All of this means that debt financing is often preferred to equity financing. Initially, the minimum capital requirements for businesses borrowing were low in many countries, thereby leading to businesses on average having a very high debt ratio. This is known as thin capitalisation (Sommerhalder, 1996). Nevertheless, many governments in recent years have decided to act and set limitations on the tax deductibility of interest; these limitations are called “thin capitalisation rules”. Based on these rules, interest is not deductible when the ratio of debt to equity is too high. The first OECD country to implement these rules was Canada in 1971. By 2005, 60% of all European countries and two-thirds of all OECD countries have implemented thin capitalisation rules (Buettner, Overesch, Schreiber, and Wamser, 2012).

These rules, which are designed to prevent excessive tax base erosion, usually focus on cross-border financing of businesses by related parties. Low capitalisation rules are an effective measure that decreases the overall indebtedness of companies. However, if these rules are only applied to loans from related parties, then the amount of these loans decreases although there is an increase in loans from unrelated parties (Buettner et al., 2012). Some countries also apply thin capitalisation rules to loans provided by entities incorporated in the same country (these are primarily countries that do not allow group consolidation of profits and losses for corporate tax purposes). The Czech Republic is one of these countries (Halíček, 2010, p. 8). While both national and multinational companies choose financial structures that allow them to achieve tax benefits, governments implement tax rates and thin capitalisation rules for multinational companies that limit the tax deductibility of internal debt flows (Haufler and Runkel, 2012).

In recent years, the integration of national economies and markets has gained momentum. This has created more pressure on the international tax framework, which was designed more than a century ago, and placed international taxation as a priority on the OECD agenda. Since 2013, the OECD and G20 countries have been working on countermeasures to address base erosion. One such countermeasure, endorsed in September 2013, is the ambitious Action Plan on Base Erosion and Profit Shifting (BEPS). BEPS contains 15 actions with guidelines to limit tax evasion by multinational companies through base erosion and shifting profits to other countries. All the BEPS actions were published on 5 October 2015 (OECD, 2015). One of the measures adopted to address the risk of base erosion through interests and other financial payments was Action 4 – Limiting Base Erosion Involving Interest Deductions and Other Financial Payment. These guidelines are regularly improved and updated (OECD, 2016).

International tax law issues are also high on the agenda in the EU. These issues were regarded as even more important in the aftermath of the adoption of BEPS (Tell, 2017, p.

754). Current EU priorities in international taxation include the need to make sure that taxes are paid wherever the profits and value are generated. This is why the Council of the European Union adopted Council Directive (EU) 2016/1164 laying down rules against tax avoidance practices that directly affect the functioning of the internal market (the Anti-Tax Avoidance Directive or ATAD). This directive is binding for all EU member states and includes the following stipulations: interest limitation rule (Article 4), exit taxation (Article 5), general anti-abuse rule (Article 6), controlled foreign company rule (Article 7), computation of controlled foreign company income (Article 8), and hybrid mismatches (Article 9). Article 4 of the ATAD requires all EU member states to implement interest limitation rules within their national legislation by 31 December 2018 (OECD, 2016).

The Commission Notice from December 2018 notes that according to Article 11 (6) of the ATAD, member states that have national targeted rules for preventing base erosion and profit shifting (BEPS) risks on 8 August 2016 (which are equally effective to the interest limitation rule set out in the ATAD) may apply these targeted rules until the end of the first full fiscal year following the date of publication of the agreement between the OECD members on the official website on a minimum standard with regard to BEPS Action 4, but no later than 1 January 2024. The Commission Notice also includes a list of the member states concerned: Greece, France, Slovakia, Slovenia, and Spain (Commission Notice, 2018).

Schmid (2019) notes that the Austrian Ministry of Finance had assumed that it had already implemented the ATAD requirements in its existing regulations under BEPS, which are recognised as being equally effective compared to the ATAD. However, the Commission Notice did not confirm that. Germany is in a similar situation, as the Commission Notice does not mention its existing BEPS regulation. In spite of this, Germany has not yet begun the legislative process required to implement the ATAD (Schmidt and Moesle, 2018).

The Czech Income Tax Act (governing both individual and corporate income taxes) has included a provision regulating interest limitation from the very beginning of the new system of taxes in 1993. However, the system still underwent a number of changes in the following years. The updates included a more precise definition of debt financial instruments and the related interest and other financial costs, which must meet a number of requirements, including the thin capitalisation rule (Pilařová and Pekárek, 2016). The aim of the thin capitalisation rule is to prevent speculative reduction of profit between related parties which it does by limiting the deductibility of interest based on the debt-to-equity ratio while also applying the arm's length principle. According to this principle, the price agreed between related parties should correspond to the market value. The term "related parties" encompasses parties that have a capital interest in the company as well as close family members such as spouses or siblings.

In 2019, the Czech Ministry of Finance incorporated the interest limitation rule (Article 4) into the Income Tax Act. In essence, the effect of this rule is that exceeding borrowing costs (i.e. the difference between tax-deductible borrowing costs and taxable loan revenue) can only be part of the tax base up to a limit of 80 million CZK or 30% of taxable earnings before interest, tax, depreciation, and amortisation (the "taxable EBITDA"), whichever is higher. Taxpayers who do not control any foreign companies, do not have a permanent establishment abroad and are not obliged to prepare consolidated financial statements or be included in the consolidated financial statements prepared by another entity are exempt

from these new rules, as are financial enterprises, such as banks and insurance companies, brokerage firms, investment funds of public limited companies, etc. (Income Tax Act No. 586/1992).

Since these rules have an impact on the debt financing of businesses and the related amount of tax deductible and non-deductible interest, this paper aims to showcase one of the ways in which the implementation of the ATAD could have an impact on financial management and specifically on investment decisions. The paper focuses on the effects of the interest tax shield and the overall borrowing costs. An example is used to verify the relevance of the net present value with regard to the impact of the interest tax shield based on the method of financing. The calculations follow the applicable rules used before and after the ATAD came into force.

The calculation, analysis, and comparison answer the following research questions:

a) What is the difference in NPV caused by the change in legislation?

b) What is the difference in the method used to calculate NPV under the legislation in force until 2018 and the legislation in force from 2019?

c) Is it possible to calculate NPV based on the input data currently used under the new rules?

1 Impact of ATAD on investment decisions (data and research commentary)

The ATAD measures are designed to prevent various tax evasion practices. The new regulations on interest limitation, in particular, mean that analysts will have to rely more heavily on internal information, which is not generally available. This concerns a number of areas of financial management, particularly investment decisions, as well as calculating the WACC, certain income-based approaches to business valuation, and using the Baumol or Miller-Orr cash management models. From these different areas, this paper aims to analyse the impact of the ATAD on investment decisions. The analysis specifically evaluates the economic efficiency of a model investment project based on net present value.

The cash flow of a project is the basis of any investment and financial decisions over the lifetime of the project. In the investment project described in the paper, the cash flow is calculated for three different methods of financing: equity, bank loan, and finance lease. Furthermore, the projected income of the project takes into account the tax savings. Tax savings means paying a reduced amount of taxes by claiming a deduction from taxable income, thus reducing the tax base. Such savings increase the planned income of a project and thereby the project cash flow. The project cash flow is calculated as net profit adjusted for costs that are not expenses (such as depreciation and the respective portion of the down payment), and expenses that are not costs (such as payments of the bank loan and down payment). The effect of tax savings can then be determined using the following formula:

Tax savings = tax deductible costs × (1 - tax rate expressed as a decimal) (1)

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To calculate the value of tax savings when financing a project with a bank loan or a finance lease, the borrowing costs (i.e. the interest and costs of the lease) are calculated while taking into account the limited tax deductibility of "exceeding borrowing costs" with regard to the implementation of the ATAD. *Borrowing costs* include financial costs, the interest included in the finance lease payments, etc. Besides the interest, financial costs also include other expenses related to debt financial instruments, such as the loan processing fee, bank guarantee fee, expenses associated with securing the loan, the loan account administration and maintenance fee, and early repayment penalties.

Next, the *exceeding borrowing costs* are determined. These are borrowing costs (i.e. the interest on the bank loan or the interest that is included in the finance lease payments) after deducting the taxable loan revenue (such as incoming interest on a debt financial instrument, however this scenario is not included in the example used in this paper). There are two possible results of this calculation: either the difference is positive (meaning that there are exceeding borrowing costs, which are then subject to further testing), or the difference is negative (requiring no further testing). The example described in this paper follows the first scenario and so includes a test of the limitation of deductibility of exceeding borrowing costs.

The limited deductibility of exceeding borrowing costs means that when exceeding borrowing costs exceed the limit for tax deductibility, the tax base will be higher. In this scenario, the taxpayer's taxable income is increased by the positive difference between exceeding borrowing costs and the limitation of the deductibility of exceeding borrowing costs, which equals:

- 30% of taxable earnings before interest, tax, depreciation, and amortisation (the "taxable EBITDA"); or
- 80,000,000 CZK, whichever is higher.

A simplified method of calculating the "taxable" EBITDA is shown in Table 1.

Table 1 | Taxable EBITDA Calculation

Item
Corporate tax base
+ Income subject to withholding taxes
+ Income taxed under a "separate" tax base
+ Tax deductions
+ Exceeding borrowing costs

Source: adapted by the authors from the Income Tax Act of the Czech Republic

Once taxable EBITDA has been determined, the next step is to calculate 30% of taxable EBITDA, compare it to the *de minimis limit* of 80 million CZK and determine the applicable limitation of the deductibility of exceeding borrowing costs (whichever of the two amounts is higher). Any exceeding borrowing costs above this limitation are not tax deductible. Once the limitation has been determined, the tax-deductible exceeding borrowing costs are determined and used to calculate the tax savings, which then become part of the project cash flow.

After tax savings have been calculated, the resulting investment project cash flow is used to calculate the net present value. The net present value (NPV) is found by subtracting the project's initial investment (CF0) from the present value of its cash inflows (CFt) discounted at a rate equal to the firm's cost of capital (r). The formula for NPV can be written as follows: (Gitman and Zutter, 2015, p. 449):

$$NPV = \sum_{t=1}^{n} \frac{CF_t}{(1+r)^t} - CF_0 \quad (2)$$

Taking into account the new interest limitation rule, it is unclear whether, and to what extent, these exceeding borrowing costs will generate any tax savings. It is to be expected that the usual calculations used to assess the economic efficiency of an investment will have to be supplemented with further information. This assumption is tested using a calculation of net present value according to the rules governing the tax deductibility of interest until 2018, which is then compared to the results obtained according to the applicable legislation in 2019.

2 Calculations, results and discussion

It is advisable to provide company owners with reliable financial information for their investment decisions. However, the new requirements stipulated by the ATAD could have an impact on the relevance of some economic and financial indicators.

In a nutshell, an evaluation of the economic efficiency of an investment is based on an estimate of future cash flows during the course of its execution and maintenance. Investment cash flows depend on the methods of financing used. The most common methods include equity financing, financing through a bank loan, and financing with a finance lease. Besides the potential tax deductions, there is also a difference in terms of the costs of financing. This includes the interest expense arising from the bank loan and the costs of the finance lease, which add to the purchase price of the investment. At the same time, these costs represent the borrowing costs. These borrowing costs can be deducted from the tax base, thus helping to generate tax savings. The tax savings achieved impact the cash flow and the indicators used to evaluate the economic efficiency of the investment, such as the net present value (NPV).

However, the updated Income Tax Act regulates the tax deductibility of exceeding borrowing costs. To determine how this impacts the investment, it is necessary to determine the total amount of these costs. Once they exceed the limit of 80 million CZK, it is then necessary to calculate 30% of the taxable EBITDA. A taxpayer's taxable EBITDA is calculated using the corporate tax base (see Table 1). This is one of the first obstacles to determining the correct amount of deductible and non-deductible exceeding borrowing costs. Determining and planning the taxable EBITDA will be difficult, since the information about the tax base is not usually made public. So far, it has been possible to estimate future cash flow based on data that could be found in publicly available financial statements. From now on, it will be necessary to ascertain the amount of deductible exceeding borrowing costs to obtain a correct estimate of the tax savings whenever debt capital that incurs interest is used for financing. This requires additional information to estimate the future taxable EBIDTA. This means that the answer to the last research question (c) is negative, even in this early stage of the analysis.

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Under the ATAD, exceeding borrowing costs include all types of debt as well as other costs that are economically equivalent to interest and expenses incurred in connection with the raising of finance (the ATAD directive; Ministry of Finance of the Czech Republic, 2017). According to these rules, the borrowing costs incurred in investment financing include "interest on all types of debt instruments" and "the finance cost element of finance lease payments". The "finance cost" element of finance lease payments means the overall interest charge associated with the lease; in other words, the difference between the total cost of the lease and the purchase price of the asset set by the lessor.

Therefore, it can be deduced that using a finance lease carries a higher risk that the company's borrowing costs will exceed 30% of the EBITDA (assuming that 30% of the EBITDA is higher than 80 million CZK). Given the circumstances, this also increases the likelihood of non-deductible borrowing costs. It can be assumed that the lease payments of the price of the asset will be deducted from the taxable EBITDA, while the interest charged on the lease will have no impact on the EBITDA. On the other hand, the EBITDA will probably be higher in the case of a bank loan, since it will include neither the depreciation and amortisation nor the interest.

2.1 An example of calculating the Net Present Value

An example is used to analyse the impact of the new legislation on investment decisions. The model uses the data of an existing company with the addition of further borrowing costs of 80 million CZK (the overall costs of the company remained unchanged and any revenues from debt financial instruments, such as interest revenues, were disregarded) and an investment project valued at 550 million CZK (depreciation class 2, depreciation period of 5 years under the Income Tax Act) with a required return on investment of 5%. The analysis evaluates the performance of the investment project over three years.

One of the reasons for using the data of an existing company (albeit slightly adjusted and amended) is that the ATAD took effect this year and real accounting data will only become available in a year, or more likely two years. Another reason is that the additional data is sensitive information that companies are not obliged to make public. Therefore, it is highly likely that the additional accounting data will only be available to the management of any given company.

Borrowing costs for different financing methods

If an investment is financed with the company's *equity*, it will not lead to any changes in the EBITDA, since there are no exceeding borrowing costs.

When an investment project is financed with a *bank loan*, the company incurs borrowing costs in the form of interest expense. While the overall EBITDA will remain unchanged, the company's borrowing costs will increase. Exceeding borrowing costs and taxable EBITDA of the company are drawn from its accounting. Table 2 shows that the company's overall exceeding borrowing costs exceed the limit of 80 million CZK. This means that part of these overall borrowing costs will not be tax deductible. The deductibility of exceeding borrowing costs is limited to either 30% of the EBITDA or 80 million CZK, whichever is higher. In the model example, 30% of the EBITDA is lower than 80 million CZK in each of the three years, meaning that any borrowing costs over 80 million CZK will not be tax deductible. In the first year of investment, the share of the company's non-deductible borrowing costs in total

borrowing costs is 35%. This proportion decreases in the following two years with the decreasing borrowing costs of the investment. If the taxable EBITDA followed the same trend, the method of calculating non-deductible exceeding borrowing costs would also remain the same. However, it is highly probable that the company's taxable EBITDA will increase in the following years of the lifetime of the investment due to growing EBT and zero tax-deductible losses from previous years. This means that 30% of the company's taxable EBITDA will probably exceed 80 million CZK. In this scenario, non-deductible borrowing costs would be calculated as the difference between the company's borrowing costs and the respective 30% of the EBITDA.

Financing an investment project with a *finance lease* also means that the company incurs borrowing costs in the form of the interest paid on the lease. Assuming that the lease payments remain consistent, these costs are the same every year. The EBITDA in this scenario is different compared to the equity and bank loan financing scenarios (also see Table 2) since the lease payments of the purchase price are deducted from the earnings. In general, this means that the limit of 30% of the EBITDA is also lower, thereby increasing the probability that the borrowing costs would exceed this limit. However, since this limit is lower than 80 million CZK in the model example, this does not enter into the calculations. As the company's borrowing costs exceed 80 million CZK then a proportion of these costs will not be tax deductible. The amount of non-deductible borrowing costs is calculated as the difference between the overall borrowing costs and 80 million CZK. Table 2 also shows that under the given conditions of the finance lease, the borrowing costs of the company in the first two years are lower than in the case of bank loan financing, meaning that the percentage of non-deductible borrowing costs is also lower.

Table 2 | The non-deductible borrowing costs of the company (in thousands of CZK)

	Year 1	Year 2	Year 3
BANK LOAN			
Exceeding borrowing costs of the company*	122,960	114,582	105,571
Taxable EBITDA of the company*	186,165	190,393	184,215
30% of the company's taxable EBITDA	55,850	57,118	55,265
Non-deductible borrowing costs	42,960	34,582	25,571
Percentage of non-deductible borrowing costs	35%	30%	24%
FINANCE LEASE			
Exceeding borrowing costs of the company*	113,060	110,182	106,671
Taxable EBITDA of the company*	76,165	80,393	74,215
30% of the company's taxable EBITDA	22,850	24,118	22,265
Non-deductible borrowing costs	33,060	30,182	26,671
Percentage of non-deductible borrowing costs	29%	27%	25%

Source: authors

* Both the exceeding borrowing costs and the EBITDA take into account the execution and maintenance of the investment and the chosen method of financing.

Significantly, Table 2 shows the ratio of non-deductible borrowing costs to overall borrowing costs that can be expected. The resulting percentage of non-deductible borrowing costs is then used to calculate the expected amount of tax savings for a specific method of investment financing. In other words, this is the percentage of the borrowing costs associated with the investment that represents a deductible expense, thereby creating tax savings and increasing the cash flow of the investment. The model example calculates the EBITDA based on the actual tax base of the company. Since the company deducted losses from previous years, the tax base and the 30% of the taxable EBITDA are both very low.

The Net Present Value (NPV) for different financing methods

The model shows the calculation of the NPV based on cash flow over a period of three years. The cash flow includes the deduction of the estimated corporate tax and does not include any cash flows associated with the financing of the investment project. The cash flows for the individual investment financing methods and the respective NPVs are shown in Table 3.

If the investment is financed by *equity*, the depreciation of the investment is a tax-deductible expense. This creates tax savings that increase the initially estimated cash flows over the first three years of the lifetime of the investment. The new directive has no impact on the cash flow of the investment since the tax savings are provided by depreciation. The discount rate used to calculate the future cash flows to their present value was set at the required return of 5%. The resulting net present value, i.e. the sum of the discounted cash flows in years 0 to 3 (see Table 3) according to the formula (2), is negative. This means that under the given conditions, it is not advisable to finance the investment with equity.

When the investment project is financed with a *bank loan*, the investment expenses are spread over the course of the three years. In the model, the maturity of the bank loan (and the financial lease) is five years. Tax savings 1, CF 1, and NPV 1 in Table 3 show the results in a scenario before the implementation of the ATAD, which assumes that all the interest expenses are deductible. The tax savings consist of reducing the tax base by the value of the depreciation and interest expenses. After taxation, the cash flow is reduced by the incurred interest expenses and bank loan payments (investment expenses in Table 3) although the amount of tax savings is added to the cash flow. Using the same discount rate of 5%, the net present value over the following three years would be 105.2 million CZK. However, the whole amount of the interest expenses (i.e. borrowing costs) is not deductible under the new ATAD rules. The percentage of non-deductible borrowing costs is calculated based on the results in Table 2. Therefore, tax savings 2 consist of reducing the tax base by the value of the depreciation and the deductible part of the interest expenses (see deductible investment borrowing costs in Table 3). This decreases the amount of the tax savings. The cash flow of the investment is then derived in the same way and discounted to give its net present value (NPV). Compared to NPV 1, NPV 2 is lower by 3,539 million CZK or 3.36%. These results and the calculations needed to arrive at them provide a partial answer to research questions (a) and (b). As expected, the NPV decreases as a result of applying the ATAD rule. It is also more difficult to calculate the NPV, as it is necessary to take into account a certain percentage of non-deductible borrowing costs.

Table 3 | The net present value for different financing methods before and after ATAD Implementation (in thousands of CZK)

	Year 0	Year 1	Year 2	Year 3
CF after taxation		118,384	148,516	178,393
EQUITY CAPITAL				
Investment expenses	550,000			
Depreciation and amortisation		60,500	122,375	122,375
Tax savings [1)]		11,495	23,251	23,251
Cash flow [2)]		129,879	171,767	201,644
NPV	**-96,320**			
BANK LOAN				
Investment expenses [3)]	0	137,500	132,000	126,500
Depreciation and amortisation		60,500	122,375	122,375
Exceeding borrowing costs [4)]		27,500	22,000	16,500
Percentage of non-deductible borrowing costs [5)]		35%	30%	24%
Deductible investment borrowing costs [6)]		17,892	15,360	12,503
Tax savings 1 [7)]		16,720	27,431	26,386
Tax savings 2 [8)]		14,894	26,170	25,627
CF 1 [2)]		-2,396	43,947	78,279
CF 2 [2)]		-4,222	42,686	77,520
NPV 1	**105,200**			
NPV 2	**101,661** (i.e. -3.36%)			
FINANCE LEASE				
Investment expenses [9)]	110,000	105,600	105,600	105,600
Lease payment of the purchase price		110,000	110,000	110,000
Exceeding borrowing costs [10)]		17,600	17,600	17,600
Percentage of non-deductible borrowing costs [5)]		29%	27%	25%
Deductible investment borrowing costs [6)]		12,454	12,779	13,199
Tax savings 1 [11)]		24,244	24,244	24,244
Tax savings 2 [12)]		23,266	23,328	23,408
CF 1 [2)]	-110,000	37,028	67,160	97,037
CF 2 [2)]	-110,000	36,050	66,244	96,201
NPV 1	**70,005**			
NPV 2	**67,521** (i.e. -3.55%)			

Source: authors

Notes:

[1)] Tax savings = tax rate (19%) x depreciation and amortisation

[2)] Cash flow = CF after taxation + tax savings

[3)] Investment expenses, i.e. bank loan payments and interest expenses

[4)] Exceeding borrowing costs = interest expenses

[5)] See Table 2

[6)] Deductible investment borrowing costs = (1 – percentage of non-deductible investment borrowing costs) x exceeding borrowing costs

[7)] Tax saving 1 = tax rate (19%) x (depreciation and amortisation + exceeding borrowing costs, i.e. interest expenses)

[8)] Tax saving 2 = tax rate (19%) x (depreciation and amortisation + deductible investment borrowing costs)

[9)] Investment expenses, i.e. down payment in the year 0 and lease payments (payments of the lease price) in years 1 – 3

[10] Exceeding borrowing cost = annual lease costs, i.e. (total lease price 638,000 CZK – purchase price of the investment 550,000 CZK) / 5 years
[11] Tax savings 1 = tax rate (19%) x (payments of purchase price + exceeding borrowing costs), i.e. total lease price 638.000 CZK / 5 years
[12] Tax savings 2 = tax rate (19%) x (payments of purchase price + deductible investment borrowing costs)

Without taking into account the ATAD, financing the investment with a *finance lease* results in tax savings 1, which result from the total annual lease costs (a proportionate part of the down payment and the respective payment of the lease price). The model calculation assumes a down payment of 20% of the purchase price of the investment and CF 1 includes the respective tax savings and the lease payments. After discounting the cash flows, the resulting net present value (NPV 1) is 70 million CZK. Similar to the bank loan scenario, the amount of tax savings decreases once the new rules for borrowing costs deductibility are taken into account (see Table 3) as a part of the finance lease interest costs is not deductible, as shown in Table 2 and 3. Therefore, tax savings 2 consist of the payments of the purchase price, the proportionate part of the down payment and only a part of the lease interest charge. The cash flow takes into account the decrease caused by the investment expenses and the increase provided by the tax savings. When financing the investment with a finance lease, the net present value (NPV 2) decreases by 2.5 million CZK, or 3.55%, to 67.5 million CZK. The percentage decrease in NPV due to the ATAD rule is almost equal in both the finance lease and bank loan financing scenarios. This is because in both cases, the limit used to calculate the non-deductible exceeding borrowing costs was 80 million CZK. If the limit of 30% of the EBITDA was used instead in both scenarios, the decrease in NPV would be more marked in the finance lease scenario compared to the bank loan. This is explained by the fact that using a finance lease decreases the taxable EBITDA, thus decreasing the limit of 30% of the EBITDA and increasing the percentage of non-deductible borrowing costs.

Even though the implementation of the ATAD decreased the NPV when using debt capital, the results of the model calculation show that it did not have any impact on the viability or benefits of the individual financing options. Financing the investment by a bank loan is still a viable option and from the three options, it remains the most profitable one (the highest positive NPV both before and after the ATAD implementation). However, equity financing does not appear to be a profitable option (negative NPV). The results of the model calculation are based on the assumption that the finance lease requires a down payment of 20% of the purchase price. This means that a different distribution of cash flow (minimising capital expenditure in the initial phase of the period) would increase the NPV and make the finance lease a more viable option. The additional calculations (see Table 4) show that under the ATAD, a zero down payment would mean a less dramatic decrease in the NPV in the finance lease scenario – the NPV would only be lower by 2.1%. Assuming that the total borrowing costs of the bank loan and the finance lease would be the same over the whole financing period, the finance lease would actually become a more profitable option with a higher NPV both before and after the ATAD implementation. In the bank loan scenario, the decrease in the NPV due to the ATAD is faster (NPV decreases by 3.8%).

Table 4 | The NPV under the same input parameters for different financing methods before and after the ATAD implementation (in thousands of CZK)

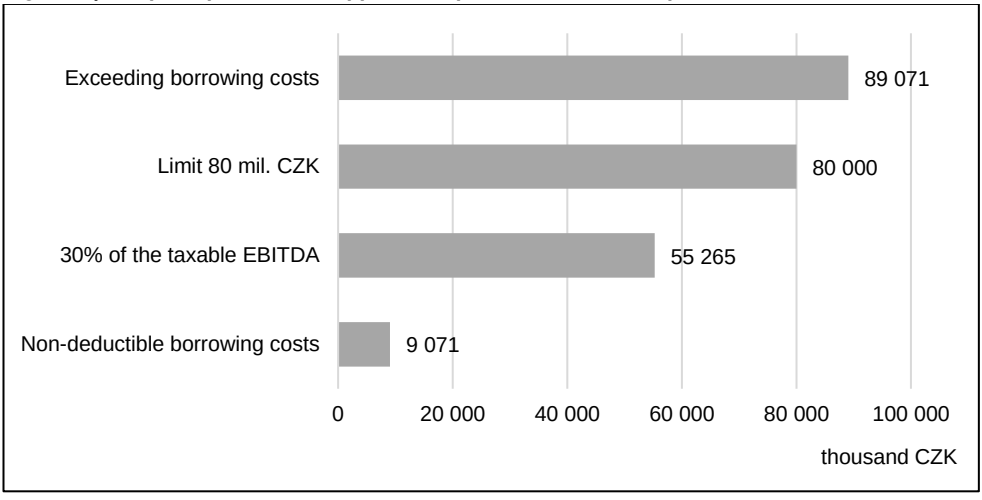
	Year 0	Year 1	Year 2	Year 3
CF after taxation		118,384	148,516	178,393
BANK LOAN (total investment expenses of 637,995 CZK)				
CF 1	0	-3,880	42,760	77,389
CF 2	0	-5,880	41,376	76,553
NPV 1	**101,942**			
NPV 2	**98,058** (i.e. -3.8%)			
FINANCE LEASE (total investment expenses of 638,000 CZK)				
CF 1	0	15,028	45,160	75,037
CF 2	0	14,050	44,244	74,201
NPV 1	**120,094**			
NPV 2	**117,609** (i.e. -2.1%)			

Source: authors

Impact of the ATAD on the financial situation of the company

The impact of the ATAD implementation on the financial management of the company would result in higher corporate tax and subsequently lower net profit.

Figure 1 | The principle of ATAD application (in thousands of CZK)



Source: authors

In the year shown in Figure 1, the total exceeding borrowing costs of the company exceed the ATAD limit (80 million CZK) by 9,071,000 CZK. Since the 80 million CZK limit is higher than 30% of the company's taxable EBITDA, the difference between the exceeding borrowing costs and the 80 million CZK limit, or 9,071,000 CZK (10% of the total borrowing costs), are non-deductible borrowing costs. These costs will result in a higher tax base and corporate tax will increase by 1,723,000 CZK.

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Due to the changes noted above, the EAT of the company in the given year will decrease (see Table 5). This decrease will also impact some of the financial indicators used to assess the financial situation of the company.

Table 5 | The impact of the ATAD on the financial results for the given company and year

Indicator	Prior to ATAD implementation	After ATAD implementation	Absolute change	Relative change
EBT (thousands of CZK)	76,467	76,467	0	0%
EAT (thousands of CZK)	76,194	74,471	-1,723	-2.3%
ROE [1)]	22.97%	22.57%	-0.40 pp	-1.8%
ROS [2)]	1.52%	1.48%	-0.03 pp	-2.3%
Debt ratio [3)]	83%	83%	0.0 pp	0.1%
Current ratio [4)]	0.501	0.500	-0.001	-0.1%

Source: authors
Notes:
pp…percentage points
[1)] ROE = EAT / equity
[2)] ROS = EAT / sales
[3)] Debt ratio = debt / assets
[4)] Current ratio = current assets / short-term liabilities

The indicators shown in the table – return on equity and return on sales – change as a result of a decrease in EAT or a change in equity. The impact on debt-to-capital ratio of the company is caused by an increase in tax liability. Higher short-term liabilities also have a negative impact in terms of a lower current ratio, which is the ratio of the firm's current assets to its short-term liabilities. However, the results in Table 5 show that even though there has been an increase in the tax burden on the firm's profits, its impact on the financial indicators is not too noticeable. The impact on debt ratio and the current ratio – 0.1% – is negligible. Understandably, the most impacted indicators are those of returns, which dropped by about 2%. Such a relative change must be properly interpreted. This is why managers should understand regulations such as the ATAD so that they can explain that the lower returns are not a result of mismanagement but are caused by a higher corporate tax burden.

2.2 Discussion

To answer the first research question (a), the model calculations and comparison have confirmed the expected decrease in the NPV after the ATAD implementation. The decrease in the NPV concerns financing methods relying on capital that incurs interest. The percentage change in the NPV before and after the ATAD was almost identical in both the bank loan and the finance lease financing scenarios. Changing the default assumptions in the model calculation (zero down payment and identical borrowing costs) results in a lower increase in the NPV in the finance lease scenario.

The second research question (b) asked whether there would be any changes to the process of the NPV calculation. If the results are to be as accurate as possible, it is advisable to take into account all applicable legislation when calculating the NPV. This

means that the process for the NPV calculation will be more complicated under the new legislation. Compared to the currently used processes, analysts have to take into account any non-deductible borrowing costs, lower the tax base relevant for the analysed investment accordingly, reduce the tax savings, and project these changes in the expected investment cash flow.

The process required for the NPV calculation detailed above shows that investment planning and forecasting should consider the results of the whole company when it comes to the (non)deductibility of borrowing costs. In other words, calculating the NPV using the currently used input data (research question (c)) will no longer be a completely sound method. The current estimates of future cash flows will have to be supplemented with information about the deductibility of any potential borrowing costs and the ratio of any non-deductible costs. If the company is close to the borrowing costs limit of 80 million CZK, it is reasonable to view an NPV calculated with the assumption that all borrowing costs will be tax deductible as the optimistic scenario.

Osička and Hrubý (2018) note that from the point of view of administration, this will be one of the most difficult rules for assessing the tax deductibility of expenses. They also point out that there are still many uncertainties around the new regulation. Auditors are waiting for the guidelines of the Czech Financial Administration, which are currently being developed and should provide more legal certainty. In this context, Zelinková (2018) points out that the Czech Ministry of Finance has chosen a minimalistic approach to the implementation of the ATAD, so it can be assumed that the new limitations will only affect a small number of companies. Furthermore, the ATAD does not affect large corporations, such as AHOLD Czech Republic, a.s. and ŠKODA AUTO a.s. While these companies have borrowing costs higher than 80 million CZK, their taxable EBITDA is also very high. This means that the actual borrowing costs do not exceed 30% of the EBITDA (which is higher than 80 million CZK) and remain entirely tax deductible. However, this projection is subject to market development, demand, and the financial results of the firm and their impact on the firm's tax base. Should the tax base decrease, the borrowing costs might exceed the limit, which is either 30% of the EBITDA or 80 million CZK, whichever is higher. In such a case, these companies would also face a higher corporate tax, since part of their borrowing costs would not be deductible.

The Czech Ministry of Finance did not implement the provision of article 4 (1) and (5) of the EU 2016/1164 directive, which limits the tax deductibility for consolidated groups. Vondrušková (2018) explains this omission by pointing out that the Czech Income Tax Act does not allow calculating the tax base on a consolidated basis.

By way of comparison, the German tax reform implemented the interest limitation rule to 30% of the EBITDA in 2008. Contrary to Tell (2017), the study by Knauer and Sommer (2012) maintains that the interest limitation rule is a strong tool for weakening the incentives to use debt financing excessively. The results of their research suggest that the combined effect of introducing the rule alongside a lower corporate tax rate is even more pronounced.

According to Kubicová (2018), there is no analysis of the impact that implementing the EU directive could have on the economic flows and foreign investment in the Czech Republic.

Currently, EBITDA-based interest limitation rules seem to be the best solution. However, Tell (2017, p. 763) notes that this simple tool is a variable difficult to predict which results in

uncertainty in the ongoing business decisions. This goes back to the problems faced by investment decision-makers and forecasters of future cash flows, whose work will now be more difficult, especially if the objective is to provide information for investment decisions and other purposes that is as accurate as possible. Another question that arises involves the calculation of the EBITDA and whether it should take into account the overall costs of lease payments.

Conclusion

As the ownership ties among firms in the European Union become increasingly stronger, the international community has been attempting to update and align the relevant tax rules. One of the results of this is the Anti-Tax Avoidance Directive or the ATAD, which aims to limit the opportunities for base and profit shifting to countries with low corporate taxes.

This paper highlights the fact that while the directive does create barriers to tax-shifting among countries and limits high levels of indebtedness, it will also require a new way of thinking in investment decisions. It is obvious that this is an effect that the directive did not intend.

With the implementation of the new legislation, evaluation of investment projects and investment planning and management will become more difficult. To provide more accurate and trustworthy information, the analysis will have to take into account any non-deductible borrowing costs, which requires working with the financial results of the whole company rather than focusing solely on the data concerning the investment project. If part of the company's borrowing costs is not deductible, it is reasonable to assume that a certain part of the borrowing costs of the investment will also be non-deductible. As shown in the example model, this leads to a lower NPV of the investment. Under the new rules of the ATAD, any NPV estimated using the current calculations will not be entirely accurate. Such calculations will tend to overestimate the NPV and should be viewed as optimistic scenarios of an investment project.

At the present time, it is difficult to estimate how businesses will react to the new tax regulation and whether it will lead to a lower overall level of debt financing. However, it is certain that the impact of the directive on financial management will be much more far-reaching and that providing accurate and reliable information for analysis and decision-making will be more difficult. It remains to be seen whether analysts will take the new directive into account when making investment decisions.

This topic is relevant for all firms that are established in any of the EU member states, which makes them subject to the new rules under the ATAD. This paper highlights the process and impact of the ATAD implementation, focusing primarily on the situation in the Czech Republic. Moreover, the example model is based on the tax and accounting information of a Czech company and presents methods that can be used to assess the impact of the ATAD on decreasing the tax savings. In this regard, the paper is targeted primarily at Czech readers. However, the impact of the ATAD on the amount of tax savings and the basic principle of the NPV calculation remains identical for all EU member states, which makes the paper relevant for international readers as well.

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