Notional Interest Deduction – Impact on the Cost of Equity in Investment Projects

Urszula Romaniuk[1], Krzysztof Malik[2]

Abstract:

Purpose: The Notional Interest Deduction (NID) was introduced to achieve equal treatment of debt and equity financing by granting an additional tax deduction from self-financing. Our purpose was to analyze the practical meaning of the introduced mechanism as a factor of the Weighted Average Cost of Capital (WACC) calculation and evaluation of the efficiency of development projects. In the art, the WACC is used to determine the rates of discount for the calculation of future cash flows (CF) and net present value (NPV) of investment projects.
Design/Methodology/Approach: The NID mechanism is recognized as the Allowance for Economic Growth (ACE) and the countries benefiting from this relief are recognized as applying the ACE regime. The individual ACE regime is monitored and evaluated for compliance with the European Code of the Conduct Group for business taxation. The documents published by the Council of the European Union became the basis for the tax shield rate analyses and assessment of the impact of NID on WACC changes.
Findings: It has been shown that the benefits of NID mechanism can correct Weighted Average Cost of Capital in minus and the differences between countries result from the ACE regime model used, the method of calculating the qualified base and the method of determining the reference rate for the calculation of the notional interest deduction.
Practical Implications: The presented use of the notional interest deduction mechanism will fill the gap in the literature on the subject and indicate new opportunities to study the efficiency of the development of organizations. The results can also help practitioners to identify a mechanism whose use may be beneficial to the company due to the possibility of a more precise assessment of the efficiency of the investment project.
Originality and Value: The NID mechanism is relatively new and the issues related to it have not yet received much analysis, in particular in connection with non-tax benefits. Meanwhile, taking into account the effects of ACE regime in discounting cash flows may affect the decision to implement or reject an investment project.

Keywords: Notional Interest Deduction (NID), Allowance for Corporate Equity (ACE), cost of equity, tax shield, Weighted Average Cost of Capital (WACC), investment projects.

JEL classification: D21, H21, G32, M21.

Paper Type: Cognitive commentary.

[1]The Opole University of Technology, Faculty of Economics and Management, Department of Economics, Finance, Regional and International Research, Poland,
ORCID ID: 0000-0003-2532-9665, e-mail: u.romaniuk@po.edu.pl;
[2]Corresponding author, the same as in 1, ORCID ID: 0000-0003-3107-1226,
e-mail: k.malik@po.edu.pl;

1. Introduction

The implementation of investment projects requires the involvement of cash from sources with different levels of availability, risk and cost. Basically, the possibilities of financing investments are recognized as debt and equity. Their distinction is based on the basic features of these different sources of financing, including the obligation to pay remuneration and the tax effect obtained (Damodaran, 2017). In the case of debt financing, credit, leasing and commercial bonds dominate. Servicing these financial instruments generates costs that are deductible from the tax base, which reduces the income tax due from the entity using external sources of financing. Generally, the efficient cost of the external funds financing becomes less aggressive due to the occurrence of the tax shield effect. The value of the shield and the savings arising from the tax shield are calculated as the product of the cost of servicing the debt and the tax rate appropriate for the tax jurisdiction of a given country (Romaniuk, 2019):

$$T_{shield} = c \times t$$

(1)

where:
T_{shield} – tax shield value,
c – debt service cost,
t – income tax rate

On the other hand, the sources of self-financing are mainly: retained profits and equity subsidies. In the case of these sources of financing, there are no tax costs that could reduce the income tax base and the value of income tax to be paid, so there are also no extra benefits from the tax shield effect.

The described tax rule shows that it is more advantageous to finance the investment projects with debt, because costs in the form of interests and other bank fees effectively reduce the income tax base. At the same time, this tax preference leads to an inequality of entity rights related to the type of its financing and discourage of entities to create capital from self-financing.

In order to mitigate the validity of the rights related to the type of financing (external and own) and to encourage entities to create capital from self-financing, regulations have been created under the tax law of several European countries. The new tax rules have been addressed mainly to capital companies that are subject to the law of companies and are subject to corporate income tax as well. The tax mechanism is based on the concept of a hypothetical interest expense on equity and the introduction of the possibility of increasing tax-deductible costs in a manner analogous to debt financing costs, although these costs are not actually incurred (Director of the National Tax Information, 2021). In this case the tax shield value is calculated as the product of hypothetical interest on equity and the tax rate set by the tax jurisdiction of the given European country.

$$T_{shield} = NID \times t \qquad (2)$$

where:
T_{shield} – tax shield value,
NID – notional interest deduction,
t – income tax rate

The main purpose of the NID tax mechanism is to increase the tax efficiency of self-financing in order to encourage capital companies to accumulate and reinvest profits (Deloitte, 2021). In this view, the mechanism is called as *Allowance for Economic Growth* (ACE), and the countries benefiting from this relief apply the ACE regime. Currently, in the area of the European Union (EU) and the European Economic Area (EEA), seven countries have decided to introduce legal and tax regulations aimed at equalizing the rights related to external financing and own financing. The group of these countries applying the ACE regime includes Belgium (2006), Cyprus (2015), Italy (2011), Liechtenstein (2011), Malta (2018), Poland (2019) and Portugal (2008).

2. Data and Method: The Tax Shield Rate in ACE Regime

On 1 December 1997, the Council of the European Union and the Representatives of the Governments of the Member States, meeting within the Council, adopted a resolution on a Code of Conduct for business taxation. The ACE regime used by European countriesis monitored and assessed for compliance with the European Code of Conduct Group for business taxation. The evaluation documents are published systematically[3]. The main scope of the assessment includes the examination of whether countries do not apply harmful tax competition or abusive clauses. The content of these documents became the basis for the following analyses.

In individual EU and EEA countries, there are two different types of ACE regime, classic model and incremental model (Flotilla, 2010). In both models, the value of hypothetical interest is deductible from the tax base, but the methods of calculating them are different. In the classical model, it is the product of the value of modified equity and the determined interest rate, and in the incremental model it is the product of the value of the increase in equity and the determined interest rate (Leszczyłkowska, 2014). The size of the interest rate for calculating the notional interest deduction is country-specific, as is the size of the tax rate. The actual percentage of the tax shield rate in ACE regime was calculated as the product of these two interest rates.

$$t_{shield\ ACE} = r \times t \qquad (3)$$

where:

---

[3]*The evaluation documents are systematically published on-line at:*
https://www.consilium.europa.eu/en/documents-publications/public-register/

$t_{shield\ ACE}$ – the actual percentage of the tax shield rate,
r – interest rate for the calculation of the notional interest deduction,
t – country-specific income tax rate.

In addition to differences in the size of the tax shield rate, states apply different limits and ways of qualifying the base for ACE regime purposes. Also, the interest rate for the calculation of the notional interest deduction is not set at a fixed level in the Tax Act, but by reference to selected data of a financial or macroeconomic nature, for example: the reference interest rate on Government bonds, the price growth index in the economy, the annual average interest rate on loans granted to non-financial corporations (Jankowski, 2020).

Table 1. *Main differences in the ACE regime in countries using the national interest deduction mechanism.*

Country	Council of the European Union document	Model ACE	Qualified ACE base	Limit (quota or the other terms)		Tax shield rate in ACE regime
Belgium	Belgium's notional interest deduction regime (BE018) 14364/18 ADD1, 20.11.2018 https://data.consilium.europa.eu/doc/document/ST-14364-2018-ADD-1/en/pdf	incremental model (increase in equity)	1/5th of the positive differential between: equity of the company at the start of the taxable period; and equity of the company at the start of the 5th previous taxable period	EUR 1 million tax deduction (including NID)	2019 2020 2021	0,246% 0,247% None
Cyprus	Cyprus' notional interest deduction regime (CY020) 9652/19 ADD 1, 27.05.2019 https://data.consilium.europa.eu/doc/document/ST-9652-2019-ADD-1/en/pdf	incremental model (increase in equity)	share capital introduced to the business and share premium from the issue of shares to the extent that these have been fully paid	the annual NID deduction cannot exceed 80% of taxable income as determined prior to the application of the NID provisions	2019 2020 2021	min 2.5%
Italy	Italy's notional interest deduction regime (IT019) 14364/18 ADD4, 20.11.2018 https://data.consilium.europa.eu/doc/document/ST-14364-2018-ADD-4/en/pdf	incremental model (increase in equity)	contributions in cash and net profits allocated to reserves	the qualified ACE base cannot exceed the net equity of the company existing at the end of the tax year as resulting from the balance sheet	2019 2020 2021	0,471%
Liechtenstein	Liechtenstein's interest deduction on equity / notional interest deduction regime (LI003) 12774/18, 04.10.2018 http://data.consilium.europa.eu/doc/document/ST-12774-2018-INIT/en/pdf	classic model (equity level)	modified equity includes share capital and reserves, with a deduction for own shares, participations, the net value of foreign assets (foreign real estate and foreign permanent establishment (PE) assets minus attributable debts) and assets that do not predominantly serve the actual object of the business conducted	none	2019 2020 2021	0,5%
Malta	Malta's notional interest deduction regime (MT014) 14364/18 ADD6, 20.11.2018 https://data.consilium.europa.eu/doc/document/ST-14364-2018-ADD-6/en/pdf	classic model (equity level)	the applicable equity is the share or partnership capital, any share premium, positive retained earnings, loans or other debt borrowed by the undertaking which do not bear interest, and any other reserves resulting from a contribution to the company or partnership, and any other positive balance which is shown as equity in the financial statements of the company or partnership	the deduction for the notional interest may not exceed 90% of the company's chargeable income for the relevant year before taking into account the notional interest deduction	2019 2020 2021	2,45%
Poland	Poland's notional interest deduction regime (PL011)	incremental model (increase	additional payments brought into a company, and the amount of the	the annual NID deduction cannot exceed approx.	2019	0,475%

14114/19 ADD2, 25.11.2019 https://data.consilium.europa.eu/doc/document/ST-14114-2019-ADD-2/en/pdf	in equity)	profit transferred to the reserve capital or the supplementary capital of the company; NID can be a deductible cost three times in three consecutive years	EUR 60,000	2020 2021	0,475% 0,209%
Portugal 14364/18 ADD8, 20.11.2018 https://data.consilium.europa.eu/doc/document/ST-14364-2018-ADD-8/en/pdf	Portugal's notional interest deduction regime (PT018) incremental model (increase in equity)	new contributions for share capital made by the shareholders, and retaining earnings for the purposes of the company's incorporation or increases of its share capital	the annual qualified ACE and the annual NID deduction: max 140 000 EUR base: max EUR 2 million;	2019 2020 2021	from 0.875% to 1.925%

Source: Based on reports from the Council of the European Union: Belgium's notional interest deduction regime (BE018) doc. 14364/18 ADD 1; Cyprus' notional interest deduction regime (CY020), doc. 9652/19 ADD 1; Italy's notional interest deduction regime (IT019), doc. 14364/18 ADD 4; Liechtenstein's interest deduction on equity / notional interest deduction regime (LI003) − Final description and assessment, doc. 12774/18; Malta's notional interest deduction regime (MT014), doc. 14364/18 ADD 6; Poland's notional interest deduction regime (PL011), doc. 14114/19 ADD 2; Portugal's notional interest deduction regime (PT018), doc 14364/18 ADD 8.

In most countries, the actual percentage of the tax shield rate in ACE regime is similar and does not exceed 2.45%. Only in Cyprus the level of 2.5% is defined as minimal. However, significant differences result not so much from the size of the tax shield rate as from the ACE regime model used, the method of calculating the qualified base and the method of determining the reference rate for the calculation of the notional interest deduction.

In the incremental model (Belgium, Cyprus, Italy, Poland, and Portugal), the benefits obtained may be relatively small due to the necessary increase in equity, which may be difficult to obtain. However, in the classical model (Liechtenstein, Malta), where the qualified base for NID is to maintain a constant level of capital, the benefits of ACE regime can be of significant value.

3. Discussion: Impact of Notional Interest Deduction (NID) on Weighted Average Cost of Equity (WACC)

NID was introduced in order to achieve equal treatment of debt and equity financing by granting an additional deduction from own financing (Van Campenhout G., Van Caneghem T., 2011). As the authors of the article, we believe that it is impossible not to notice the impact that this mechanism has on the way the Weighted Average Cost of Capital (WACC) is calculated. This is important because the WACC value determines the discount rate *r* for the conversion of future cash flows and net present value (Vashakmadze, 2013).

The general principles for financing investments point to two main and distinct sources:
- debt capital (long-term liabilities), (C_d);
- equity (own capital), (C_e);

On this assumption, the Weighted Average Cost of Capital (WACC) is expressed by the formula:

$$WACC = [r_d(1-t) * \frac{C_d}{C_d + C_e}] + [r_e * \frac{C_e}{C_d + C_e}]$$

(4)

where:
$WACC$ − Weighted Average Cost of Capital,
C_d − debt capital in investment capital,
$r_d(1-t)$ − cost of debt less tax shield (the tax shield effect),
t − country-specific income tax rate,
C_e − equity investment capital,
r_e − cost of equity capital.

However, if hypothetical interest on equity is taken into account in the country of application of the ACE regime, the effects on the costs of financing the investment are visible by separating the eligible equity and its cost. Then there will be an extended division of funding sources into:

- debt capital (C_d);
- equity capital (C_{e1}) – not using ACE regime;
- equity capital (C_{e2}) – using ACE regime.

As a result, the cost of qualified equity can be adjusted for the tax benefits of using the ACE regime:

$$WACC = [r_d(1-t) * \frac{C_d}{C_d + C_{e1} + C_{e2}}] + [r_e * \frac{C_{e1}}{C_d + C_{e1} + C_{e2}}] + [r_e(1$$
$$- t_{shield\ ACE}) * \frac{C_{e2}}{C_d + C_{e1} + C_{e2}}]$$

(5)

where:
$WACC$ − Weighted Average Cost of Capital,
C_d − debt capital in investment capital,
$r_d(1-t)$ − cost of debt less tax (the tax shield effect),
t − country-specific income tax rate,
C_e − equity investment capital, not benefiting from the ACE regime,
r_e − cost of equity capital,
C_{e2} − equity investment capital, benefiting from the ACE regime,
$r_e(1 - t_{shield\ ACE})$ − cost of equity capital less tax shield (the tax shield effect in ACE regime),
$t_{shield\ ACE}$ − the actual percentage of the tax shield rate in ACE regime (after notional interest deduction mechanism).

Research shows that CFOs mainly use the payback method and the net present value method using WACC (Guðmundsdóttir, 2017) for efficiency evaluation investment projects provided in their companies. Assuming that during the lifetime of the investment project the discount rate will be fixed, the directly weighted average cost of capital determines the rate used to discount the future cash flows in investment projects:

$$NPV = \sum_{i=1}^{n} \frac{CF_i}{(1+r)^n} - I_0 \tag{6}$$

where:
NPV – net present value,
CF_i – cash flows,
I_0 – value of initial investment,
r – discount rate equal to WACC
n – number of periods.

The value of the sum of cash flows is inversely proportional to the discount rate (equal to WACC). Thus, the WACC in minus adjustment for the benefits resulting from the notional deduction interest (NID) mechanism will affect the net present value (NPV) in the following way:
If:

$$(r_1 \ equal \ to \ WACC_1) > (r_2 \ equal \ to \ WACC_2) \tag{7}$$

Then:

$$(NPV_1 < NPV_2) \tag{8}$$

Taking into account the revised discount rate, it allows for a more precise assessment of the net present value and assessment of the discounted profitability of the project, which in turn provides grounds for making a prudent decision regarding the implementation of an investment project.

4. Conclusions

In order to mitigate the inequality associated with the type of external and equity financing, and to encourage entities to create capital from self-financing, seven EU and EEA countries have introduced a tax mechanism that is based on the concept of a hypothetical interest cost on equity (Notional Interest Deduction, NID). The result is the creation of an additional tax shield, the value of which depends on the specific and autonomous tax regulations in the countries that introduced this Allowance for Economic Growth (ACE) regime. The actual percentage of tax shield rate, specific to a given country and period, was determined on the basis of an analysis of documents published by the Council of the European Union.

In the incremental model, which is used in countries such as Belgium, Cyprus, Italy, Poland and Portugal, the benefits obtained maybe relatively small due to the necessary increase in equity, which can be difficult to obtain. However, in the classical model (adopted in Liechtenstein and Malta), where the qualified base for NID is to maintain a constant level of capital, the benefits of the ACE regime can constitute a significant value of reducing the cost of equity of enterprises. However, since equity contributes to the financing of investment projects, the additional effect of the tax shield resulting from the application of NID also has an impact on the way in which the Weighted Average Cost of Capital (WACC) is calculated. In turn, the WACC is used to discount future cash flows as a result of planned investments. This figure is important for calculating the cost of equity, the discount rate and the minimum accepted rate of return on investment. Thus, NID can have a significant impact on the assessment of the financial efficiency of investment projects, especially those financed mostly with equity.

The subject of a separate study should be the question of whether allowance for economic growth applying NID in its current form is an appropriate government instrument contributing to the creation of a pro-development tax function and legislative the friendly climate for developing enterprises in the 7 EU countries.

The NID mechanism for short- and medium-term development projects is not applicable to projects with long and super-long horizons. These types of projects are usually multidimensional and their evaluation of efficiency refers to the implementation of sustainable development policies and programmes (Malik, 2001). However, sustainable development projects require a separate approach and a different evaluation formula – hyperbolic discounting (Beltratti *et al.,* 1995).

References:

Belgium's notional interest deduction regime (BE018). Council of the European Union, doc. 14364/18 ADD 1. Retrieved from:
https://data.consilium.europa.eu/doc/document/ST-14364-2018-ADD-1/en/pdf.
Beltratti, A., Chichilnisky, G.G.H. 1995. Sustainable Growth and the Green Golden Rule. Cambridge University Press, Cambridge.
Cyprus' notional interest deduction regime (CY020). Council of the European Union, doc. 9652/19 ADD 1. Retrieved from:
https://data.consilium.europa.eu/doc/document/ST-9652-2019-ADD-1/en/pdf.
Damodaran, A. 2017. Corporate Finance. Theory and practice. Publisher, Helion, Gliwice, Poland.
Deloitte. 2021. Notional Interest Deduction (NID). A tax incentive for equity financing and debt restructurings. Retrieved from:
https://www2.deloitte.com/cy/en/pages/tax/articles/nid.html.
Director of the National Tax Information. 2021. Hypothetical interest on increased capital as a tax cost, paper 0111-KDIB1-1.4010.155.2021.1.BS, 01.06.2021. Retrieved from:
https://sip.lex.pl/#/guideline/185151981/0111-kdib-1-1-4010-155-2021-1-bs-hipotetyczne-odsetki-od-podwyzszonego-kapitalu-jako-koszt...?cm=URELATIONS

Flotation, A. 2021. Taxation of corporate income in the light of the concept of consumption-oriented income tax. Publisher, Poznan University of Economics, Poznan, Poland. Retrieved from: https://www.wbc.poznan.pl/dlibra/publication/141621/edition/150304/content.

Guðmundsdóttir, L.B. 2017. The extent of use of the WACC by companies in Ireland. Retrieved from: https://skemman.is/handle/1946/28656.

Italy's notional interest deduction regime (IT019). Council of the European Union, doc. 14364/18 ADD 4. Retrieved from: https://data.consilium.europa.eu/doc/document/ST-14364-2018-ADD-4/en/pdf.

Jankowski, J. 2020. The concept of allowance for corporate equity in the Polish corpotate income tax compared to other European tax jurisdictions, Przegląd Podatkowy 3/2020, pp. 49-53. Retrieved from: https://sip.lex.pl/#/publication/151361040/jankowski-jakub-koncepcja-allowance-for-corporate-equity-w-polskim-cit-na-tle-innych-europejskich...?cm=URELATIONS.

Leszczyłkowska, A. 2014. The cost of own a capital in an enterprise as a tax cost – model solutions, Annales Universitatis Mariae Curie-Skłodowska Lublin Polonia Sectio H", vol. XLVIII.

Liechtenstein's interest deduction on equity / notional interest deduction regime (LI003) − Final description and assessment, Council of the European Union, doc. 12774/18. Retrieved from: https://data.consilium.europa.eu/doc/document/ST-12774-2018-INIT/en/pdf.

Malik, K. 2001. Ekonomiczno-ekologiczna efektywność gospodarowania w warunkach rynkowych, w: Ekonomia a rozwój zrównoważony. Teoria i kształcenie. Tom, 1. Economic and ecological efficiency in market conditions. In: Economics and sustainable development: Theory and education, Volume 1.

Malta's notional interest deduction regime (MT014). Council of the European Union, doc. 14364/18 ADD 6. Retrieved from: https://data.consilium.europa.eu/doc/document/ST-14364-2018-ADD-6/en/pdf.

Poland's notional interest deduction regime (PL011). Council of the European Union, doc. 14114/19 ADD 2. Retrieved from: https://data.consilium.europa.eu/doc/document/ST-14114-2019-ADD-2/en/pdf.

Portugal's notional interest deduction regime (PT018). Council of the European Union, doc 14364/18 ADD 8. Retrieved from: https://data.consilium.europa.eu/doc/document/ST-14364-2018-ADD-8/en/pdf.

Romaniuk, U. 2019. Income Tax Minimisation Strategy as a Component of an International Enterprise's Corporate Strategy. Proceedings of the 34th International Business Information Management Association (IBIMA), 13-14 November 2019, Madrid, Spain, pp. 10880-10890.

Van Campenhout, G., Van Caneghem, T. 2013. How did the notional interest deduction affect Belgian SMEs' capital structure. Small Business Economics, vol. 40, 351-373. Retrieved from: https://link.springer.com/article/10.1007/s11187-011-9364-1.

Vashakmadze, V. 2013. Approaches to business valuation. Retrieved from: https://www.cfin.ru/appraisal/business/intro/Valuation_Standard.shtml.