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MARK KANTŠUKOV

Valuation of companies under the distributed profit taxation system

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Valuation of companies under the distributed profit taxation system

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School of Economics and Business Administration, University of Tartu, Estonia

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INTRODUCTION

List of papers

This thesis is based on five original papers listed as follows and co-authored by the thesis author:

Study I. **Kantšukov, M.,** & Sander, P. (2018). A lesson in valuation from Estonia: The difference between the fundamental value of equity under distributed and traditional profit taxation systems. *Business: Theory and Practice*, *19*, 146–156.

Study II. Sander, P., & **Kantšukov, M.** (2009). Effect of corporate taxation system on profitability and market ratios – the case of ROE and P/B ratios. *Research in Economics and Business: Central and Eastern Europe*, *1*(2), 27–40.

Study III. Sander, P., Teder, A., Viikmaa, K., & **Kantšukov, M.** (2014). The Distributed Profit Based Corporate Taxation, and the Valuation of Cash Holdings. *International Journal of Trade, Economics and Finance*, *5*(3), 212–217.

Study IV. **Kantšukov, M.,** & Sander. P. (2022). Optimal Holding Period of an Investment Property Under Different Systems of Income Taxation – An Individual Investor's Perspective. *Real Estate Management and Valuation*, *30*(3), 12–29.

Study V. **Kantšukov, M.,** & Sander. P. (2016). Value in the eye of the beholder: a survey of valuation practices of Estonian financial professionals. *Investment Management and Financial Innovations*, *13*(2), 157–172.

In the doctoral thesis, all papers together are referred to as "the Studies".

Motivation for the research

The valuation or appraisal of companies is an ongoing and essential topic for any enterprise. The principle of value maximization, which is foundational in modern finance, must be kept in mind by the management of the company. The statement of this principle can be found in any widely known textbook on finance (e.g. Brigham & Ehrhardt 2017; Brealey *et al*. 2017); there also seems to be consensus among practitioners regarding the value maximization principle (see e.g. Servaes & Tufano 2006). The term *value* in this context refers to *financial* value only; the concept of value will be discussed in more detail later in this thesis. According to the value maximization principle the main objective of a company is the maximization of value in the long run for the shareholders, both current and future, which implies that all the decisions made by a company shall be oriented towards increasing company value, and particularly equity value. Therefore, one might need to value a company in order to assess how result orientated the management of the company has been, but that is not the only instance where valuation can be necessary.

One example of when a company appraisal is frequently required is during mergers and acquisitions (M&A). According to data from the IMAA Institute, there were over 700 000 M&A transactions conducted globally between 2008 and 2022, with an average of approximately 47 700 transactions per year (M&A Statistics: Transactions and… 2023). Another common scenario that calls for valuation is when a firm decides to go public, and the firm must establish its share offering price. From 2008 to 2022, more than 20 000 companies worldwide underwent initial public offerings (Global IPOs: what are… 2017; Global IPO trends: … 2017; Scheid & Dholakia 2023). In 2021 alone, approximately 3 300 companies around the world became publicly traded (Scheid & Dholakia 2023). The valuation of companies is required in numerous other instances; however, due to the lack of comprehensive statistics, it is difficult to determine the exact number of business appraisals conducted each year worldwide.

The valuation of companies is tied to many conceptual and practical challenges. There are many methods of corporate valuation that are more and less complex; some methods of appraisal do not require so much input data, whereas some may need a lot. In reality, the value of an operating company is a function of many drivers, both internal (controllable by the company) and external (not controllable by the company). Those internal and external value drivers include sales growth rate, profitability, the structure of assets, quality of management, market interest rates, various risk premia, taxes, and many others. Among numerous taxes, corporate income tax holds a significant position as a value driver, although it may not be the most crucial determinant. Despite the possibility to optimize the tax burden via various tax avoidance schemes, the majority of companies cannot completely escape income tax payments. Hence, corporate income tax (or profit tax) is not something practitioners can neglect in the process of company valuation.

A substantial amount of research, both theoretical and empirical, has been dedicated to studying the connection between corporate value and profit taxation, and it can be considered one subset of the studies linking issues of corporate financial management and income taxation. Here, it is pertinent to mention the works of Hanlon and Heitzmann (2010) as well as Graham (2003) as insightful reviews on tax research pertaining to the domains of corporate finance and accounting.

In the context of Estonia, the main reason for studying the relationship between corporate income taxation and corporate valuation is the unique corporate income taxation system that was first implemented in Estonia in 2000, known as distributed profit taxation (or DPT). In some sources, the system of distributed profit taxation is referred to as a *distribution tax regime* (Ahtiainen 2022; Pillar Two GloBE Rules… 2023). Companies operating under such a taxation regime have to pay income tax not at the moment of earning a profit but at the moment of the distribution of those profits. To put it another way, under the system of distributed profit taxation companies pay income tax only on those earnings which are distributed to their shareholders in a given year as dividends or other forms of payout (Income tax and basic exemption… 2023). This is significantly different from income taxation under the classical profit taxation system to be discussed below.

The author of this thesis is of the opinion that the topic under consideration is not only of local importance. Although the DPT system has been in force the longest in Estonia, it is currently employed by other European countries: in 2017, a system similar to the one in Estonia was introduced in Georgia, and in 2018, in Latvia (Kork 2019). Few years ago, there were debates on implementing distributed profits-based tax (under the name *exit capital tax*) in Ukraine (Hnatyuk 2019). In North Macedonia, the distributed profit taxation system was short-lived from 2009 till 2013, in 2014 the country returned to the previous corporate income taxation system to increase fiscal revenues (Saha & Betliy 2017). Hence, the results and conclusions of this thesis may be interesting to practitioners and policymakers in other countries using the DPT system, as well as countries planning or considering to enforce such a system of income taxation.

The distributed profit-based taxation system has gained quite substantial attention from academicians. The effects and implications of distributed profit taxation have been studied at both the macroeconomic (Funke & Strulik 2006; Masso & Meriküll 2011) and microeconomic (Masso *et al.* 2013) levels. While there is a limited number of academic studies dedicated to analyzing the effects and consequences of this system from a company-level perspective, the relationship between the DPT and corporate valuation remains largely unexplored. The present dissertation intends to fill that gap.

The fact that firms operating under the DPT system can postpone their tax liability on retained earnings for an indefinite period of time potentially creates an advantage for the shareholders of such companies over the shareholders of companies operating under the classical system of profit taxation. Classical

profit taxation, or the classical tax system, refers to a system of income taxation where corporate profits are taxed twice – first a company pays income tax on all its annual earnings, then the shareholders pay income tax on dividends and capital gains[1] (Kari & Ylä-Liedenpohja 2002). In this thesis, the author also refers to this system as *traditional profit taxation* (using the abbreviation TPT).

From a theoretical perspective, holding other things constant, profitable firms operating under the DPT system have larger amount of earnings they can retain compared with their peers operating under the TPT system. If there are sufficient profitable investment projects available, companies operating under DPT can allocate more retained earnings to those projects than firms operating under TPT. This hypothetically creates more opportunities for the former group of companies to create value for their shareholders in comparison with the latter group of companies. Hence, companies operating under DPT cannot be valued in the same manner as companies operating under TPT: applying guidelines and typical valuation formulas from well-known theoretical studies in order to establish the value of Estonian, Georgian and Latvian companies may lead to erroneous results and conclusions. It can be argued that there is no consensus on valuing companies under distributed profit taxation, nor are there any unequivocal guidelines or recommendations. This lack of consensus may lead to treating Estonian-like profit tax differently, which in turn creates confusion among investors, business owners and decision-makers (e.g. judges).

The topic of the present research is becoming more and more vital as the number of companies in Estonia has been steadily increasing. According to statistics from the Commercial Register, in 2000 there were 48 759 companies (excluding sole proprietors as well as not-for-profit organizations) registered in Estonia; as of the end of 2022 (latest available year) there were 266 366 registered companies. Therefore, in less than a quarter-century, the number of companies in Estonia has increased by more than five times (e-Äriregister – Statistics 2023).

The increase in the number of companies does not necessarily correlate with a proportional increase in the number of valuations. However, it can be assumed that corporate valuations also occur quite frequently in Estonia. Earlier in the thesis, the author presented the number of worldwide M&A transactions during the period 2008–2022, which likely involved valuations of merged and acquired companies. It is worth noting that despite the Estonian market for mergers and acquisitions being tiny, there were 365 M&A transactions between 2008 and 2022; notably, in 2021 alone, there were 58 M&A transactions involving Estonian companies (Baltic M&A Monitor 2020; Baltic M&A Monitor 2021; Baltic

[1] Double taxation of earnings can also occur within the DPT system. However, the primary distinction between income taxation under TPT and DPT lies in how profits are taxed at the *corporate* level: if under TPT the whole pre-tax profit is taxed then under DPT income taxation applies only to the distributed part of the profit. In the thesis, when discussing the distributed profit taxation system, the author defaults to the Estonian version of the DPT system.

M&A Monitor 2023). However, one can only guess at the number of appraisals of various Estonian businesses conducted annually.

Because valuation relies on the application of formal methods, one can easily make mistakes when appraising businesses or assets, including the mistreatment of profit tax. This is largely related to the complexity of the rules of taxation, especially in an international context. Still, one can erroneously reckon with profit taxation even in a simpler setting. Among the variety of major and minor valuation errors discussed in the literature (see e.g. Fernández & Bilan 2007) almost no attention is paid to corporate income taxation-related errors.

The study of valuation implications can lead to significant insights for both practitioners as well as policymakers. From a practitioner's point of view, a correct valuation estimate makes it possible to make better decisions regarding buying or selling ownership in the firm, launching new investment projects or raising capital on financial markets. The topic of valuation is also important for public sector actors (e.g. in cases of privatization or assessing economic loss).

Research aim and the structure of the dissertation

The aim of the thesis is to explore the peculiarities of the valuation of companies operating under the distributed profit taxation system, and to develop tax-adjusted valuation models applicable for the appraisal of companies operating in an environment with distributed profit taxation. The lack of prior academic research on valuing companies under DPT, combined with the absence of consensus among practitioners and established valuation practices, as well as agreed-upon valuation guidelines, highlight the need to address this issue for clarification. The author's main claim in the thesis is that, at least in theory, the valuation of companies operating under the DPT system should not be conducted in the same way as the valuation of companies operating under other systems of income taxation. In this thesis, the exploration of the peculiarities of corporate valuation under distributed profit taxation is partially performed in comparison with the classical income taxation system, since most of the well-known conventional valuation models were elaborated for an environment with the classical income taxation system. It has to be mentioned that idiosyncrasies of the valuation of companies operating under DPT are studied not only from a theoretical, but also from an empirical (i.e. finance practitioners') perspective.

To grasp the distinctive features of the appraisal of companies under DPT, it is important to examine the theoretical links between corporate valuation and distributed income taxation in the context of different valuation approaches. Proceeding from that, the author foremost seeks to develop tax-adjusted valuation models employable in an environment with distributed profit taxation. Furthermore, the author aims to develop models appropriate for the valuation of both leveraged as well as unleveraged companies. In addition, a set of recom-

mendations for business practitioners is provided. Therefore, to achieve the aim, the following steps need to be accomplished in the thesis:

1. Outline purposes and approaches to business valuation (Subchapter 1.1).
2. Discuss the role of profit tax as a driver in corporate valuation, outline the main features of the distributed profit taxation system and its position among other systems of corporate income taxation (Subchapter 1.2).
3. Synthesize the results of past studies researching the relationship between profit taxation and corporate valuation, and the results of past studies on the implications of the distributed profit taxation system (Subchapter 1.3).
4. Define the research gaps and research tasks (Subchapter 1.4).
5. Present the Studies used to fill the identified research gaps and to complete the research tasks (Chapter 2).
6. Summarize the main findings of the Studies, also outlining their practical implications, the limitations of the thesis and provide directions for future research (Chapter 3).

As the doctoral thesis is based on five Studies, they need to be unified under a common research framework. While research steps 1–6 contribute to the construction of the common framework of the thesis, the research tasks are more focused and research-gap oriented. Figure 1 on the next page presents the structure of the thesis, illustrating how the Studies are integrated within the research framework.

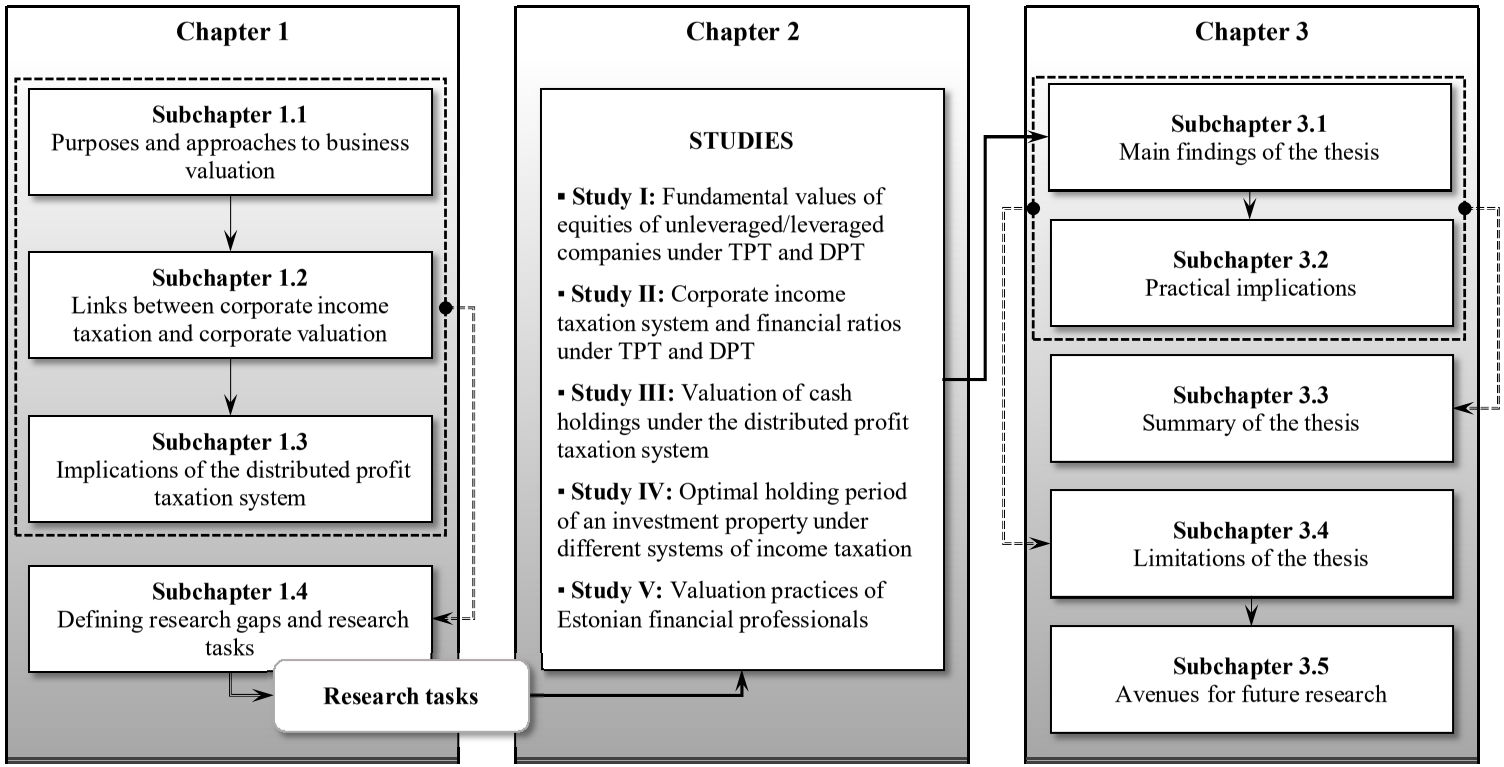

Figure 1. The structure of the dissertation (compiled by the author)

Next, the author outlines the contribution of the research and the scope of the dissertation. This will help the reader comprehend the novelty of the thesis.

Contribution of the research

The present dissertation contributes to the theoretical and empirical level of academic research. More broadly, the current study contributes to the joint research fields of corporate finance and taxes and taxation.[2] From the perspective of corporate finance, the topic of valuation models can be considered a research subfield of corporate and asset valuation, of which corporate valuation can be viewed as one of the subtopics of corporate finance (although the topic of valuation goes beyond the field of corporate finance). From the perspective of taxes and taxation, the research field on the distributed profit taxation system belongs to the field of systems of income taxation; studies on systems of income taxation can be considered a part of research related to taxes and taxation.

To illustrate the contribution of the research, the author of the thesis provides Figure 2 below. In this Figure the research scope of the dissertation is identified by the dotted ellipsis.

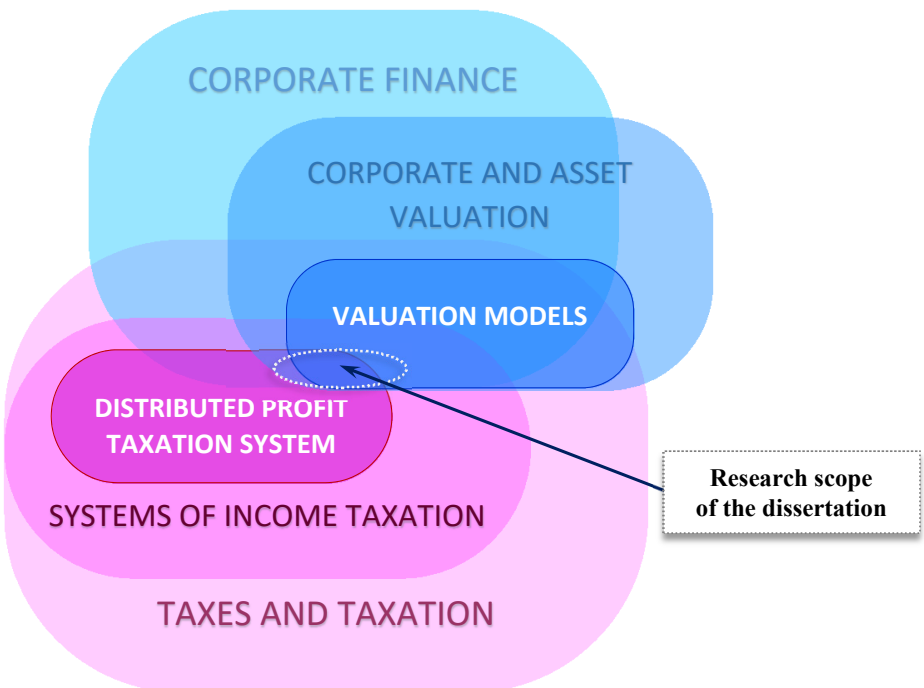

Figure 2. The research scope of the dissertation (compiled by the author)

[2] In order to get an idea of the variety of issues addressed in those joint research fields, one can get acquainted with the paper by Hanlon and Heitzmann (2010).

Regarding the scope, it can be argued that it primarily resides at the intersection of the research areas looking at distributed profit taxation and valuation models, and the primary contribution of this research lies in this overlap. Stated differently, the main focus of the dissertation is on valuation models within the system of distributed profit taxation. However, the thesis also encompasses aspects of corporate valuation models beyond the DPT system – focusing mainly on tax-adjusted models under the TPT system – primarily for the purpose of comparison with DPT. In addition, it explores aspects of valuation under DPT that are not solely related to valuation models – namely the practitioners' approach to valuing companies operating under DPT. These circumstances slightly extend the research scope beyond the scope illustrated in Figure 2. The thesis contributes to the theoretical research on corporate valuation under non-classical (non-traditional) income taxation systems. Considering it is possible to find plenty of papers on the implications of, for example, the partial integration system (see Ashton 1989a; Ashton 1989b; Monkhouse 1996; Lally 2000), then there have not so far been studies discussing the consequences of the distributed profit taxation system for corporate valuation, which is addressed in the present dissertation.

The author does not assert that his thesis is the very first academic study to consider corporate value under the DPT system. Prior theoretical studies on this link include papers mainly by Hazak (2007, 2008, 2009) and Sander (2005, 2009) but they were not so specific about the issue of valuation of (i.e. *how* to value) companies operating under the system of distributed profit taxation. It can be claimed that the present thesis represents a step forward in this stream of research since it elaborates concrete models that can be applied to the valuation of companies operating under DPT.

It is unreasonable to expect that a single thesis can cover all the tax-related implications and nuances involved in business valuation nor is it conceivable to develop tax adjustments for all the valuation models used in practice. Nevertheless, the models developed in this thesis can serve as a starting point for further research on adjusting approaches to valuation to suit the peculiarities of the distributed profit system of income taxation.

From the perspective of positive economics, the thesis sheds light on the valuation practices of Estonian finance professionals. The thesis clarifies whether and how Estonian practitioners reckon with the peculiarities of the Estonian system of corporate income taxation. Still, the foremost contribution of the dissertation is related to providing theoretical evidence on the distinctive features of DPT from the perspective of corporate valuation.

Methods used in the research

This thesis has a strong theoretical emphasis. Four out of the five papers that constitute this dissertation (Studies I–IV) prefigure theoretical studies and do not employ empirical data to reach the main results and conclusions. Study III

includes a statistical overview of secondary importance that does not directly contribute to achieving its intended purpose. The only empirical study (Study V) of the thesis is a qualitative survey of Estonian finance professionals. While Studies I–IV generally focus on ***how companies* (*businesses*) *operating under DPT should be valued theoretically,*** Study V focuses on ***how companies* (*businesses*) *operating under DPT are being valued in practice***.

The theoretical studies were primarily conducted by adapting well-known valuation models to account for corporate income taxation and financial leverage. Study I proceeds from a generic dividend discount model (DDM) according to which the value of a company depends on its dividend payout ratio, cost of equity and return on equity (ROE). The generic DDM assumes neither profit taxation nor financial leverage. Study I includes (a) mathematical derivations of DPT- and TPT-adjusted DDM for financially unleveraged and leveraged companies, and (b) comparative numerical analysis of TPT- and DPT-adjusted fundamental equity values based on the example of a hypothetical company. The comparison of TPT- and DPT-adjusted fundamental equity values is conducted under different values of dividend payout ratio, cost of capital and return on assets; various equity values are also compared to the value under a scenario without profit taxation (and without financial leverage). Numerical validation of the derived formulas was conducted in the Microsoft Excel spreadsheet software.

The framework for Study II is largely similar to that of Study I. Study II focuses on the difference of return on equity and price-to-book (P/B) valuation multiple under the DPT and the TPT based on the example of a hypothetical company; in the case of P/B multiple, models also reckon with financial leverage. As in Study I, the numerical validation of derived formulas was conducted in the spreadsheet program.

Study III focuses on the implications of distributed profit taxation for the valuation of corporate cash holdings. This study is constructed around a mathematical analysis of a shareholder's after-tax wealth and the derivation of the discount to be applied in the valuation of cash holdings under DPT. Despite its theoretical emphasis, Study III also contains a statistical overview: it provides some empirical evidence on cash holdings in Estonian companies (for the period 1995–2011), the distribution of Estonian companies based on cash-to-assets ratio and relationship between company size and cash-to-assets ratio.

Study IV focuses on the optimal holding period of an investment property under different systems of income taxation. This study is built around the comparative optimization analysis of investment property holding periods under different systems of income taxation. The results are analyzed based on the example of a hypothetical case. As in Studies I and II, numerical validation of the derived formulas was conducted in the spreadsheet program.

Study V is a survey of Estonian finance professionals. It explores the valuation practices of finance practitioners and their approaches to valuing companies under distributed profit taxation. The survey is based on a questionnaire, and answers were collected from investment and financial analysts, advisors,

managers and other practitioners. Altogether responses from 32 professionals were collected during this study; a significant number of the respondents worked at prominent financial and advisory companies at the time of the study. The questionnaire consisted of five sections. One of the sections of the survey contained a simple valuation task (based on the result obtained in Study II), which can be considered a novel aspect in surveys like this. The survey results were analyzed using both qualitative and quantitative data analysis methods. The results of the survey were compared with results of previous surveys of valuation practices available to authors at that time.

The theoretical focus of the thesis is largely determined by the fact that it is written from the perspective of normative economics. As the author of the thesis wants to show how companies operating under the DPT system *should be* valued compared with companies operating under the TPT system, then corresponding standpoints have to be (dis)proven from the theoretical perspective. Such an approach is in line with many previous academic papers studying the consequences of corporate income taxation for the value of a company.

Contribution of individual authors

All Studies that are included in the thesis are joint studies involving two or more authors. More specifically, all the Studies were written jointly with associate professor Priit Sander, Study III also had two additional co-authors, then doctoral students, Allan Teder and Karmen Viikmaa. The author of the thesis contributed to each of the Studies as follows:

1. In **Study I**, the thesis author was the main author. The research idea was conceived jointly by two co-authors; Priit Sander suggested the initial foundations for the development of the models. The thesis author developed the theoretical models and prepared an initial manuscript for the paper, including the literature review. Priit Sander verified the correctness of the results and proposed substantial corrections to the text of the manuscript. The thesis author acted as a corresponding author, as he was responsible for submitting the study to the journal, communicating with the editor, and responding to reviewers.
2. In **Study II**, the thesis author was the second author. The initial research idea was conceived by the main author Priit Sander. The thesis author proposed to expand the research framework by adding the aspect of price-to-book valuation multiple; he was also responsible for writing his part of the study. Both authors contributed to the writing of the manuscript. The thesis author acted as a corresponding author, as he was responsible for submitting the study to the journal, communicating with the editor, and responding to reviewers.
3. In **Study III** the thesis author was one of the co-authors. The thesis author participated in the discussion of the study (by suggesting the structure of the study and which aspects should be emphasized). He also double-checked

the results produced by the main co-author and revised drafts and the final manuscript of the paper. All in all, the thesis author actively participated in all the stages of the preparation of the paper.

4. In **Study IV**, the thesis author was the main author. The initial research idea was conceived by both authors; the thesis author expanded the research idea, developed the study framework and all the theoretical models. The initial manuscript of the paper, including the literature review, was also prepared by the author of the thesis. Priit Sander proposed some clarifications, which helped to eliminate inconsistencies in the study framework.
5. In **Study V**, the thesis author was the main author. The research idea was conceived by both authors; both authors also participated in elaborating the survey questionnaire. The majority of the responses was collected by the thesis author. The thesis author also performed data processing and analysis. Both authors connected the results with the theoretical background. The thesis author acted as a corresponding author, as he was responsible for submitting the study to the journal, communicating with the editor, and responding to reviewers.

Acknowledgments

This thesis marks the end of my very long journey in doctoral studies. During this adventurous voyage, I experienced many breakthroughs and setbacks, delays and moments of turmoil. I am indebted to many people who have contributed to both the preparation of this thesis and the development of my personality. In this section, I would like to express my gratitude to them.

First and foremost, I extend my heartfelt thanks to my supervisors, associate professor Priit Sander and Prof. Toomas Haldma, for their unwavering support, expertise, and mentorship. Their insightful guidance, constructive feedback, and scholarly knowledge have shaped this research endeavor and enriched my academic growth. I am truly grateful for their dedication, encouragement, and especially their patience, which have been instrumental in shaping the trajectory of the thesis. Priit Sander, who was also co-supervisor of my bachelor and master theses, has become my mentor and a senior colleague, and my main co-author of multiple academic and other publications. Our lengthy discussions on various valuation and finance-related topics, both in person and over the phone, have always been thought-provoking and compelling. Thanks to Toomas Haldma, I began to appreciate the importance of considering the bigger picture and not forgetting to see the forest behind the trees.

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1. THEORETICAL BASIS FOR THE RESEARCH AND RESEARCH TASKS

1.1. The purposes and approaches to company valuation

1.1.1. The purposes of company valuation

Before discussing the purposes of corporate valuation, it is necessary to clarify the term *value*. There are different concepts of value (social, personal, environmental, moral, competitive), but generally in the context of corporate finance we proceed from the term *financial* value which refers to "*the monetary, material or assessed worth of an asset, good or service*" (Turner 2018). The term *value* in the context of finance can be confused with the term *price* (the same confusion is also applied to the terms *valuation* and *pricing*); the difference between those two is best demonstrated by Warren Buffett's quote: "*Price is what you pay. Value is what you get*" (Hagstrom 2005). This can be explained so that *price* is the amount a buyer has to pay for an asset while value characterizes the expected financial worth associated with the purchased asset.

There are various notions and concepts for what can be defined as financial value: book value, market value, fundamental value, fair value, shareholder value, net asset value (NAV), economic value added. Most of these concepts and notions are interconnected referring to various facets of what the asset, good or service is worth. In the present thesis we rely primarily on the concept of *intrinsic value,* which can be considered a company's or equity 'true' value based on the best available data on the company's return and risk (Brigham & Houston 2009). Damodaran (2011) defines the intrinsic value of a company as the value determined by the cash flows one expects to receive from this company and the uncertainty associated with those cash flows. The latter definition is significant, as it is helpful in formally distinguishing between the terms 'value' and 'price'. An asset possesses (intrinsic) value when it is expected to generate future cash flows. Every object may have a price but not every object has (intrinsic) value.[3]

In practice, the intrinsic value of a company (or equity) is sometimes equated to the company's market value (or its equity). In fact, if the market does not take into account all the relevant information about the company then the intrinsic value of the company may be different from its current market value; in this case, it is possible to talk about the over- or undervaluation of the company (equity). This means that the market value is not always an appropriate indicator of value. In the case of non-listed companies, which make up

[3] There is another widespread term, *fair value*, which is defined by the IFRS as "*the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date*" (IFRS 13 Fair Value Measurement). *Fair value* is rather an accounting than a financial term but in the opinion of the author of the thesis it can be equivalent to the concept of market value.

the majority of all the companies in the world, intrinsic value is the only value of reference. Corporate value is not only a measure of the worth of a company's assets or equity; this can also be considered an indicator of the company's performance. This can be connected with the value maximization principle, which is a cornerstone of modern corporate finance.

Consequently, *valuation* refers to the process of deriving a company's intrinsic value. As terms *company*, *corporation*, *firm*, *enterprise* and *business* are quite often used as synonyms, and so in the present thesis the terms *company valuation*, *corporate valuation*, *firm valuation*, *enterprise valuation* and *business valuation* are used interchangeably.

Company valuation is an important component of value-based management; that is, the approach to management that ensures that companies are run consistently in terms of value and all decisions are focused on the fundamental drivers of value (Koller 1994). From the standpoint of financial theory, increasing shareholder value is the ultimate goal of every company. For example, Brigham and Houston (2009) state: "*The primary goal of a corporation should be to maximize its owners' value* […]."; Keown *et al.* (2014) write: "*The fundamental goal of a business is to create value for the company's owners* (*i.e., its shareholders*)". Other authors of authoritative textbooks on corporate finance share the same opinion.

The appropriateness of every decision, whether financial or non-financial, made by a company's management, should be evaluated in relation to the company's value. The goal of the management should be to make decisions that aim to maximize equity value (Brigham & Houston 2009). If a particular decision, whether it considers running a marketing campaign, buying customer relationship management software or hiring additional specialists, is not expected to increase shareholder value, it shall not be made. But company valuation is required not only to learn about how well the management of a company performs its duties. There are several instances when the valuation of a company (or business in general) is needed. Based on lists of objectives provided by various authors, it is possible to bring out the following reasons for conducting a valuation (Fernández 2002b; Ray 2010; Thomas & Gup 2010; Trugman 2012):

- **Mergers and acquisitions, spin-offs, reorganizations**. When a company plans to acquire another company, a valuation is needed to establish either the amount to be paid for that firm or the share exchange ratio if a transaction takes place without using cash. Mergers of companies will usually require both entities to be valued. When a company splits up or spins off into a separate entity, a valuation may be required due to tax considerations, the sale of part of the business and other reasons. Reorganizations, whether resulting from changes in capital structure, ownership structure, or in extreme cases, liquidation and bankruptcy, can have a significant impact on the value of a company. The magnitude of this impact should also be assessed during the valuation process.
- **Initial public offerings (IPOs)**. When shareholders decide to offer the shares of their company to public investors and list the company on a stock

exchange, a valuation of the company is needed to establish the subscription price. In the valuation process, an underwriter has to consider many variables associated with the macroeconomic outlook, the company's past and expected growth, financial performance, the situation with competition and the more. The value appraiser has to also take into account stock market conditions at the moment of the IPO and the stock prices of comparable public companies in order to determine the price of the offering. This is not the only possible IPO scheme – public offerings may take place in the form of a Dutch auction, where the offering price is determined by bids.

- **Shareholder disputes.** There can be various disputes and disagreements between minority and majority shareholders considering a company's governance or other essential issues related to company operations, dividend policy and other activities. This may result in a squeeze-out or sell-out, and an appropriate compensation amount should stem from a valuation of the company.
- **Employee stock ownership plans**. An employee stock ownership plan (ESOP) is an incentive for the employees that is funded by the employer. The employer grants its shares instead of cash. Hence, ESOPs provide capital, liquidity and some tax advantages for private companies. In the case of an ESOP, an independent valuation of the shares has to be conducted in order to determine the price per share for the transactions. In addition, a valuation may be required in the situation with incentive stock options – fringe benefits offered by large corporations to their employees.
- **Ad valorem taxation**. In some jurisdictions ad valorem tax is charged based on the value of a business property. In order to determine the amount of tax to be paid, one needs to estimate the value of that property.
- **Assessment of damage and insurance claims.** Courts have to deal with cases which involve damages caused by improper actions or the inactivity of a company's management, its employees, business partners, the government and other stakeholders. Economic damage suffered by the company may lead to a significant decline in its value. In such cases a valuation of the economic damages resulting from the loss of business value is usually required.
- **Bequest and marital disputes.** When some property or business has to be split between successors or spouses it is necessary to establish the value of this property or business. One can also think of situations where one ex-spouse, who was sole owner of the company before the divorce, would like to maintain sole ownership and has to offer a relevant amount of compensation to the other half.
- **Compulsory purchase.** The government may execute its right to take over a property in the public interest without the owner's consent. In situations like this the government has to offer an appropriate compensation to the owner of the property. An eminent domain action may affect the value of the business – the value analyst has to estimate how much the value is expected to decline due to the closure or relocation of the business.

- **Value quantification in accounting records.** Sometimes the acquisition cost is not the most appropriate proxy for asset value. In order to correctly reflect asset value on the balance sheet, assets have to be valued.

The previous list of valuation instances is surely not finite. In addition, a valuation would be required in the case of various buy-sell agreements, raising financing from a bank or a venture capital fund, providing fairness opinions among others. Yet the author's intent was to emphasize the versatility of valuation purposes. The author also claims that demand for valuation increases with the development of the market economy, when relations and contracts between legal and natural persons become more complex.

It is important to accentuate that valuation generally results in an *estimate* of the value, not a determined worth. This may raise the question of the practicality of valuation: if deriving an exact value for a business is not feasible, is the process of valuation still worthwhile? (After all, any detailed valuation needs time and is not inexpensive to conduct). The counterargument is that rough estimates are still a better guide than no estimate at all. From this point of view valuation estimates can be compared with economic forecasts – it is known that economists rarely provide close (let alone correct) predictions for GDP growth, inflation, or unemployment rates. Still, many institutions rely on these reputedly inaccurate forecasts when making their decisions.

In some situations, counterparties may agree on the value of a company without conducting a valuation of the company, relying on gut feeling or some rule of thumb. In other words, if something needs to be valued using a formal approach it is not necessarily valued this way. However, the author of the thesis believes that corporate valuation, which relies on a formal approach, provides a more substantiated valuation. This does not mean that formal valuation approaches are flawless but they are more transparent, and make it possible to establish links between the various inputs affecting the corporate value. Those approaches will be considered in the next part of this subchapter.

1.1.2. Approaches to company valuation

The framework of the thesis requires a systematized overview of valuation approaches in order to discuss their features, advantages and disadvantages. Prior to that, it is necessary to clarify the difference between the following related notions: *valuation approach*, *valuation method*, *valuation technique,* and *valuation model*. This quartet of terms is employed both by practitioners and academicians, sometimes interchangeably, but despite their relatedness, these terms point to different things.

To understand the difference between *approach*, *method*, *model* and *technique* it is possible to proceed from the explanations provided by Anthony (1963). Applying Anthony's (1963) elucidation to the context of valuation, *approach* can be defined as a set of reciprocal suppositions that deal with the nature or essence of valuation; approach is axiomatic, unquestioned. As Anthony (1963)

wrote: *it* [approach] *states a point of view, a philosophy, an article of faith – something which one believes but cannot necessarily prove*. A *method* can be defined as an overall plan for conducting valuation, where no part of this plan is in contradiction with a selected valuation approach – a method is based on an approach. According to Anthony (1963), "*an approach is axiomatic, a method is procedural*". One approach may contain several methods, as the procedures in achieving a value estimate can differ. *Model* is one of the basic terms in economics and finance. It has multiple definitions, e.g.: "*a system of postulates, data, and inferences presented as a mathematical description of an entity or state of affairs*" (Model | Definition of Model by Merriam-Webster… 2019); "*a simplified description, especially a mathematical one, of a system or process, to assist calculations and predictions*" (model | Definition of model in English… 2019); "*a simple technical description of how something works*" (Model (noun) American English... 2019). Accordingly, the author of the thesis defines *valuation model* as follows: *a simplified mathematical description of a system of the data and assumptions required to derive the value of a company or an asset*.

In turn, a [*valuation*] *technique* refers to the effectuation, so that a technique is implementational (Anthony 1963). It is a particular gimmick or trick to achieve a particular value estimate. The author of the thesis thinks that a valuation technique derives from a valuation model, should align with a valuation method, and be in harmony with a chosen valuation approach.

Hierarchically, valuation approach is a broader concept superior to valuation method, which in turn is superior to valuation model. Sometimes the distinction between method and model or between model and technique is a highly subtle. In the author's opinion, perhaps the most ambiguous distinction lies between technique and model. The author of the thesis considers a model as a guidance for a technique, a tool for action. Alternatively, technique pertains to the utilization of the model.

To illustrate the hierarchical relationship and differences between the notions, one can think of the following framework: the income-based *approach*[4] to company valuation relies on future financial benefits generated by a company. The choice of those future benefits – one can prefer earnings or free cash flows – determines the choice of valuation *method*, which will either be a discounted earnings method or discounted cash flow method. If an appraiser prefers to value the company based on free cash flows (and hence apply the discounted cash flow method) then one can use a variety of discounted cash flow-based *models*; for example, the dividend discount model, free cash flow to firm, free cash flow to equity, and others. Since valuation models are general, then adjusting a model for a specific valuation may require the application of a certain *technique*. The technique may be expressed in setting up assumptions for the model, the choice of proxy variables, degree of detail and other components and elements.

[4] Income-based approach and its based methods and models will be discussed in detail later in this section.

It is important to distinguish between *approach*, *method*, *model* and *technique* because the focus of the present thesis is on valuation *models* and their adjustments for profit tax-related nuances: adjusting a particular model is more conceivable than adjusting an approach. In addition, the comparative analysis of the effect of corporate income taxation works better at the level of models than approaches. The author does not discuss techniques in his thesis since this is rather a practical than theoretical aspect of corporate valuation.

The distinction between various terms is also important because there are tens, if not hundreds, of valuation models but only a few valuation approaches. The existence of the multitude of valuation models can be explained partly by the circumstance that there can be case-specific aspects in many instances of valuation, and partially by the fact that each valuation model has its deficiencies. This is partially the reason why practitioners rarely employ only one valuation method: the study by Bancel and Mittoo (2014) indicated that approximately 20% of valuation experts used a single valuation method, whereas 60% relied on two or three valuation methods.

All the valuation methods are attached to valuation principles that form the foundation of the theory of valuation. Following those principles is important, as any value appraisal has to be grounded and justified. These essential principles are the principle of substitution, the principle of alternatives, and the principle of future benefits (Miles 1984).

The principle of substitution implies that the value of an asset is determined by the cost of acquiring of an equivalent substitute. According to the principle of substitution, no rational person shall be willing to pay more for a particular asset than he or she would pay for a substitutable asset. If two identical assets differ only by price, then a willing investor will choose the asset with the lower price. The principle of alternatives states that each transaction party has alternatives to completing the transaction. This means that if an investor wants to sell an asset, one has various choices: whether to sell the asset or not, to whom to sell it and at which price. The principle of future benefits states that the economic value of an asset depends on the future benefits an asset holder expects to receive (Miles 1984). For example, if an investor purchases shares in some company then that investor anticipates certain benefits: current income (dividends), capital appreciation (stock price increase) or a combination of both. Therefore, the principles of valuation state that the true value of any business asset reveals itself in a coercion-free condition, it shall be defined by the future benefits an asset holder may enjoy, and it shall never be higher than the value of an identical asset.

These previously described principles bring us closer to the approaches to corporate valuation. From a practical perspective, three distinct methodological approaches can be distinguished (Ratner *et al.* 2009; Trugman 2012):

- assets-based approach,
- market-based approach,
- income-based approach.

A typical coverage of valuation methods and models in the financial literature – especially valuation textbooks – will be based on those three approaches. However, this does not mean that every authoritative text on valuation discusses all three approaches; for example, Copeland *et al.* (2000) and Koller *et al.* (2015) focus mainly on valuation models based on discounted cash flow (DCF); that is, models based on the income-based approach.

Next, the author will briefly describe each valuation approach. The author of the thesis will not go into the details of each valuation approach and the methods it consists of, as the objective is not to discuss particular technicalities but to provide a general understanding of how one or the other approach is used to reach a valuation estimate.

Assets-based approach. This type of business valuation, also called cost-based approach, or balance sheet-based approach (Fernández 2002b), focuses either on a company's net asset value (NAV) or fair market value (FMV). NAV or FMV is calculated by estimating the value of the company's total assets less its total liabilities. In this way, it is possible to measure the cost of launching or re-creating the business. Also, it is a useful approach in the case of company liquidation. Each component of the business is valued separately, including its liabilities. It is the matter of a separate debate which assets and liabilities should be considered, and how to adequately measure (adjust) the value of those assets and liabilities. An additional issue of interest is whether and how to adjust various balance sheet items for corporate income tax, as the assets-based approach usually assumes the sale of a company's assets (Ratner *et al*. 2009; Trugman 2012).

The assets-based approach is suitable for valuing various types of entities, such as holding companies, nonprofit organizations, manufacturing companies and companies with relatively high asset tangibility (i.e. the proportion of tangible assets in total assets); in the case of intangible assets, this approach can be applied to the valuation of recognizable items, such as trademarks, patents and copyrights. The assets-based approach relies on the presumption that the value of a business is determined by the replacement or scrap value of its assets, not the ability to generate free cash flows. Therefore, this approach is not very appropriate for the valuation of asset-light companies (including startup companies), companies with a significant proportion of unidentifiable intangible assets (the most predominant example being goodwill), service businesses and the like. Also, it is not appropriate when valuing minority interest because minority shareholders have no control over the sale of assets (Ratner *et al*. 2009; Thomas & Gup 2010; Trugman 2012).

There are several methods within the assets-based approach, such as the adjusted book value method, liquidation value method, and cost to create method. The application of each method depends on the valuation framework; that is, on the presumptions set by the appraiser.

In the adjusted book value method, all the company's assets and liabilities are adjusted to reflect their fair market value. Respectively, the fair equity value would equal the fair market value of assets less the fair value of liabilities. In this

way, the shortage of a purely accounting approach to valuation is overcome – book values of assets do not always reflect their true value (Fernández 2002b).

The liquidation value method estimates the value of a company as if it was liquidated; that is, if its assets are sold and debts paid off. When appraising the value of the company using the liquidation value method one has to deduct expenses related the the liquidation of the business from the adjusted net worth. Obviously, the liquidation value method is useful in very specific situations (e.g., when the company is acquired with the intent to liquidate it) (Fernández 2002b). There are two types of liquidation value – orderly liquidation value and forced liquidation value. The former is defined as the value that evolves during an organized sale process under a reasonable period necessary to find a buyer of the company's assets. The latter refers to the value which appears when there is not an adequate amount of time to find a purchaser, when the assets have to be disposed immediately; all or the majority of the assets will be sold quickly and roughly at the same time (Thomas & Gup 2010; Trugman 2012).

The cost to create method (also called substantial value method or replacement value method in some sources) is very similar to the adjusted book value method. When employing the cost to create method, an appraiser estimates what it costs to recreate (rebuild) the business. Trugman (2012) points out that although situations where businesses made a fresh start in the similar way as done previously are rare, the cost to create method would be useful to value a company's intangible assets. That is, the key difference between the adjusted book value method and the cost to create method is that in the latter case not only tangible but also intangible assets are valued.

All in all, there are several advantages of the assets-based approach. First of all, it does not require many valuation inputs and assumptions, especially about a company's future financials, which can be highly speculative. In this sense, this approach reflects better the economic balance sheet of the company being valued. Second, net tangible assets can be valued more reliably under the assets-based approach compared to other approaches. Third, as net tangible assets are more visible for investors, it provides the user of the valuation opinion a more grounded feeling about the value. In certain situations, the valuation opinion obtained through the assets-based approach can be considered a conservative estimate, serving as a reliable minimum value (Trugman 2012).

The main disadvantage of the assets-based approach is that it ignores a company's ability to generate cash flows. This approach provides us a static view of corporate value ignoring the company's growth potential. Second, problems with the assets-based approach may occur when establishing a price for specific, unsellable equipment and off-balance sheet items, such as human capital, customer relations, reputation – the approach is not suitable for valuing businesses with a large proportion of intangible assets. Furthermore, Trugman (2012) points out that this approach is more time-consuming compared to other approaches – this can be explained by the circumstance that each balance sheet item needs to be valued separately.

A separate issue is related to income tax-related adjustments when applying the assets-based approach. It appears that this aspect is not paid too much attention in the financial literature. Trugman (2012) provided a brief discussion on how income tax affects balance sheet items from the US perspective. Kirk and Wishing (2018) described alternative procedures to treat income taxes in assets-based valuations. One of the alternatives is to ignore income tax. However, as the assets-based approach assumes the sale of the assets of a company, then it would be natural and obvious to recognize a seller's income tax liability. So, it is possible to claim that various approaches to the issue of tax-adjustment under the assets-based approach exist.

The market-based approach relies on the comparison of the company under valuation with similar publicly traded companies or the recent sale of similar companies. For this reason, it is also called the method of comparables, or relative valuation. The rationale behind this type of valuation is the law of one price: similar assets should be traded, sold (purchased) at a similar (comparable) price level. In order to compare the values of companies of different sizes those values are scaled by dividing enterprise or equity value by some corporate value drivers, such as net income, equity book value, sales revenue, earnings before interest, taxes, depreciation and amortization (EBITDA), and so forth. Those standardized measures are called valuation ratios (multiples). The market-based approach can be used to value both private and public companies; in the latter case, the outcome shall provide a hint of how much the share of a public company is over- or undervalued compared with shares of its peer companies (Laro & Pratt 2005; Trugman 2012).

A simple instance of the application of the market-based approach can be illustrated using the example of the price-to-earnings (referred to in the literature as P/E) ratio. Suppose that we need to estimate the equity value of a private company. We have a sample of public companies operating in the same field as the private company. First, we need to calculate earnings per share (EPS), either historical or forward-looking, of each public company. Then we need to divide the share prices of the public companies by their EPS to obtain the P/E ratio of each company. The third step is to calculate the average P/E ratio across all companies' P/E ratios. The last step is to multiply the average P/E ratio by the EPS of the company under valuation. The fact must be kept in mind that companies with negative earnings are typically eliminated from analysis, as a negative P/E ratio is not used in valuation (Damodaran 2011; Fernando 2022). The general formula for estimating the equity value based on relative valuation can be presented as follows (Alford 1992):

$$\hat{P}_{i,t} = E_{i,\tau} \times median_{j \epsilon \Upsilon_i} \left\{ \frac{P_{j.t}}{E_{j,\tau}} \right\} \tag{1}$$

where $\hat{P}_{i,t}$ denotes the share (equity) value of company i (the company under valuation), $E_{i,\tau}$ denotes company i's actual earnings, $P_{j.t}$ and $E_{j,\tau}$ are respectively the share price and earnings of comparable company j. The median P/E ratio is calculated across all firm j in Υ_i – the set of comparable companies for company i. The median multiple is calculated in order to smooth the impact of extremely low and high values of multiples of comparable assets.

In the case of the market-based approach, it is possible to distinguish between two methods – the method of comparable public companies and the method of comparable transactions. In the former case, the value is derived on the basis of the market value of comparable public companies; in the latter case valuation is based on the value of historical transactions of the companies' sales and purchases.

The main pros of this approach ire that it relies on market data on share prices, does not require many inputs and provides a prompt valuation. It is an especially useful method when it is not possible to build long-term financial forecasts due to high uncertainty surrounding the company or environment, and the lack or unreliability of valuation assumptions. Also, relative valuation is used when a valuation assessment necessitates conformity to market conditions, or when the employment of additional valuation methods is required (Trugman 2012; Hoover 2006).

The disadvantages of the market approach are related to the possible under- or overvaluation of comparable assets, the potential for manipulating accounting data, cherry picking comparable companies, and so on and so forth. When valuing public companies, the market approach suffers from an inner contradiction: in order to judge whether a company is over- or undervalued, one has to proceed from the market values of other companies, although these comparable companies can also be over- or undervalued (Trugman 2012; Thomas & Gup 2010). In the author's opinion, the market-based approach is suitable primarily for the valuation of privately held companies.

Valuation multiples can be constructed on the equity or total firm value basis. Equity-value based multiples are used to directly value a company's equity, while firm value-based multiples are used to value total company value; still, firm-value based multiples can also be used to value the company's equity by deducting total debt from the estimate of total company value (Stowe *et al*. 2002; Laro & Pratt 2005).

Besides the P/E ratio, which is perhaps the most widely used equity value-based multiples by practitioners, there are other ratios, such as price-to-book (referred to in the literature as the P/B) ratio, price-to-sales (referred to in the literature as the P/S) ratio, price-to-earnings growth (referred to in the literature as the P/EG) ratio, and many others. Among firm value-based ratios, probably the most popular among practitioners is enterprise value-to-EBITDA ratio (referred to in the literature as EV/EBITDA), but they also include enterprise value-to-EBIT (referred to in the literature as the EV/EBIT) ratio, enterprise value-to-sales (referred to in the literature as EV/S), and others (Stowe *et al*.

2002; Fernández 2002a; Bancel & Mittoo 2014). The finite list of all the possible valuation multiples can be extensive since one can use miscellaneous financial (and nonfinancial) indicators as drivers of value.

Valuation multiples are not arbitrary ratios of share price or firm value over some accounting indicators. If we continue with the example of the price-to-earnings multiple, then this can be represented as a function of a company's fundamental factors (Damodaran 2012):

$$\frac{P}{E} = \frac{\delta}{k_e - g}(1 + g) \tag{2}$$

Where δ denotes dividend payout ratio, g denotes dividend (equity) growth rate and k_e stands for cost of equity. If we take another popular valuation ratio, price-to-book (P/B), then it can be represented as a function of return on equity (ROE), dividend (equity) growth rate and cost of equity (Damodaran 2012):

$$\frac{P}{B} = \frac{ROE - g}{k_e - g}(1 + g) \tag{3}$$

Similarly, it is possible to construct functional relationships for other well-known valuation multiples – P/B, P/S, EV/EBIT, EV/EBITDA and others.

It is important to notice that the relationships depicted in equations (2) and (3) rely on a conventional dividend discount model, which assumes no financial leverage, neither corporate nor personal income taxation, and constancy of the values of factors (Damodaran 2012). This aspect raises several questions that have to be addressed when using market multiples. Those questions consider adjustments of valuation ratios for financial leverage, taxation of income on the corporate and personal level, inflation, variability of inputs and so on. A separate issue is related to the adjustment of multiples used in developed markets to value companies in emerging markets due to different levels of uncertainty – this issue is discussed in Pereiro (2002).

Adjustment of valuation multiples for corporate income tax can be necessary in the case of P/E and P/B multiples when the peer group consists of international companies subject to different income tax laws. From this perspective, the use of multiples not affected by income tax (e.g. EV/EBITDA) can be preferable. Schreiner (2007) found that the valuation accuracy of P/EBT in Europe was higher compared to P/E largely because in the European context peer groups were largely international. This finding suggests that employing the P/EBT ratio is particularly relevant when valuing Estonian companies, given the limited number of Estonian companies with equities traded on the stock market.

Income-based approach. Income-based valuation approach emanates from a company's capacity to earn; that is, generate benefits for shareholders in the future. These future benefits can take the form of a stream of various earnings (e.g. EBIT, pre-tax profit, net earnings) or cash flows (free cash flow to firm,

free cash flow to equity, dividends) (Murphy *et al*. 2012). As this approach looks forward, it is grounded on the assumption that the company is a going concern, the company is not planning to dispose any assets it needs to create value for shareholders. One could argue that the income-based approach best aligns with the principle of future benefits outlined earlier.

Because it is possible to distinguish between two types of benefits – earnings and cash flows – then the income-based approach comprises two methods: the discounted future earnings method and the discounted future cash flows (DCF) method. The two methods are similar from the technical perspective, as the outcome is the present value of financial benefits, either earnings or cash flows (Murphy *et al*. 2012). The author of the thesis will focus on the DCF method because free cash flow better reflects the company's financial performance and value creation for shareholders; also, the DCF method has enjoyed wider academic coverage and is more popular among practitioners compared to the method of discounted earnings (see e.g. Bancel & Mittoo 2014; Mukhlynina & Nyborg 2016). Still, it has to be mentioned that there are instances where future earnings are preferred over future cash flows (see Trugman 2012).

The discounted cash flow method relies on the notion that the company's value is determined by future cash flows and the riskiness of those cash flows, which is reflected in a discount rate. It can be said that the income-based approach is the soundest from a theoretical perspective, as according to financial theory, the value of any asset is determined by the cash flows (economic benefits) this particular asset generates in the future (Murphy *et al.* 2012). Hence, in order to learn about the value of the asset, one has to discount and sum up its future cash flows. A general formula for company value is as follows (Fernández 2002b):

$$V_0 = \frac{CF_1}{1+k} + \frac{CF_2}{(1+k)^2} + \frac{CF_3}{(1+k)^3} + \cdots + \frac{CF_N}{(1+k)^N} + \frac{RV_N}{(1+k)^N} \tag{4}$$

Where CF denotes a company's (free) cash flow, k denotes the discount rate (either cost of capital or cost of equity), RV_N denotes the company's residual value as of year N. If the company's lifespan is unlimited then residual value as of the end of year N can be represented as the present value of future infinite cash flows growing at rate g (Fernández 2002b):

$$RV_N = \frac{CF_N(1+g)}{k-g} \tag{5}$$

The previous formula can be used to value a company that generates constant or constantly increasing (decreasing) dividends – in this case $CF_N(1+g)$ would denote first the expected dividend in the stream of future dividends (where $N = 1$) and g would refer to dividend growth rate. This is probably the simplest discounted cash flow method-based model, known as the dividend discount model (DDM) (Ratner *et al*. 2009).

Generally, the application of a typical model based on the discounted cash flow method can be broken down into the following steps (Koller *et al.* 2015; Damodaran 2012):

1. Estimating future cash flows for years (periods) 1 through *N*.
2. Estimating growth rate of cash flows beyond year (period) *N*.
3. Estimating the discount rate.
4. Discounting and summing up future cash flows.

This procedure is presented in a simplified manner. Estimating future cash flows, their growth rates and discount rate is usually a very complex process, every step can contain miscellaneous nuances. Some models or cases of corporate valuation may require additional steps to reach the value estimate; for example, if an appraiser needs to assess the impact of a merger (acquisition) on the value of the company.

It is possible to distinguish between several income-based valuation models but generally there are two lanes to discounted cash flows valuation: one can value the equity stake in an enterprise or an entire company, including the value of equity. They both rely on discounted expected cash flows. Depending on whether one values an entire company or its equity one can proceed from either free cash flow to the firm (FCFF) or free cash flow to equity (FCFE). While FCFF demonstrates cash generated by a company during a particular year, which can be used to make payments to creditors and shareholders, FCFE characterizes the amount of cash generated by the company, which theoretically can be used to make payments to the shareholders. Hence, FCFE can be considered a potential dividend (Damodaran 2011).

Canonically, free cash flow to the firm generated by a company during year *n* is calculated as after-tax EBIT adjusted for depreciation and amortization less capital expenditure and investments into net working capital (Damodaran 2012):

$$FCFF_n = EBIT_n(1 - t_c) + D\&A_n - CAPEX_n - \Delta NWC_n \tag{6}$$

where t_c stands for corporate income tax rate, $D\&A$ stands for depreciation and amortization, $CAPEX$ stands for capital expenditure of the company and ΔNWC denotes the change in net working capital (NWC) so that $\Delta NWC_n = NWC_n - NWC_{n-1}$. Free cash flow to equity is calculated similarly but it is based on net income; in addition, change in a company's debt position should be included (Damodaran 2012):

$$FCFE_n = NI_n + D\&A_n - CAPEX_n - \Delta NWC_n - \Delta L_n \tag{7}$$

where NI stands for net income and ΔL denotes the change in the company's debt capital so that $\Delta L_n = Debt\ repaid_n - Debt\ raised_n$. One can also notice the relationship between FCFF and FCFE: free cash flow to equity can be

represented as the difference between free cash flow to the firm and net cash flow to creditors; in other words:

$$FCFE_n = FCFF_n - I_n(1 - t_c) - \Delta L_n \quad (8)$$

where I denotes a company's interest payments.

From the perspective of the topic of the thesis, it is necessary to note that both FCFF and FCFE formulas contain the corporate income tax rate as one of the variables (in the case of FCFE the income tax rate is 'hidden' but net income is *after-tax* income). This income tax rate is applied if the company pays income tax on its pre-tax earnings regardless of whether after-tax earnings are retained (reinvested) or distributed to shareholders – typically this is applicable to companies operating under traditional (classical) corporate income taxation systems. The FCFF and FCFE formulas presented may need to be adjusted before applying them to the valuation of companies operating under other than classical income taxation systems.

A separate issue is related to the size of k (see Formula 5) to be used to discount either FCFF or FCFE. Since the discount rate is not a given or predetermined value, it also has to be estimated. Cash flow used in a model determines which metric should serve as a discount rate: if an analyst proceeds from free cash flow to the firm, then the weighted average cost of capital should be used as a discount rate, if one relies on free cash flow to equity then the cost of equity as a discount rate should be applied. It is appropriate to mention that both cost of capital and cost of equity depend on several drivers – these will be discussed next in Subchapter 1.2 – but in the end the discount rate should reflect the level of financial risk associated with the company. There exist several formal models with various modifications used to estimate either cost of equity and cost of capital (e.g. Gordon model, capital asset pricing model CAPM, bond yield plus equity risk premium, weighted average cost of capital WACC etc.).

The author of the thesis would like to present the two most popular approaches to derive the cost of capital and the cost of equity. A company's cost of capital can be derived using the WACC formula (Koller *et al*. 2015):

$$WACC = \frac{D}{D+E} k_D (1 - t_c) + \frac{E}{D+E} k_E \quad (9)$$

where k_D and k_E stand respectively for cost of debt and cost of equity, $\frac{D}{D+E}$ and $\frac{E}{D+E}$ denote respectively weights of debt and equity capital.

Probably the most popular approach to derive the cost of equity is the capital asset pricing model CAPM (Koller *et al*. 2015):

$$k_E = R_F + \beta_U \left[1 + \frac{D}{E}(1 - t_c)\right](E(R_M) - R_F) \quad (10)$$

where R_F stands for risk-free rate of return, β_U is a measure of the systematic risk of an unleveraged company, and $E(R_M)$ is a stock market's expected return. The difference $E(R_M) - R_F$ is the market risk premium; that is, additional compensation required by investors for investing in risky assets; the component $1 + \frac{D}{E}(1 - t_c)$ makes it possible to adjust for the impact of financial leverage on the company's systematic risk. What makes estimating the cost of capital and the cost of equity complex is that all inputs have to be estimated since both discount rates are forward looking indicators.

Both formulas 9 and 10 contain corporate income tax as one of the components. Like the income tax rate in formulas 6 and 8, the corporate income tax rate in formulas 9 and 10 should be applied only if an appraised company operates under the classical system of corporate income taxation. In equations 9 and 10, the corporate income tax rate is applied because of the interest tax shield companies operating under classical income taxation can enjoy. The interest tax shield refers to the phenomenon where a company's increasing debt burden, and hence, increasing interest payments lead to a lower corporate income tax burden. Since financial expenses on interest-bearing liabilities are tax deductible then higher financial leverage results in lower pre-tax earnings and a smaller amount of income tax to be paid (Brigham & Ehrhardt 2017). If the company operates in a tax system different from the classical one then the presence of an interest tax shield needs to be scrutinized.

The sheer number of necessary input variables makes an application of the DCF method challenging. But besides being theoretically the soundest, the income-based approach has other advantages as well. This approach makes it possible to reckon with the peculiarities of the company (business) under valuation since each valuation case is unique; it makes it possible to consider several assumptions and variables. It is possible to modify any DCF-based model by adding various discounts and premiums, making the model more or less sophisticated. In the opinion of the author of the thesis, the income-based approach can be the only choice when it comes to the valuation of companies operating in several lines of business which are not vertically or horizontally integrated. Trugman (2012) points out that the income approach is sometimes the only approach that can be used to value intangible assets.

The disadvantages of the approach are related to the problem of estimating the correct expected values of future benefits; projections of future earnings or cash flows can either be too optimistic or too pessimistic depending on a valuation analyst's sentiment in respect to the company under valuation. It can also be very difficult to establish the correct discount rate since it is also a forward-looking valuation component. Since the income-based approach relies on many assumptions and variables, the valuation estimate becomes highly

sensitive to changes in input indicators, especially when it comes to long-term growth rate. In the opinion of the author, although the income-based approach makes it possible to consider the peculiarities of the company being valued, there is also huge potential for the manipulation of value estimates – the more complex the model becomes, the more assailable it becomes by valuation analysts with different opinions about the company's value (Trugman 2012).

It is a question of a separate debate which valuation approach (or method) is the best in terms of valuation accuracy or costliness. This issue goes beyond the scope of the present thesis but in the author's opinion, the accuracy of a valuation is in direct relationship with the costliness (time and resources spent) of following a particular valuation technique. However, valuation accuracy is hard to measure since the 'true' value of an asset may become viable only in the long run. The issue of valuation accuracy is especially vital for non-traded assets and non-public companies.

All in all, every valuation approach has its own advantages and disadvantages, and particular (dis)advantages may depend on the valuation task and conditions. Moreover, even various methods and models belonging to the same approach cannot be considered as equally good; for example, the dividend discount model has certain advantages over the FCFF model and vice versa. This is probably the reason why different valuation models are used by practitioners although preferences concerning valuation models, methods or approaches can vary. For instance, according to a survey of European valuation experts by Bancel and Mittoo (2014), only about 20% of experts used a single method, and about 60% of respondents relied on two or three valuation methods. The survey by Bancel and Mittoo (2014) also demonstrated that approximately 80% of respondents used both market value-based multiples and the FCFF model to value companies – these were the most popular approaches to corporate valuation; the assets-based approach was employed by slightly more than 20% of respondents.

Summing up the content of this subchapter, it is possible to denote that many conventional valuation models (price-to-earnings and price-to-book valuation multiples, dividend discount model) do not reckon with the impact of corporate income taxation since they largely do not contain corporate income tax as one of the variables. The FCFF, FCFE, cost of capital and CAPM models presented above have to be rethought in the DPT environment from the perspective of the $(1 - t_c)$ component since bringing EBIT, cost of debt and debt capital to an after-corporate-income-tax level is related to the principles of taxation relevant in an environment with the TPT system. Since the models presented above were developed before 2000, when the system of distributed profit taxation was introduced, then for obvious reasons these models could not reckon with the peculiarities of DPT.

In addition, some models also do not consider the effect of financial leverage. This circumstance raises the possibility of filling this theoretical gap by developing tax- and debt-adjusted valuation models, including models to specifically value companies operating under the DPT system. There is a

significant number of theoretical studies devoted to adjusting valuation models for income taxes under different tax systems (see Section 1.2.3) but it can be claimed that tax-adjusted valuation formulas are not so widespread in the literature.

So far, the author of the thesis has considered the issues of why and how to value companies (businesses). Next it will be important to establish the relationship between corporate income taxation and corporate valuation; that is, how corporate income taxation theoretically affects the value of a company. In Subchapter 1.2 the author will introduce the framework of corporate value formation, discuss the position of distributed income taxation among other systems of income taxation and provide an overview of theoretical studies of the connections between income taxation and corporate valuation.

1.2. Establishing links between corporate income taxation and corporate valuation

1.2.1. The framework of corporate value formation and the role of corporate income taxation

When valuing a company, it is crucial to understand the key determinants of its value. In this part of Subchapter 1.2 the author will elaborate the corporate value framework with the inclusion of corporate income taxation. This should help to comprehend the importance of corporate income tax in the formation of corporate value. The corporate value framework can be understood as an abstract concept, a visual model which establishes links between corporate value and its components and determinants, as well as the links between the components and determinants.

Various authors propose different visions and frameworks for what shapes the value of the firm. One possible reason for this is that each valuation case is specific and there are a multitude of potential variables affecting the value of a company. The importance of factors can differ by industry and the phase of a company's life cycle: the determinants of value for a young, loss-making company are slightly different compared to a mature company that pays stable dividends. The set of value drivers can depend on the valuation method used; for example, when applying an assets-based approach to value a company in liquidation, the company's future sales growth is not that relevant. Some authors present quite a laconic view of a company's value (or value creation), referring only to components of value (e.g. Edvinsson & Malone 1997) or focusing on the most relevant components or activities shaping the value (e.g. Schroeck 2002). In some sources where value drivers are discussed, value is defined as the total sum of all values acquired by all parties involved in corporate transactions (see e.g. Amit & Zott 2001; Haksever *et al.* 2004); this is the concept of value that goes beyond the context of corporate valuation.

In the opinion of the author, the key moment in setting up a valuation framework and clarifying factors affecting corporate value is the company or

business's operating condition (i.e. expected continuity in time). It is possible to distinguish between three primary bases of valuation: going concern, orderly liquidation and forced liquidation.[5] Of those three bases, the valuation of a going concern can be considered a standard basis for valuation. In other words, we assume that an analyst typically has to value an operating business (company).

A point of departure in mapping what affects corporate value can be the conventional wisdom that the value of a continuously operating company is determined by its ability to generate positive cash flows in the future. Therefore, during the process of valuation one has to clarify what affects the value of the company's cash flows and the respective discount rate, as future cash flows have to be discounted to today.[6] Such a cash flow-based framework of corporate value can be found in several sources; for example, in Rappaport (1986), Fernández (2002b), Sander (2007), Koller *et al.* (2015), and Brigham and Ehrhardt (2017). Although most of the frameworks concentrate on shareholder value (equity value) formation, it is possible to apply the underlying principles to model corporate value formation

When developing the framework of corporate value formation, the author with his additional contribution, synthesizes several previously developed frameworks of corporate value creation – videlicet by Rappaport (1986), Fernández (2002b), and Copeland and Dolgoff (2005). There are similarities between previously developed frameworks but each approach contains (or is missing) some elements which makes it necessary to come up with a renewed and upgraded framework for corporate value creation.

One of the earliest detailed illustrative frameworks explaining corporate value formation is by Rappaport (1986), and is still cited today in many academic studies (e.g. Petravičius & Tamošiūniene 2008; Largani *et al.* 2012; Bluszcz & Kijewska 2016), as well as textbooks on finance. Rappaport's (1986) model reflects the impact of management (operating, investment and financing) decisions on value drivers which affect equity value via cash flow from operations and the discount rate. Value drivers are related to respective managerial decisions; that is, operating, investment and financing drivers.

According to Fernández's (2002b) framework, there are two value components – expected future cash flows and required return on equity – as in Rappaport's (1986) framework. Future cash flows depend on two value drivers

[5] Pereiro (2002) presented an additional basis – an assemblage of assets. In the opinion of the author this can be considered a special case of going concern valuation since the valuation of an assemblage of assets assumes valuing assets that are separated from the company's core business.

[6] Sometimes factors to consider in the valuation can be prescribed by official authorities. For example, such factors are listed in Revenue Ruling 59-60 by the Internal Revenue Service (IRS) of the United States. Among others they include the nature and the financial condition of the business, economic outlook, the company's earning and dividend-paying capacity, the company's goodwill and intangible assets (Valuation of non-controlling… 2014).

– expected return on investment and expected company growth; required rate of return on equity depends on four value drivers – risk-free interest rate, market risk premium, as well as operating and financial risk. Fernández (2002b) listed some factors which affect value drivers – this is an aspect not present in the Rappaport's (1986) framework. Although Fernández (2002b) was more specific about the factors affecting equity value (via drivers) there was no distinction between internal and external factors – they are blended. Also, the model by Fernández (2002b) does not employ a process-based view to demonstrate value formation.

Another view on the formation of corporate value can be observed in Copeland and Dolgoff (2005). Copeland and Dolgoff (2005) distinguished between external and internal factors, the latter are specified as *internal activities*. They discerned operating drivers of value from financial drivers of value proposing that the former affect the latter, which in turn shape the value of equity. In this regard the framework by Copeland and Dolgoff (2005) resembles the value driver tree by Koller *et al.* (2015). Copeland and Dolgoff (2005) did not classify operating value drivers into short-, medium- and long-term drivers. Nevertheless, their framework cannot be considered as explicit as it addresses neither cost of capital nor debt as important constituents. In the opinion of the author, external factors impact not only operating value drivers but also internal activities; that is, managers of companies make decisions keeping in mind the impact of external factors.

The author finds it necessary to clarify the difference between the terms *driver* and *factor*. The terms *driver* and *factor* are frequently used in financial literature, sometimes interchangeably. According to Copeland and Dolgoff (2005), *a driver* of value is a factor of value but not every *factor* is a driver. Value drivers are rather in-between output indicators; for example, sales growth rate, profit margin, cost of capital and the like, while factors of value are input indicators, such as the amount of workforce available, salary fund, product range, manufacturing time and related items. Managers can operate with factors which in turn transform into value drivers (Copeland & Dolgoff 2005).

It is an open question how many value drivers there are, and which factors or indicators drive value and which do not. Ruhl and Cowen (1990) identified five value drivers, in his framework Rappaport (1986) presented seven drivers, while Turner (1998) proposed eight value drivers. Of those eight drivers proposed by Turner (1998) three are operational – sales growth rate, operating profit margin and income tax rate; and five are investment drivers – replacement fixed capital investment, incremental fixed capital investment, incremental working capital investment, cost of capital and planning period. An approach to corporate value drivers can be quite sophisticated as demonstrated by Koller *et al.* (2015), who presented the concept of the value driver tree in their book. The value driver tree helps to understand how various short-, medium- and long-term drivers of value affect financial drivers of equity value – long-term revenue growth and return on invested capital (ROIC). Whether a particular value driver is rather short-term or long-term depends on how easily the driver can be quantified and

how frequently monitored. According to Koller *et al.* (2015), the underlying element which determines the company's long-term growth and ROIC is organizational health. Organizational health can be understood as an aggregate of the people, knowledge, skills and organizational culture necessary to sustain and improve the firm's long-run performance.

The previous discussion raises the need to develop a more advanced framework of value creation. The author has considered several aspects when developing an elaborated and an updated value framework:

- The framework should concentrate on the value of a company, not only on the value of its equity. Although the present thesis does not specifically focus on aspects of the valuation of debt, it is not proper to exclude the value of debt from the framework: while managers, as agents of shareholders, should focus on increasing shareholder value, it is more appropriate to consider the perspective of investors, which includes creditors. There is also no contradiction with the models by Rappaport (1986), Fernández (2002b) and Copeland and Dolgoff (2005), which focused on equity (shareholder, share) value formation – factors driving the value of equity also drive the value of the company. While the components of equity value are free cash flows to equity and cost of equity, the components of corporate value are free cash flows to firm and cost of capital. In the opinion of the author in the long-run the value of the company is defined by the value of the company's equity; that is, in the long-term the company's value cannot increase solely on account of the value of the company's debt while equity value remains intact. Hence, company value maximization should be beneficial for *both* shareholders and debtholders.
- Based on the fact that the author's framework focuses on the value of the company, it is important to distinguish between the company's core business value and non-core business value. Core business is the line of business the company was originally set up for (Core business definition … 2022). In theory, this should imply that core business is the main source (or sources) of the company's revenues, profits and cash flows, and hence the main source of value. Consequently, non-core business should refer to activities which are not the main sources of free cash flows and not the main source of value. From the practical perspective though, it is possible that non-core business may occasionally generate larger cash flows (and thus value) compared with core activities. The distinction between core and non-core business value is important from the perspective of the different impact of value drivers on core and non-core business value.
- The framework includes value drivers as in Rappaport (1986), Fernández (2002b) and Copeland and Dolgoff (2005), but it is necessary to discern between internal drivers of value and external drivers of value. Internal drivers depend on managerial decisions – operating, investing and financing – whereas external drivers of value are shaped by decisions made by various actors outside the company (the author defines them as *external actors*). It is also imperative to specify which drivers affect free cash flows

and which drivers influence cost of capital. The total number and nature (external or internal, operating or investing) of value drivers is a separate issue – the author largely proceeds from previous approaches with some amendments to be explained later below.

- Besides managerial decisions and decisions made by external actors, the value of the company can be affected by various events, instances and circumstances beyond the control of managers, shareholders, creditors and external actors. It is possible to talk about the impact of nature on corporate value and this should be reflected in the framework.
- Similar to Rappaport (1986), to avoid excessive complexity in a model, the relationship between value drivers and the underlying factors of those drivers will not be reflected. The number of factors is much larger than the number of drivers, it is difficult to depict them all in the framework. In addition, the author of the thesis seeks to develop as universal a framework as possible – from this standpoint, value drivers are more universal while some factors can be company-specific. However, the framework should reflect which decisions affect particular drivers.

As a result of the synthesis of approaches by Rappaport (1986), Fernández (2002b) and Copeland and Dolgoff (2005) and additional considerations, the author of the thesis has developed the framework depicted in the following figure (Figure 3). Subsequently, the author explains his corporate value framework.

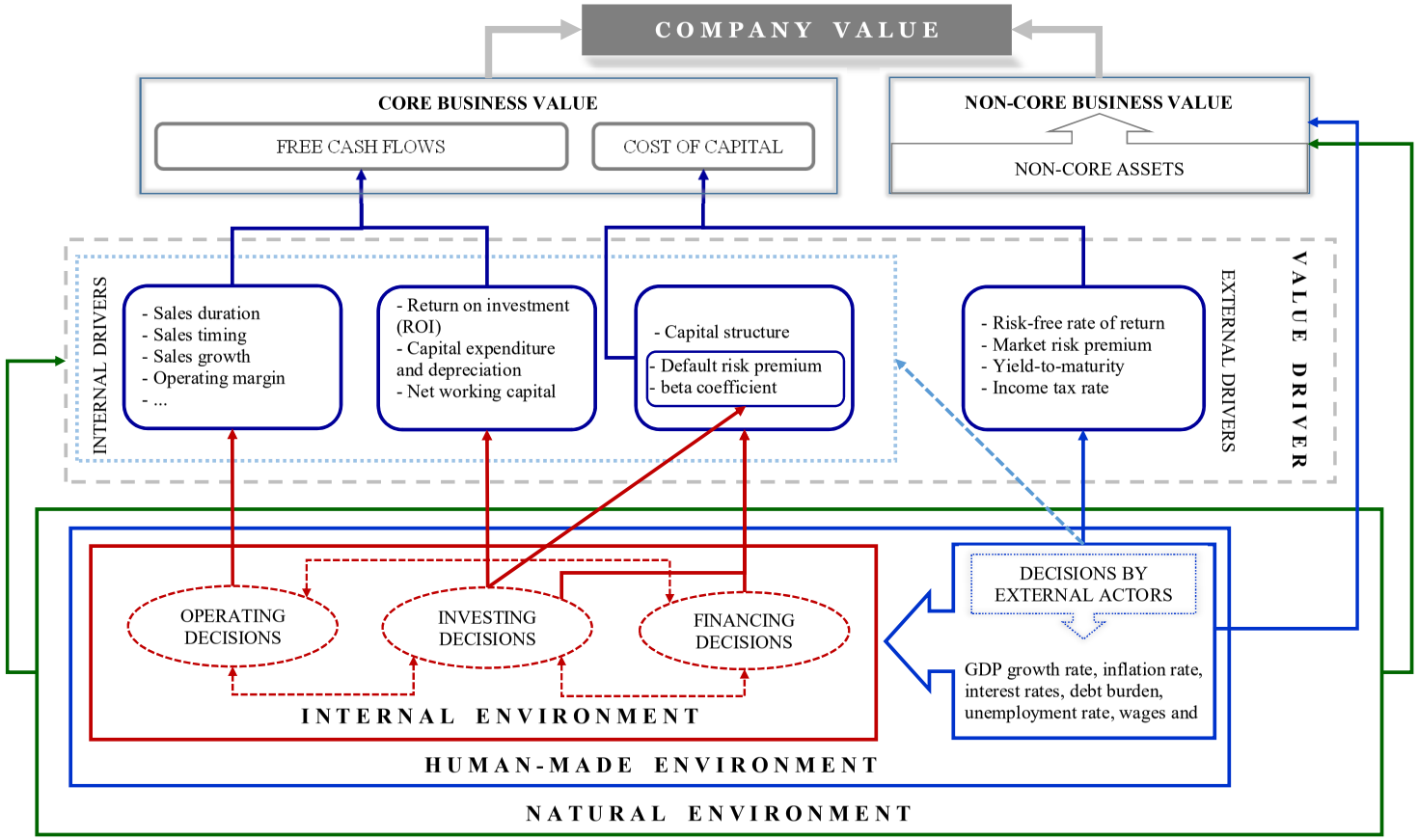

Figure 3. Framework of corporate value creation – the synthesis of Rappaport (1986), Fernández (2002b) and Copeland and Dolgoff (2005) with the author's contribution (compiled by the author)

At the top of the model there is company value. It equals the sum of the market value of equity and the market value of debt. The value of the company can also be presented as the sum of two subparts – the value of the company's core business and the value of non-core business. The value of the company's core business is the same as the value of its core assets and the value of non-core business is the same as the value of the company's non-core assets. It is apt to clarify that regardless of how one approaches the value of the company – through the market value of core and non-core assets or through the market value of debt and equity – the following equivalence must hold:

$$EV = V(A_{core}) + V(A_{non-core}) = V(E_{market}) + V(D_{market}) \quad (11)$$

Where EV denotes enterprise (company) value, $V(A_{core})$ denotes the market value of the company's core assets, $V(A_{non-core})$ denotes the market value of the company's non-core assets, $V(E_{market})$ and $V(D_{market})$ are respectively market values for the company's equity and debt. In other words, the value of the company can be viewed either as the sum of the market value of its core assets and non-core assets or the sum of the market value of equity and debt – this corresponds to the principle of the economic balance sheet according to which the market value of the company's assets is equal to the market value of the claims on its assets (Fernández 2002b).

The value of the company's core business is determined by future free cash flows and cost of capital (as demonstrated in Figure 3), while in the case of non-core business the situation can be different. Non-core business assets may or may not generate periodic cash flows, whether the company's management can influence the value of non-core business is more important. For simplicity, non-core business value is integrated into the present framework so that it does not depend on managerial decisions; that is, there are non-core assets the value of which cannot be controlled by managers of the company. Examples of such assets include excess cash, cryptocurrency, gold, bonds and shares of public companies (on the condition that the company is a minority shareholder in those companies) and some other investment assets. If the value of non-core assets can be influenced by managerial decisions, then expected cash flows (and the respective discount rate) should also be examined. If the company has many controllable non-core businesses – no single business generates most of the value of the company – then the present framework transforms into the value framework of a holding company.

The company's future free cash flows and cost of capital are influenced by different value drivers. Corporate value drivers are among the outcomes of managerial decisions (decisions made in an internal environment); those managerial decisions can be grouped into operating, investing, and financing. Therefore, it is also possible to distinguish three groups of value drivers. The second and third group of drivers (those affected by investing and financing decisions) can be considered financial drivers of value.

The company's operating, investing, and financing decisions are interconnected, which also raises an issue of possible connections between value drivers. For example, operating margin can influence return on invested capital and default risk premium. In reality it can be pretty challenging to group particular drivers; some drivers can be shaped by, for example, both operating and investing decisions. One can also argue that the company's systematic risk is not an outcome of merely managerial decisions, it depends on stock market movements, which depend on actions by many external actors.

In the author's framework, the relationship between internal value drivers and free cash flows is largely based on Rappaport's (1986) approach. The main difference is that the author does not consider cost of capital as a financing driver: cost of capital is a valuation component which is affected by three financing drivers – the company's capital structure (financial leverage), default risk premium, and beta coefficient. The present framework also does not include value growth duration as a separate value driver since, in the author's opinion, inclusion of duration in the framework may create additional confusion. The author acknowledges that the period during which the company can retain high rates of sales growth, profitability, and return is important, but the framework is designed in a static manner.

On the same level with internal drivers, the author positions a group of external drivers which are between the outcomes of the decisions of external actors – these are decisions made in an environment which the author calls the human-made environment. The human-made environment comprises various institutions and organizations, material and immaterial culture, which the company is also a part of. External actors in the human-made environment include government(s), various political institutions, competitors, suppliers, households and the like. Decisions by external actors shape the value of macroeconomic and other relevant indicators, which become components of the business environment the company operates in: GDP growth rate, the level of prices and salaries, various taxes, inflation and unemployment rates, availability and qualification of workforce, and similar elements. The author would consider those indicators inputs of value drivers.

The impact of the decisions of external actors on the value of the company occurs in four ways. First, the decisions of external actors impact external drivers of value, especially risk-free rate of return, market risk premium, yield-to-maturity (market interest rate), and corporate income tax rate, which in turn influence the company's cost of capital. Second, the decisions of external actors affect managerial decisions – it is reasoned that managers of companies do not make decisions that ignore what is going on in the external environment. Third, the decisions of external actors directly influence internal drivers of value – internal drivers of value can change regardless of the impact coming from managerial decisions. For instance, during economic crises, the revenues of many companies plunge despite decisions and actions by those companies directed towards maintaining the level of sales. Or, if the government decides to decrease some rates of some taxes then it will have a positive effect on internal

value drivers without the contribution of the managers of the company. Lastly, external actors' decisions impact the value of the company's non-core assets.

The relationship between external value drivers and cost of capital in the framework is similar to that in Fernández (2002b). Fernández (2002b) considered the risk-free rate of return, market risk premium, and operating and financial risks as drivers affecting shareholders' required rate of return. In the author's opinion operating and financing risks are embedded in operating, investing, and financing decisions – he does not consider them external drivers. In addition to the risk-free rate of return and market risk premium, additional external drivers include yield-to-maturity (market interest rate) and corporate income tax.[7]

As the present thesis focuses on the links between corporate income taxation and corporate valuation, then in the author's view corporate income tax is on the one hand a variable which together with other corporate taxes – value-added or sales tax, labor tax, excise tax etc. – directly and indirectly (via managerial decisions) affects internal drivers of value; it also affects the value of non-core assets combined with the impact of other external indicators. On the other hand, it is one of the external drivers of value which directly affects the company's cost of capital. In Rappaport's (1986) framework, the income tax rate was considered one of the (internal) operating drivers; Turner (1998) also considered it an operational driver of value. Fernández (2002b) considered taxes one of the factors affecting return on investment (i.e., investing driver). Hence, the treatment of corporate income tax as an external value driver is one of the main distinctions between the author's approach and the approaches employed in earlier research.

In addition to internal and human-made environments, the author introduces an additional layer – the natural environment. In the author's vision, the difference between the human-made environment and the natural environment is that the former is an artificial formation while the latter is not. The human-made environment is embedded in the natural environment; the company is part of both the human-made and natural environments. Every company operates in the natural environment (i.e., the environment specified mainly by the company's geographical location, climatic conditions, biomass etc.), which impacts the value of the company regardless of the decisions of managers and external actors.

Such a viewpoint for the classification of environments is somewhat different but similar to approaches that can be found in the literature. For example, Pearce and Robinson (2009) divided a firm's external environment into operating, industry, and remote environments. According to Pearce and Robinson (2009), the firm's operating environment – defined by factors that shape the firm's competitive position – is the firm's proximate environment which is embedded in the industry environment. The industry environment is a part of

[7] It should be noted that "corporate income tax" refers not only to a particular tax rate but also to the rules of taxation.

the remote environment which in turn refers to economic, social, political and other factors, which occur regardless of a particular company's situation and actions. Analogically Alkhafaji (2003) proposed the division of an external environment into task and societal environments. The task environment in Alkhafaji's (2003) framework is comparable to the operating environment in Pearce and Robinson's (2009) framework, while the societal environment in Alkhafaji's (2003) approach can be compared to the remote environment in Pearce and Robinson's (2009) approach.

In his framework, the author of the thesis puts together the operating (task) environment, the industry environment, and the societal (remote) – excluding an ecological component of the societal environment – as elements of the human-made environment. An ecological component is included in the natural environment. For the purpose of building the value formation framework, it is not so crucial to flesh out the human-made environment since the focus is on the value of a particular company.

The direct impact of the natural environment on the value of the company is two-sided: the environment may affect the core and/or non-core business value of the company negatively via, for example, natural disasters that may abruptly decrease the value of the company. In the author's model the impact on the core business value is constructed via the impact on the company's value drivers – an external shock affects value drivers regardless of managerial decisions and actions; the only exception is a case where the company has insured itself against that external shock. The natural environment may create for the company a competitive advantage over other similar companies operating in different natural environments in which case this impact is positive. For example, based on the data from 2016, the cost of the production of one barrel of oil (not including capital spending, administrative and transportation costs as well as gross taxes) in Saudi Arabia was much lower compared to that in Canada or Brazil (Barrel Breakdown 2016). This implies that if Saudi Arabian, Canadian and Brazilian companies had the same drilling technology, infrastructure, capital spending, cost structure, taxation regime, quality of managerial decisions, and if the amount of oil produced and sold by those companies was equal, then the Saudi Arabian company should be valued higher compared with peer companies from Canada or Brazil. In addition, the natural environment affects corporate value indirectly via managerial decisions and the decisions of external actors.

The model in Figure 3 considers the value of the company as the ultimate outcome of the conglomeration of decisions made by managers of the company and external actors set in a specific natural environment that also affects corporate value. Decisions by managers are very important but exposure to decisions by external actors and the natural environment can play a critical role in the formation of the value. The framework depicted in Figure 3 alludes to the significance of the external – human-made and natural – environment in value formation, which is a complementary aspect compared with the frameworks

provided by Rappaport (1986), Fernández (2002b) and Copeland and Dolgoff (2005).

Lastly, it should be noted that the author's framework does not encompass qualitative drivers of value, such as the quality of management and customer satisfaction. These qualitative factors can indeed have a substantial impact on corporate value, but the challenge lies in the limited availability of information on these factors. Furthermore, quantifying the influence of qualitative factors on a company's value is often difficult. (Gross 2006)

Coming back to the discussion of the relationship between corporate income taxation and corporate value, then (as Figure 3 may suggest) the corporate income tax rate is perhaps not the most crucial driver of company value compared with other internal and external drivers. However, the importance of different drivers may depend on the firm's field of operation (industry) and the phase of the firm's life cycle. Companies in their early stages of development – when they are usually unprofitable – focus on tuning their business models, increasing sales revenue, optimizing costs; income tax planning and tax optimization is not a topical issue. For instance, Zhu *et al.* (2003) found that the value of electronic business was driven by technology integration, firm size and scope, financial resources, and the regulatory environment; according to Yoo *et al.* (2012), key value drivers for startup companies in the new media industry are technological stage, market size, lock-in effect, technological competency, and key talent. But even for mature companies the importance of income tax as a value driver can be at a different level. For example, the analysis of Dutch public companies by Akalu (2002) demonstrated that for companies operating in the chemical and machinery and equipment industries, income tax was the value driver of the highest rank; for companies operating in the food industry, income tax as a value driver ranked second after interest expenses.

For companies operating in countries with no corporate or any income tax – most of these are offshore financial centers, such as the Bahamas, Bermuda, Cayman Islands and others – the issue of the impact of income tax on corporate value is not vital (Corporate tax rates table… 2022). However, in most of the countries where taxation of corporate profits takes place, corporate income tax certainly affects the company's value. The simplest way to comprehend that mechanism is via cash flows generated by the company: corporate income tax reduces the company's earnings, which in turn reduces the company's periodic free cash flows. The smaller the cash flow the smaller the company's value (*ceteris paribus*). One can think that for incorporating the impact of corporate income tax on the value of a company it is just necessary to estimate the company's future profits before tax. However, the problem of the impact of corporate income tax on the value of the company might not be simply reduced to a periodical difference between corporate pre-tax and after-tax earnings; this impact may reveal itself in several ways.

Any system of corporate income taxation is not only about one tax rate – it is a comprehensive set of rules (or lack thereof), with various exceptions and exemptions. For example, companies can defer their tax liability under certain

conditions, and use tax credits for businesses. It is possible to diminish tax liability via various deductions; for example, using interest payments on debt and depreciation allotments. Companies may operate under a system of progressive corporate income taxation, which complicates valuation as income tax liability depends non-linearly on taxable earnings. Although jurisdictions with progressive corporate income taxation are becoming more and more rare nowadays, there are still notable exceptions. One such example is Argentina, which employs three corporate income tax rates (25%, 30%, and 35%) based on the taxable income of the company (Argentina – Corporate… 2023). Some countries had shifted to flat corporate income taxation only recently. For example, the United States eliminated their progressive corporate tax rate structure in 2018, replacing it with a flat tax rate of 21% (Corporate Tax Reform… 2018). French companies have started to pay a flat tax rate of 27.5% on their earnings since 2021 (reduced to 25% from 2022); until this year in France annual corporate profits of companies[8] up to 500 thousand euros were taxed at 28%, and profits above 500 thousand euros were taxed at 31% (France – Corporate … 2022).

Complicated nuances in taxation may arise in the process of valuation for mergers, acquisitions, spin-offs, and transitions of ownership from one legal entity to another. The picture gets more kaleidoscopic when analyzing the impact of income taxation on corporate value for enterprises operating internationally, as the rules of corporate income taxation differ from country to country.

In the opinion of the author, the taxation of profits can be viewed as both a quantitative and a qualitative input in valuation: the income tax rate is a quantitative input, whereas the obscurity (clarity) of the system of corporate income taxation is a qualitative input. In this the obscurity (clarity) may refer to both the complexity (simplicity) of the taxation rules, as well as to the predictability and stability (or lack thereof) of those rules. From the perspective of the value of a company, it is crucial not only to operate in an environment with favorable tax rates but also within a setting characterized by clear, simple, and stable taxation rules. This helps mitigate tax risks. Hence, problems associated with the misvaluation of companies may occur due to ignorance about the quantitative impact of income tax on the value as well as due to an incorrect interpretation of the rules about the taxation of profits. To put it differently, a specific valuation model may contain the correct value for the corporate income tax rate but be applied on incorrect grounds – this aspect is especially relevant in the Estonian context. A review of previous theoretical research on the links between profit taxation and corporate valuation is presented in section 1.2.3 of the current subchapter. Prior to that in Section 1.2.2. the author provides a brief overview of various systems of corporate income taxation jointly with personal income taxation. The author also attempts to position the distributed profit-based taxation system within those systems to clarify its distinctive character.

[8] With annual turnover over 250 million euros (France – Corporate … 2022).

In conclusion, the author would like to emphasize that it is impossible to work through all the corporate income tax-related details to clarify all the possible ways income taxation may affect valuation – this goes beyond the scope of the present dissertation. The point the author wants to make is that the impact of profit taxation frequently cannot be estimated in a simplistic form, especially in the world of diverse tax systems and nuanced rules. On the other hand, valuation models cannot reckon with all the facets of corporate income taxation, as the models would lose their compactness and practicability.

1.2.2. The position of the system of distributed profit taxation among systems of corporate-personal income taxation

In order to better understand the position of the distributed profit-based taxation system, it is necessary to get acquainted with the main systems of income taxation. A huge variety of income taxation systems exists, but it is possible to group them into the major categories. The author proceeds from Cnossen's (2015) classification of taxation regimes (see Figure 4 on the next page), which emanates from the relationship between corporate income taxation and personal income taxation. This is an important aspect since from the valuation perspective, especially in the case of the valuation of companies operating under DPT, the relationship between corporate and personal income taxation is substantial. In other words, when trying to understand the implications of a particular tax system for the valuation of companies and the possible advantages of this system over others, it is not proper to exclude income taxation at the personal level. The author amends Cnossen's (2015) original framework by including the distributed profit-based taxation system – in Figure 4, the blue text boxes and lines denote the part added by the author of the thesis.

At one end of the spectrum, there is the classical corporate income taxation system (or a classical system). As written above, under a classical tax system a company and its shareholders are treated as two separate entities; that is, there is no integration of corporate and personal incomes. This means that profits are taxed twice, once at the corporate level and a second time at the shareholder's level. Under a vanilla classical system shareholder's income from profit distribution is taxed at a rate that is equivalent to that applied to any other capital income (e.g. interest income); a modified version of the classical system implies a lower income tax rate for dividends compared to other types of capital income (Part II Taxation of corporate… 2022). In light of international tax competition, countries may provide relief for the taxation of dividends but there are still countries employing a conventional classical system in the world today: according to OECD.Stat such countries are Lithuania, the Netherlands, Slovenia, Spain and Sweden (Table II.4. Overall… 2022).

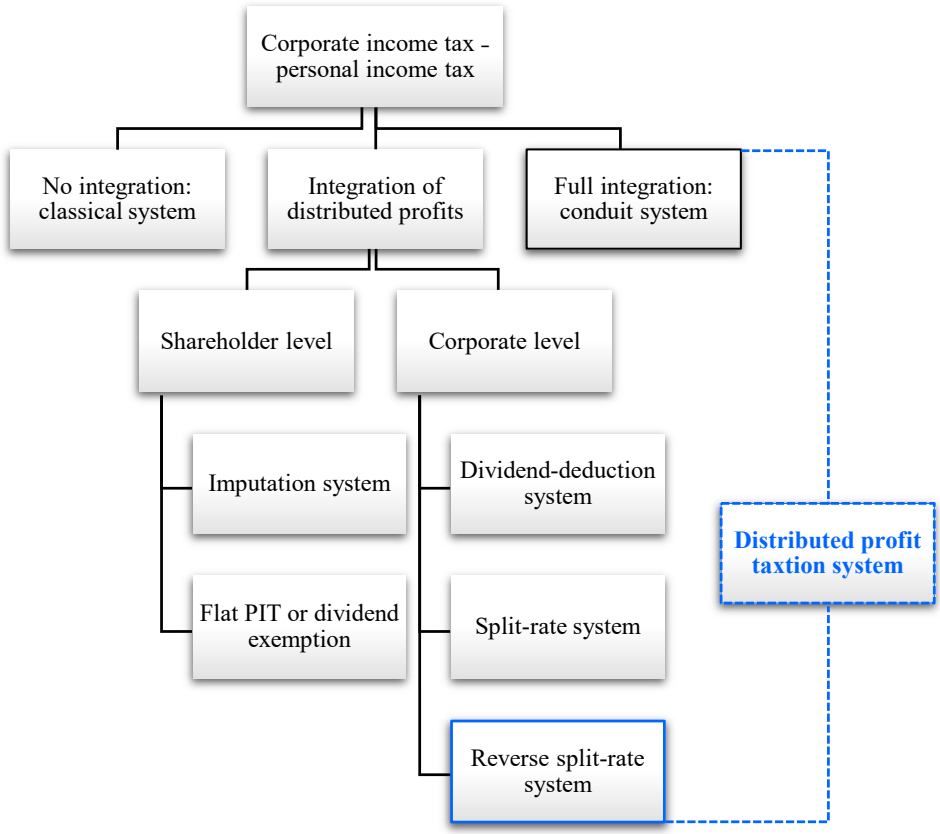

Figure 4. The relationship between corporate income tax and personal income tax (Cnossen (2015) with the author's modifications highlighted in blue)

At other end of the spectrum, there is a conduit system that is based on the principle of full integration according to which the company and its shareholders are treated as one entity. Under a conduit system, earnings flow through the company, and are taxed at the owner's level through a personal income tax rate. Companies operating under such a system are called flow-through entities (FTEs). Most notable examples of FTEs include S corporations in the US, also various partnerships in common law countries (What is A Flow-Through Entity? 2022).

S-corporations in the United States are businesses that opt to pass corporate income (losses) and credits through to their owners for the purposes of federal income tax. Such a status was established by the US Congress in 1958 in order to promote small business in the country. Shareholders of such corporations report their income and losses on their personal tax returns and are assessed through individual income tax rates. There are certain criteria an entity has to meet in order to qualify for the status of an S corporation (no more than 100 shareholders who can be either individuals or certain trusts and estates, only one

class of stock etc.), which only makes it suitable for running small and family-owned businesses (Price 1959; S Corporations 2022).

It is interesting to note that for several decades the total number of S corporations and other pass-through entities in the US has steadily increased while the total number of conventional C corporations has declined. According to The Internal Revenue Service (IRS) of the US, of 6.5 million active corporations in the United States in 2019 approximately 5 million were pass-through entities. Besides S corporations, other pass-through entities also include regulated investment companies (RICs) and real estate investment trusts (REITs). The share of pre-tax profits (with certain inclusions) for S corporations in 2019 was roughly 19%[9] of all the corporate pre-tax profits (Pomerleau 2015; Statistics of Income—2019 … 2022).

It is important to note that shareholders of S corporations pay income tax on the whole amount of net income, regardless of whether it is distributed or not. This also applies to losses that can be passed-through to the owners (S Corporations 2022).

Between these two extremes there are systems based on a partial integration of distributed profits (i.e. dividends), or dividend relief systems. The integration of distributed profits can take place at corporate or at shareholder level. At corporate level, the integration of dividends can take place either through a system of dividend deduction when dividends are deducted from taxable earnings or via a split-rate system when dividends are taxed at a lower income tax rate (Cnossen 2015).

At shareholder level dividend relief can be provided on an ad hoc basis or systematically. When relief is provided in an ad hoc manner then dividends are taxed at a flat personal income tax rate, which is lower than the top marginal tax rate or excluded, fully or partially, from personal taxable income. The systematic provision of dividend relief takes place under the imputation system: in this case shareholders are granted a partial or full tax credit against their personal income tax rate against the corporate income tax rate that can be imputed to the dividends received, grossed-up by the tax credit, and received by them (Cnossen 2015).

To demonstrate how the imputation system works vis-à-vis a classical system we can use the following hypothetical example. Suppose a company earned Ω euros of pre-tax profit and the corporate income tax rate is t_c. In this case after-tax earnings equal $\Omega(1 - t_c)$ euros and income tax paid to the tax authority by the company would be $\Omega \times t_c$ euros. Suppose the company decided to distribute all of its after-tax profit as dividends, then the shareholders would receive $\Omega(1 - t_c)$ euros but they are also entitled to $\Omega \times t_c$ euros at the tax office; the amount of $\Omega \times t_c$ euros is called franking credit or imputation credit. If we denote the amount of dividends paid to shareholders as Θ then the amount

[9] Pre-tax profits of S Corporations in 2019 were 627.79 billion USD, pre-tax profits of all the corporations were 3 315.81 billion USD (Statistics of Income—2019 … 2022).

of franking credit can be calculated as $\Theta\frac{t_c}{1-t_c}$. Hence, grossed-up dividends; that is, the sum of dividends and franking credits, is equal to Ω euros. The amount of personal income tax to be paid by the shareholder depends on his/her marginal tax rate: if the applicable personal income tax rate t_p is higher than t_c then the shareholder has to pay additional tax in the amount of $\Omega(t_p - t_c)$; if the applicable personal income tax rate is lower, then the shareholder may consider the amount of $\Omega(t_p - t_c)$ as a tax refund. It also has to be mentioned that this example relies on the assumption of fully franked dividends; that is, dividends for which the franking proportion is 100% (or 1); in the case of partially franked dividends, the amount of franking credit is calculated as $\Theta\frac{t_c}{1-t_c}\omega$, where $0 < \omega < 1$ (How dividends are taxed 2019).

Probably the area of the imputation system is the most complex to embrace as it contains various modifications. The imputation system is interesting in the context of the present thesis, as a significant number of theoretical studies is devoted to the adjustment of valuation models under the system of imputation which will be discussed later in the chapter.

As mentioned earlier, Cnossen's (2015) original classification did not include the distributed profit-based income taxation system. DPT sprouted in 2000 when Estonia conducted a tax reform which was unique at the time. The essence of the reform was the replacement of total profit taxation with distributed profit taxation. According to the new system, starting from 2000 Estonian companies had to pay income tax only on distributed profits,[10] fringe benefits, non-business-related expenses, and hidden profit distributions (e.g. payments to off-shore countries); in the same vein, individual shareholders, who are natural persons, were not obligated to pay additional income tax on their received dividends. That kind of profit taxation allowed the double taxation of profits to be eliminated, which is a feature of the classical (traditional) profit taxation system where profits are taxed twice: first at corporate level and then at investor level, when part of previously taxed profit is paid as dividends. Funke (2002) pointed out that until 2000, Estonia's system of corporate taxation worked as if it was an imputation system, where the imputation rate equaled the corporate income tax rate;[11] the characteristics of the imputation system will be discussed later in the thesis.

The purpose of the new law was to foster the development of entrepreneurship, create new jobs and attract investments. The initiators of the law anticipated a decrease in corporate income tax revenue. However, the tax reform would contribute to an increase in income for natural persons, which in

[10] Initially taxation of distributed profit applied only to dividends but since 2009 this was also extended to share buybacks and payments from the reduction of share capital and company liquidation.

[11] Details (in Estonian) can be also found in *Ettevõtete jaotamata kasumi mittemaksustamise mõju investeeringutele ja majandusarengule* (2010)

turn would lead to increased inflow of personal income tax, as well as social tax. In addition, an increase in consumption would lead to an increase in proceeds from value added tax. Therefore, it was expected that the reform would result in a positive substitution effect in terms of total tax receipts. Additional reasons behind the tax reform was to introduce Estonia as an entrepreneur-friendly state and attractive investment target country (Ettevõtete jaotamata kasumi … 2010).

Although the Estonian system of distributed profit-based taxation was unique at the time it was introduced in 2000, this system did not appear out of thin air. It is possible to find examples of systems with similar traits in the history of corporate taxation. For example, in 1962, the United States adopted investment allowances and investment credits, which permitted businesses to deduct a specified percentage of capital expenditure from their taxable earnings in addition to the standard allowance for depreciation. Both investment allowances and credits were eliminated by the Tax Reform Act of 1969 in light of rising inflation (Congress, U.S. 1962; Investment credit 2022). In Chile, over the period 1984 to 1986, the income tax rate on retained earnings was decreased from approximately 50% down to 10% (Hsieh & Parker 2007).

Positioning the distributed profit taxation system into Cnossen's (2015) framework may seem quite a challenging task. Certainly, it is very distinct from the classical system as, for example, under the Estonian version of the DPT system there is no double taxation of profits (essentially, the DPT system only implies there is no taxation of retained earnings, but it does not imply a lack of double taxation). There are some similarities between the DPT and full integration system: under DPT, tax on dividends is actually a withholding tax paid by companies but this applies only to the distributed part of net profit, as in the case of the full integration system. There are also some similarities with dividend relief systems, as distributed profits are treated (taxed) differently than retained ones. Still, dividend relief systems aim to lower the tax burden associated with the double taxation of profits; that is, so that the effective tax rate on distributed profits is smaller than $1-(1-t_c)(1-t_p)$, which is not the case under the DPT because under (the Estonian version of) DPT profits are taxed only once, at the corporate level. These nuances again prove that the distributed profit-based system of corporate taxation is unlike any other.

Still, when trying to position the distributed profit-based taxation system among other systems, in the author's opinion, the distributed profit taxation system is a blend of dividend relief systems and the full integration system. More precisely, it can be considered a hybrid of the reverse split-rate system and the full integration system, which exploits the advantages of both systems.

If under the split-rate system distributed profit is taxed at a lower rate than undistributed profit, then under a reverse split-rate system it would be vice versa. Under the Estonian system of income taxation, the tax rate on distributed

profit is 20% while 0% on retained earnings.[12] However, the advantage of the Estonian system over the reverse split-rate system is that a shareholder does not have to pay additional personal income tax on received dividends.[13] Profit is taxed only once, as in the case of the full integration system. But as mentioned earlier, under the Estonian system income tax has to be paid only on distributed profits, not total net earnings – this is an advantage of Estonian system over the full integration system. In other words, the advantage of the DPT system over the system of full integration lies in the postponement of tax payments on retained earnings.

In an extreme case, if a company operating under the DPT and a company operating under the full integration system distribute every year all of their earnings (*ceteris paribus*), then the tax burden of shareholders of the two companies is equal. This means that under certain assumptions the DPT system is equal to the full integration system.

Figure 4 demonstrates that the DPT system is substantially different from other systems of income taxation although certain similarities with particular systems can be detected. This complete picture also has important implications from the research perspective: such a distinctness has considerable implications; for example, for financing, investment, and payouts (i.e. fundamental financial decisions made in companies). In the context of this dissertation, one can claim that the valuation of businesses under distributed profit taxation has to proceed from different grounds compared with other systems of income taxation. This different approach to business valuation also implies that valuation models must be adjusted to work with the peculiarities of the DPT system.

1.2.3. Corporate income taxation and corporate valuation – review of thematic studies

Theoretical research on the relationship between corporate income tax and corporate value has been extensive, and as most of the studies have been in the field of financial economics, they have mainly been US-centered. This

[12] 0% tax rate on retained earnings makes it even a *special* case of the reverse split-rate system. Theoretically, a system analogous to the current DPT system can be designed so that retained earnings are taxed at a non-zero tax rate of, let's say t' percent and distributed profit at rate t'' percent where $t' < t''$. To avoid distortions with taxation, under such a scheme profits whose distribution is postponed have to be taxed at rate $t'' - t'$ at the moment of distribution. Because in Estonia currently t'=0 then $t'' - t' = t''$.

[13] Actually, if dividends are so-called regular, then a company has to pay 14% income tax, and the shareholder has to pay a personal income tax at rate of 7% on received dividends (Income Tax Act 2023). Aspects of the taxation of so-called stable dividends versus unstable dividends will be discussed in Chapter 3 of the thesis. The author will demonstrate that differences in taxation of unstable and stable dividends do not alter the value of the company under the DPT to its shareholders. Hence, regular dividends should also not alter valuation principles of companies operating under DPT.

discussion can be tracked back to extensively cited papers by Modigliani and Miller (1958), Modigliani and Miller (1963), Brennan (1970), Kraus and Litzenberger (1973), and Brennan and Schwartz (1978), where the impact of income tax is considered via company financing policy (capital structure) and/or dividend policy. A significant part of this discussion revolves around the interest tax shield; that is, the income tax savings companies obtain through increased financial leverage.

The connection between income tax and the valuation of companies can be examined through the effect of corporate income tax (or profit tax), investor (shareholder) level income tax (or personal income tax) or both. The author's research interest is primarily related to corporate income tax but a remarkable number of papers covers the impact of both corporate and investor level income tax.

Theoretical studies on the relationship between corporate (and personal) income taxation and corporate valuation can be grouped into several subdomains depending on the object(s) of study. Bundling studies into subdomains is largely a subjective matter, and different authors may develop different approaches. After reviewing the large body of theoretical research on the connection between income taxation and corporate valuation, the author of the present thesis proposes the following research subdomains:

- modifications of the dividend discount model using personal income tax,
- income tax treatment issues in the valuation of S corporations,
- income tax-related adjustments under a dividend imputation system,[14]
- adjusting discount rates using income taxes.

Some studies may be placed in a few subdomains; for example, if they discuss the tax-adjusted cost of capital formulas under a dividend imputation system. In this case the author places the study into a more relevant subdomain based on the scope of the study.

Modifications of the dividend discount model using personal income tax. The conventional dividend discount model by Gordon and Shapiro (1956) presented above (formula 5) suffers many deficiencies, one of them being the absence of both corporate and personal income taxation. A number of studies on the impact of income taxation on the valuation of companies is dedicated to amendments of the conventional dividend discount model using *personal* income taxes, which consist of dividend and capital gains tax. The case that the effect of corporate income taxation was not considered in those studies can be explained by the fact that dividends were treated as after-corporate-tax dividends. This framework is applicable in the context of (modified) classical corporate income taxation systems, where a company and a shareholder are treated as two separate entities. In this case, shareholders cannot influence the amount of tax paid by the company; valuation analysis revolves around taxation

[14] This subdomain can be generalized to income tax-related adjustments under any nonconventional (i.e. non-classical) system of corporate income taxation.

at the personal level. Equity value for the shareholder is determined by dividend and capital gains tax, and how large the difference is between the taxation of dividends and capital gains.

Probably the first paper of the kind in this subdomain is by Haugen and Heins (1969), who accounted for the impact of shareholder-level dividend and capital gains taxes on the stability of equity value. It was shown that the stability of the stock value under changing discount rates and return on assets was not related to the dividend tax rate but directly related to the capital gains tax. Similar results were later reported by Gordon and Gould (1978). Gordon and Gould (1978) observed company activity in a situation where share yield and return on investment in future periods are independent of current investment decisions. An important expansion of Gordon and Gould (1978) consists in establishing the relationship between the shareholder's after-tax required rate of return and pre-tax required rate of return – in the situation where dividends do not grow, the pre-tax required return of rate is accommodated to the dividend tax rate. An additional nuance is in the fact that when the tax rate on dividends equals the tax rate on capital gains, then dividend growth does not influence the after-personal-tax required rate of return.

While the conventional Gordon-Shapiro model assumes an infinite holding period of equity, Chiang and Rodriguez (1990) developed a generalized version of the dividend discount model for a finite number of holding periods with an investor's ordinary and capital gains tax. In other words, Chiang and Rodriguez (1990) developed a model applicable to the valuation of assets which have a finite life horizon.

O'Brien (1991) elaborated the formula by Haugen and Heins (1969) by decomposing the required rate of return into two components – required rate of return from future risky cash-flows and required rate of return from future risk-free cash-flows. O'Brien (1991) also noted that dividend growth rate was not independent of tax rates on dividends and capital gains. O'Brien's (1991) model was further complemented by Pointon (1996), who adjusted the model for inflation and an infinite number of periods. Pointon (1996) also paid attention to an optimal asset-holding period: an equity holding period was not relevant when the after-tax risky rate of return discounted at the equity dividend growth rate was equal to the after-tax risk-free rate discounted at the inflation rate. To a larger extent the model developed by Pointon (1996) is similar to that of Haugen and Heins (1969).

Dempsey (1996) proposed a share valuation model, where share capital value at the present moment stands for a discounted stream of future capital gains. The model by Dempsey (1996) takes into account the change in share price after the payment of expected dividends; that is, it represents the equity ex-dividend price at the present moment.

Income tax treatment issues in the valuation of S corporations. From the point of view of features of the Estonian system and similar systems of corporate income taxation, this subdomain of research is of particular interest.

Unlike in Estonia, in the US a small company can select its profit taxation status, which is quite an uncommon phenomenon. The selection of taxation status alters the shareholders' tax burden, which in turn may (or may not) affect the value of the company for the shareholders. Theoretical studies in this sub-domain discuss the problems of how to treat income taxation when valuing S corporations, as well as the valuation of S corporations vis-à-vis the valuation of C corporations. This discussion has been quite specific, as the majority of the papers have been published in the *Business Valuation Review*.

Leung (1987) was probably the first to discuss the issue of the valuation of S corporations in light of the US Tax Reform Act of 1986, as this tax reform encouraged many companies to select S corporation status. Leung (1987) pointed out that the value of S corporations had to be higher compared to non-S corporations due to the tax savings. He also noted that the change in the rules of taxation might create confusion among practitioners due to different understandings and interpretations of those rules.

Shackelford (1988) demonstrated how much higher the value of an S corporation should be theoretically than the value of a respective C corporation. Based on quite simple assumptions, he concluded that the value of an S corporation shall be approximately twice higher than the value of a comparable C corporation; Leung (1987) assessed that the value of an S corporation would be higher by only 9%.

Condren (1993) discussed the after-tax benefits and costs of business ownership in an S corporation depending on the S corporation's capital intensity. He also stressed that it was incorrect to consider corporate income tax as an expense of the S corporation. Johnson (1995) demonstrated how various tax treatments of cash flows could lead to under- and overvaluations of S corporations. Later, Wiggins *et al.* (2000) proposed a treatment of income taxes in the valuation of S corporations that differed from the two primary and extreme approaches – one extreme was to treat S corporations as C corporations and the other was to ignore income tax in the valuation.

Dufendach (1996) argued that the value of an S corporation can be both higher or lower compared with the value of a C corporation depending on the specific situation and circumstances. According to Dufendach (1996), the valuation premium for a pass-through entity could not be embraced using a formula-based approach.

Cassiere (1994) provided a conceptual method to quantify the tax benefits associated with the selection of the S corporation status. The method provided by Cassiere (1994) holds if the S corporation pays all the shareholders' personal taxes on the S corporation's income in the same way as a C corporation pays corporate income taxes.

Sliwoski (1998) discussed the problems of the valuation of S corporations using discount or capitalization rates derived from C corporation-based data. Using this technique can be problematic, as the level of risk for S and C corporations is different. As a result, using the discount or capitalization rates of C corporations to discount the earnings or cash flows of S corporations may

lead to a mis-valuation of these companies. A similar issue is addressed in Fannon (2007).

In their study, which is the most cited study in this subdomain, Denis and Sarin (2002) focused on the difference in the values of S and C corporations; the authors quantified the net tax advantage of S corporations. According to Denis and Sarin (2002), the value of an S corporation is higher than the value of an analogical C-corporation (*ceteris paribus*). This difference is positively affected by the dividend payout ratio and corporate income tax rate, and negatively by the personal income tax rate (Denis & Sarin 2002: 10). Similar results were also obtained by Finnerty (2002).

Van Vleet (2004) derived an S corporation equity adjustment multiple (SEAM) aiming to demonstrate the net economic benefit for an S corporation shareholder over the net economic benefit for a C corporation shareholder. This adjustment multiple is applicable to the valuation of non-controlling equity ownership. SEAM depends on the capital gains tax rate (of 15%), C corporation effective income tax rate (30% to 40%), individual effective income tax rate (30% to 40%), dividend tax rate (15%) and (C corporation) dividend payout ratio. According to Van Vleet's (2004) model, at any given payout ratio the value of an S corporation is higher vis-à-vis the value of the C corporation under the highest corporate income tax rate (40%) and lowest individual income tax rate (30%). Under a corporate income tax rate of 30% and individual income tax rate of 40%, the values of non-dividend paying S and C corporations are almost identical.

Ratliff and Burns (2017) proposed an extension of the SEAM. While Van Vleet's (2004) original model assumed that an S corporation operated for perpetuity, Ratliff and Burns (2017) developed technique to value S corporations also under a non-perpetuity assumption, where an advanced method could be customized for a specific period.

Income tax-related adjustments under a dividend imputation system. There is also a stream of theoretical research dedicated to the discussion and adjustments of valuation formulae under unconventional tax systems, such as the dividend imputation system, which is effective in Australia, Canada, Chile, Malta, Mexico and New Zealand; the United Kingdom and Korea have a modified dividend imputation system (Table II.4. Overall… 2022). Some countries (e.g. Germany, Singapore, and Italy) employed the imputation system in the past but repealed it for various reasons (Ainsworth 2016). As mentioned earlier in the thesis, under a dividend imputation system some or all of the tax paid by a company may be imputed (i.e., passed on) to the shareholders in the form of tax credits to reduce the amount of income tax payable on a distribution which prevents double taxation for shareholders of the company (Imputation 2016).

A significant number of studies focusing on the implications of a dividend imputation tax system for the valuation setting started to emerge at the end of the 1980s. The need for the adjustment of capital structure and dividend policy related formulae within the context of a country's taxation was demonstrated in

Ashton (1989a). In Ashton (1989b), a capital asset pricing model (CAPM) was developed in the context of the British imputation tax system. Monkhouse (1993) derived a CAPM for the Australian dividend imputation tax system. Officer (1994) demonstrated that the value of imputation credits for the marginal shareholder is an essential item in the valuation of companies. Monkhouse (1996) showed how the modified weighted average cost of capital (WACC) methodology can be applied to value companies and projects under the Australian dividend imputation tax system; the adaptation of the adjusted present value (APV) methodology to the dividend imputation tax system is presented in Monkhouse (1997). Lally (2000) developed valuation formulas for the situation with both dividend imputation and differential taxation of interest and capital gains. There are other specific issues discussed in theoretical papers that were published afterwards; for example, refinement of the cost of equity models under a dividend imputation system – one can find them in studies by Lally and van Zijl (2003) and Dempsey and Partington (2008).

Income tax-adjusted discount rates. In terms of published papers, this subdomain is probably the most extensive, and the sheer number of studies is hard to grasp. The author does not mention all the papers but rather focuses on the most cited and relevant to the scope of the present thesis.

In many papers in this subdomain discount rates – either cost of capital or cost of equity – are adjusted for corporate income tax due to the effect of an interest tax shield. This is the case of financially leveraged companies operating under a classical income taxation system. That is, the issue of corporate taxation in those studies is considered for companies that finance their operations with debt and equity. Alternatively, this stream of papers can be considered as studies dealing with the valuation of interest tax shields.

One of the earliest and most cited studies in this subdomain is by Modigliani and Miller (1963), who derived the cost of equity formula for a financially leveraged company in a situation with the taxation of corporate profits. Their model is grounded on the assumption that the company used risk-free debt with an interest rate equal to the risk-free rate of return. Stapleton (1972) extended the Modigliani and Miller (1963) model by incorporating personal income taxes on dividends, interest, and capital gains into the cost of equity. It was demonstrated that the effect of debt on the cost of capital can be smaller or higher compared to the effect proposed by Modigliani and Miller (1963).

Myers (1974) developed the adjusted present value (APV) method according to which an investment project should be valued as if it was all equity financed. This value should be adjusted by adding the present value of the interest tax shield as well as other side effects of debt financing. The APV method is similar to the DCF method; the main difference is that under APV cash flows are discounted at unleveraged cost of equity, and tax shields are discounted at cost of debt.

Miles and Ezzell (1980) developed the cost of capital formula for a company with a constant leverage (debt-to-value) ratio. They showed that if the cost of

equity used to discount unleveraged cash flows does not depend on the timing and magnitude of a stream of unleveraged cash flows then an appropriated discount rate required to value a stream of leveraged cash flows also does not depend on the timing and magnitude of a stream of unleveraged cash flows. In other words, cost of capital in this situation depends on unleveraged cost of equity, cost of debt, leverage ratio and corporate income tax.

The study by Harris and Pringle (1985) provided an unsophisticated extension of the weighted average cost of capital (referred to as the weighted average approach) to value investment projects of different levels of risk. An important contribution from Harris and Pringle (1985) consists of demonstrating how different approaches to interest tax shield valuation – Modigliani and Miller (1963), Miller (1977), Miles and Ezzell (1980), weighted average – lead to different values of unleveraged required return, although the observed value of a leveraged firm is the same under all four approaches.

Sick (1990) derived the model of tax-and-risk adjusted discount rates under the assumption of a constant corporate debt ratio during an investment project's lifetime and differential personal taxation of interest and equity income. His model included several income tax rates: marginal corporate tax rate for the (investment) project, marginal tax rate of the marginal firm in a general tax equilibrium, and marginal tax rates on interest income and equity income for the marginal investor. Under Sick's (1990) framework, the tax-and-risk adjusted discount rate depends on the risk-adjusted all-equity discount rate, after-tax cost of riskless equity, net tax shield, yield on risk-free debt, and leverage ratio. The model by Sick (1990) implies that the values of tax shields for a risky debt and a risk-free debt are equal, and that the debt tax shield has to be discounted at equity rate of return, not debt rate of return as the gain from financial leverage accrues to shareholders.

The study by Taggart (1991) can be considered a synthesis and advancement of the studies by Myers (1974), Miller (1977), Miles and Ezzell (1980), and Harris and Pringle (1985). Taggart (1991) provided a summary of valuation formulas, including discount rates, with corporate and personal income taxes. Focusing on three valuation methods – adjusted present value (APV), WACC and flows to equity (FTE) – Taggart (1991) not only derived the valuation and cost of capital expressions, which included the corporate income tax rate, as well as the personal tax rate on equity and debt income but also proposed a roadmap for selecting a valuation method with corporate and personal income taxation. The choice of the method depends on the character of the cash flows (perpetual, finite, and/or uneven) and riskiness of future debt tax shields. The analysis by Taggart (1991) assumes the absence of default risk of the debt.

Several papers on tax-adjusted discount rates have been published by K. G. Nyborg and his co-authors. Cooper and Nyborg (2004) developed a set of relationships between values, rates of return and beta coefficients depending on income tax. Among other things they derived the corporate income tax-adjusted (but pre-investor tax) cost of capital and cost of equity formulas under an extended Miller-Modigliani and Miles-Ezzell framework. Cooper and Nyborg

(2004) also discussed the tax advantage of debt under a dividend imputation system. One of the important conclusions of the paper is that formulae of investors' required rates of return under classical income taxation are different from those under a dividend imputation system.

Cooper and Nyborg (2008) developed a tax-adjusted discount rate for a company that has risky debt and follows a constant leverage policy. The formula was developed under the Miles-Ezzell assumption – the present value of tax savings has to be discounted using the yield on the debt. While the model by Cooper and Nyborg (2008) assumed no debt recovery in default, Molnár and Nyborg (2013) amended the model by Cooper and Nyborg (2008) allowing for a partial default.

This review of thematic studies suggests that the relationship between corporate income taxation and corporate valuation is not so straightforward. The general conclusion is that when applying a particular valuation model, it is necessary to take into consideration various aspects: rules of income taxation (national tax system), tax status of the company, relationship between corporate and personal income taxation, possible side effects of debt financing, and so on. This section demonstrated that previous theoretical research was not related only to companies operating under a classical system (with no integration of distributed profits), but also to companies operating under systems of the partial and full integration of distributed profits. However, this literature review also reveals a research gap – previous studies on the theoretical relationship between corporate income taxation and business valuation under non-classical systems have not covered the distributed profit taxation system. Altogether, the valuation models and formulae developed to value companies in a particular business and legal environment cannot be applied in other environments without necessary adjustments, including adjustments for income taxation-related aspects.

1.3. Implications of the distributed profit taxation system – macroeconomic and microeconomic level

Subchapter 1.2 focused on the theoretical relationship between corporate income taxation and corporate valuation. Inter alia, the author demonstrated that the distributed profit-based system of income taxation is distinct from other systems of income taxation. In this subchapter the author of the thesis will provide a review of theoretical and empirical studies on the implications of the distributed profit taxation system. This should help us understand which DPT-related issues have primarily been of interest and also to further clarify the research gap.

Although the distributed profit taxation system has been in effect in Estonia for more than two decades, up-to-date research on the effects and implications of distributed profit taxation has not been very profound, the number of academic studies is not that vast. This can partly be explained by the smallness, and hence low awareness of the Estonian economy, and partly by the lack of

data, especially for research at the company level. Recent years have marked the appearance of a few academic publications focusing on Armenia (Sandoyan & Petrosyan 2019), Georgia (Bolkvadze 2018; Abuselidze & Gogitidze 2020), Latvia (Jurušs *et al.* 2017) and Ukraine (Saha *et al.* 2017), but the amount of studies of Estonia still seems to prevail. Despite the relatively small number of papers, it is possible to find both macroeconomic and microeconomic studies, the former outnumbering the latter.

From the macroeconomic perspective, the main problems studied include the impact of the DPT system on economic growth, and the distributional effects of DPT. One of the earliest papers on the topic of Estonian corporate income taxation is by Funke (2002), who modelled the investment effect of Estonia's 2000 tax reform. Using Tobin's *q* theory and numerical simulations, Funke (2002) demonstrated that the switch to the distribution profit-based income taxation system should have encouraged capital expenditure over the long run. The study also indicates that the differences in tax systems can explain dissimilarities in economic growth rates in different countries.

Staehr (2005) studied the tax incidence of corporate income taxation in closed and open economies from a theoretical perspective using the example of a simple general equilibrium model. Although the developed model did not contain the peculiarities of the Estonian system of corporate income taxation, it did show that while the economic incidence of the taxation of capital income follows legal incidence under a closed economy, in an open economy the whole capital income tax is paid solely by workers, the owners of the capital do not contribute at all.

In their working paper, Funke and Strulik (2006) analyzed the long-range effects of Estonia's 2000 Income Tax Act. A dynamic general equilibrium growth model-based prediction suggested that the tax reform would improve the country's investment climate. The consumption and welfare gains from the reform depend on transitional dynamics and the government's role in the economy: only in the case of a decreasing proportion of government consumption in GDP is the net welfare gain positive.

Later Masso and Meriküll (2011) found that the Estonian tax reform of 2000 had a strong effect on capital accumulation with higher levels of accumulation than predicted by Funke and Strulik (2006). The effects on consumption and output were also positive although weaker compared with the effect on capital accumulation. In addition, the reform contributed to a decrease in debt ratio in the economy due to the advantageous treatment of retained profit.

Staehr (2014) raised the issue of whether it was time to abolish the DPT system, as the macroeconomic effects of distributed profit taxation had been modest. Although distributed profit-based taxation improved company liquidity and made them less reliant on external financing, it also decreased income tax revenue as a percentage of GDP. In addition, Estonia did not outperform other Baltic states, Latvia and Lithuania, in terms of real GDP per capita, adjusted for PPP, especially during the period of rapid economic growth of 2004–2007. The

main conclusion by Staehr (2014) was that the effects of Estonia's switch to the DPT system were rather dispersed, especially at the societal level.

Studies conducted on the example of countries other than Estonia are of a rather macroeconomic focus and were published during recent years. A brief research note by Jurušs *et al.* (2017) discussed the potential introduction of a distributed profit-based taxation system in Latvia and the related strengths, weaknesses, opportunities, and threats. Saha *et al.* (2017) discussed the possible effects of implementing a distributed profit tax – called an *exit capital tax* (ECT) in the study – in Ukraine; they also provided recommendations for the introduction of an exit capital tax in Ukraine. According to estimates by Saha *et al.* (2017), the long run economic effect of an ECT would be positive but rather limited – the fiscal effect would be negative in the short run but positive in the long run; ECT would also be positive from the perspective of its administrative burden. Bolkvadze (2018) discussed the possibilities of improving the DPT system (which he called the *"Estonian" Tax Model*) in the context of the Georgian economy. Abuselidze and Gogitidze (2020) argued that the implementation of the Estonian model in Georgia would not lead to the same macroeconomic results as in Estonia due to the greater instability of the business environment and lower tax culture in Georgia compared to Estonia. Sandoyan and Petrosyan (2019) evaluated the potential effects of introducing an Estonian-like corporate income taxation system for the economy of Armenia; their findings were in line with the findings of Masso and Meriküll (2011) for the Estonian economy.

Probably one of the prime company-level studies on the implications of the DPT system was by Sander (2005), who discussed the tax advantage of debt for Estonian companies. According to Sander (2005), the question of whether the tax advantage of debt existed for Estonian companies or not had no unambiguous answer. The tax advantage of debt depended on the legal status of a company, as well as its dividend policy. There was no tax advantage of debt for a private investor; that is, one should be indifferent about the debt financing and equity financing of the company, while a company belonging to a local government should prefer debt financing. It has to be noted that the results of the study by Sander (2005) were valid in the context of legislation that was in force in Estonia at the beginning of the 21st century.

A stream of studies of company-level financial decisions under DPT has been published by Hazak (2007, 2008, 2009). These studies served as a basis for his doctoral thesis, which was the first thesis written on the topic of distributed profit-based taxation from the perspective of corporate finance.

Hazak (2007) modelled dividend decisions under distributed profit taxation from the investor's perspective using a two-period binomial framework. It demonstrated that dividend decisions (optimal dividend policy) under DPT are significantly different compared to payout decisions under TPT: if a company operating under DPT was not expecting losses in the future it would be optimal to pay dividends which did not exceed the investors' consumption level. Reinvested earnings which earn interest income should be preferred to profit

distribution. Optimal dividend policies in a situation with possible losses are slightly more versatile but still different from policies under TPT.

In Hazak (2008), a theoretical model indicating the impact of differences between TPT and DPT regimes on company capital structure was introduced. One of the main conclusions was that for companies preferring a mixed capital structure (debt and equity), demand for debt under DPT would be smaller compared to that of companies operating under TPT.

It is interesting that both studies, Hazak (2007) and Hazak (2008), shed some light on the theoretical consequences of distributed profit taxation on the value of a company, videlicet on the difference between the values of companies operating under two different taxation systems.[15] For instance, Hazak (2007) presented several propositions (with proofs) where company values under TPT and DPT in the context of corporate dividend decisions were compared. Inter alia, it was brought out that if the corporate income tax rate equaled the dividend tax rate and all the profit was distributed when earned, then the values of companies operating under TPT and DPT were equal. Also, if a company remains profitable and dividend payouts to investors remain below their consumption level, then the value of the company operating under DPT is independent of its dividend policy.

Hazak (2008) provided some evidence that the companies operating under DPT were more advantageous to shareholders compared with companies operating under TPT. We know that the main dissimilarity between companies operating under TPT vis-à-vis DPT is that the former pay income tax at rate τ on the full amount of pre-tax profit PBT they earned during the taxation period, while the latter pay income tax on distributed profit DIV. Therefore, the company operating under the DPT system has to pay in a given year an amount of income tax which is less by $\tau(PBT - DIV)$ compared to the company which operates under TPT.[16] Projecting all future tax savings at the start of the company's operations and discounting them at shareholders' required rate of return $\tilde{r}$ will result in the present value of corporate income tax savings ΔT (Hazak 2008):

$$\Delta T = \sum_{t=1}^{n} \frac{\tau_t \times PBT_t}{(1+\tilde{r}_t)^t} - \sum_{t=1}^{n} \frac{\tau_t \times DIV_t}{(1+\tilde{r}_t)^t} = \sum_{t=1}^{n} \frac{\tau_t (PBT_t - DIV_t)}{(1+\tilde{r}_t)^t} \tag{12}$$

The measure ΔT expresses the tax advantage to a company operating under a system of distributed profit taxation, and it cannot be negative. The formula above makes a couple of conclusions about the size of the present value of tax savings possible. First of all, ΔT depends positively on the corporate income tax rate, profit size and retention ratio (or, alternatively, on the lag between profit

[15] It should be noted that Sander (2005) presented models of the company value under DPT but without a comparison with TPT or any other system of income taxation.

[16] For comparative purposes it was assumed that corporate income tax rates under TPT and DPT were equal.

earning and profit distribution). Second, if the company distributes all of its earned profit every year, then no tax saving will occur. It should be emphasized that Hazak (2007) and Hazak (2008) did not discuss how companies operating under DPT should be valued nor how well-known valuation models should be adjusted for distributed profit tax.

While Hazak (2007) and Hazak (2008) were theoretical studies, Hazak (2009) provided empirical analysis of the dividend and capital structure decisions of Estonian companies for the period 1995–2004. The results indicated that due to the shift to distributed profit taxation, companies started to distribute less profits, while the share of retained earnings increased. Retained earnings were not necessarily used to acquire long-term assets but to pay off liabilities and improve liquidity – the latter was demonstrated by the decrease in the share of liabilities to total capital and increase in the share of liquid assets to total assets.

Masso *et al.* (2013) studied the effect of the Estonian income tax reform of 2000 on the liquidity, financial leverage, investment and productivity of Estonian companies. Using companies from Latvia and Lithuania – countries where shifting to distributed profit taxation did not take place – as a control group, the positive impact of the tax reform on company indicators was found. As a result of the reform, the liquidity of Estonian firms (measured as the ratio of cash and cash equivalents to assets) improved, while the financial leverage (measured as the ratio of liabilities to assets) declined; on the contrary, the share of retained earnings in capital for companies increased. Investment rate and total factor productivity of Estonian firms went up more compared to those of Latvian and Lithuanian companies during the first years after the reform. Hence, the results of the study by Masso *et al.* (2013) considering company liquidity and financial leverage were in line with the results from Hazak (2009).

One of the latest company-level studies on the effects of DPT is by Pikkanen and Vaino (2018), who researched the effects of the distributed profit taxation system on corporate liquidity, capital structure, payouts to shareholders and investment activity. The study by Pikkanen and Vaino (2018) largely confirmed the results of earlier studies.

Altogether, based on previous research it is possible to claim that DPT has had rather positive macroeconomic and company-level effects. In addition, Hazak (2007) and Hazak (2008) demonstrated that a company operating under DPT was more valuable to its shareholders compared to that of operating under classical system of income taxation; under certain circumstances former companies were no less valuable than the latter ones. This in turn suggests that companies operating under the distributed profit-based income taxation system cannot be valued in the same manner as companies operating under TPT or any other system where profits are taxed twice (first at corporate and then at shareholder level) and/or where postponement of income tax payment is absent.

Also, despite the fact that studies by Hazak (2007) and Hazak (2008) touched the aspects of corporate value under the DPT system there is a substantial research gap from the standpoint of the scope of the present dissertation.

Although one can claim that generally companies operating under the DPT system are more valuable compared with those of operating under TPT (*ceteris paribus*), understanding of *how* to adjust well-known valuation models for peculiarities of DPT to appraise values of companies operating under the system of distributed profit taxation is still missing.

1.4. Research gaps and research tasks of the thesis

Based on the aspects raised in previous Subchapters one can claim that there are no previous studies, especially theoretical, on implications of the DPT system for corporate valuation. Hence, this untapped area of finance refers to existing research gap. This research gap is located within the scope of the thesis discussed in an introductory part. However, there are other gaps within the scope of the dissertation that this study addresses. In order to better grasp how the Studies fill research gaps the author provides Figure 5 on the next page. It demonstrates how different Studies of the thesis contribute to three different areas, or how the Studies fill gaps in different areas of the scope of the thesis.

Figure 5 represents enlarged part of Figure 2. In the scope, it is possible to distinguish between three areas of different research gaps formed by four overlapping fields:

- research gap 1 (RG1) – *valuation models* ∩ *distributed profit taxation*[17],
- research gap 2 (RG2) – *valuation models* ∩ *systems of income taxation*, and
- research gap 3 (RG3) – *corporate valuation* ∩ *distributed profit taxation*.

Those overlapping fields can be considered as separated areas of academic research. Research gap 1 is the core research gap since in this denotes the area where no previous studies exist to the author's best knowledge. From theoretical perspective, this area presupposes the research on valuation models under the system of distributed profit taxation, or how valuation models have to be adjusted or modified given the distinctions of DPT from other systems of income taxation. This area has not been filled by earlier academic studies, which unfolds many possibilities for a researcher to imbue it. To put it another way, in the case of a still unexplored field of research any academic study contributes to filling the gap in a greater or smaller way. Since it is inconceivable to fill up the whole RG1 within a single thesis then the author focuses on selected aspects relevant for this topic but keeping in mind the objective of the thesis.

[17] The mathematical symbol ∩ denotes intersection of two sets (in the context of this thesis – research fields). E.g. *valuation models* ∩ *distributed profit taxation* refers to overlap of research fields of valuation models and distributed profit taxation

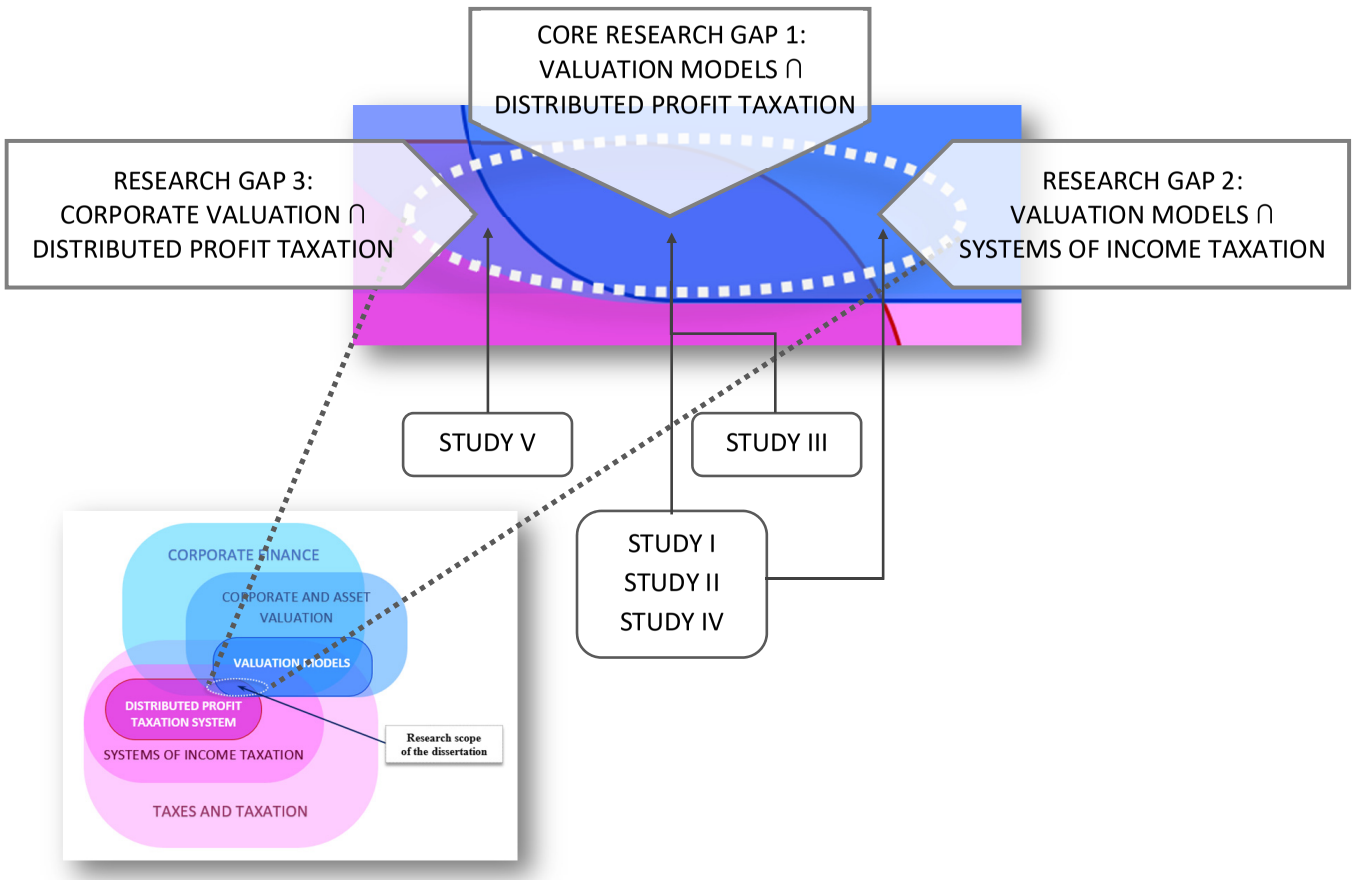

Figure 5. Connection between the Studies and research gaps of the thesis (compiled by the author).

In particular, as there are plenty of valuation models, then the most expedient approach to fill RG1 and RG2 is to pick up some valuation models of different approaches to clarify the impact of income taxation. For this reason, to study the implications of the DPT system for an income-based approach, the author selected the dividend discount model as the simplest DCF-based model; the author also developed another straightforward income-based valuation model to clarify the impact of corporate and personal income taxation on equity value and holding period from the perspective of a natural person under several tax systems. The implications of the DPT system for the market-based approach were studied using the example of a fundamental price-to-book ratio (which largely relies on DDM). In addition, the author studied the income tax-related adjustments of ROE, since ROE is an input for some equity value-based valuation models; ROE can be considered a proxy for value creation. In order to clarify the implications of the DPT system for an assets-based approach, the author focused on cash holdings which is a universal non-operating asset compared with other non-operating assets. Developing appraisal models for different valuation approaches should contribute to understanding the peculiarities of the DPT system in the context of corporate valuation as it is stated in the aim of the thesis.

Studies I–IV are devoted to the development of various theoretical models applicable for the valuation of companies operating under the system of DPT, thus directly filling the core research gap. The way the author of the thesis chose to fill this gap largely shaped the respective research tasks (see Table 1 further in this subchapter) most of which are more specific compared with the research gaps. This circumstance is explained below in this subchapter.

Considering other research gaps, research gap 2 is filled by developing tax-adjusted valuation models for non-DPT tax systems. This concerns mainly the traditional profit taxation system (Studies I and II) but also other non-conventional tax systems (Study IV). Filling RG2 is necessary for comparative purposes – to compare how profit taxation impacts valuation models under different tax regimes.

RG3 may contain multiple streams of research as it can be interpreted and understood in several ways. Among other research options this gap may address the approach practitioners take to the valuation of companies under the DPT system – Study V of the thesis fills this part of research gap 3. There are many surveys of valuation practitioners but none of them address the issues raised in Study V. Generally, although this aspect is of minor importance, Study V provides empirical evidence on the valuation practices of Estonian financial professionals that also have not been discussed before in the academic literature.

On the basis of the specified research gaps, the author of the thesis elaborated the list of research tasks completed in the Studies of the thesis (see Table 1 on the next page) that altogether contribute to achieving the aim of the thesis. The prevailing majority of the research tasks (tasks 1–9) are related to the core research gap described by the author above; however, almost all of those tasks (tasks 1–5, 7–9) serve to simultaneously fill RG1 and RG2.

Table 1. Research tasks of the thesis

Study	Research task
I	Task 1: to derive tax- and leverage-adjusted dividend payout ratios for companies operating under traditional profit taxation and distributed profit taxation
	Task 2: to develop tax- and leverage-adjusted dividend discount models for companies operating under traditional profit taxation and distributed profit taxation
	Task 3: to clarify how equity values under TPT and DPT diverge and converge depending on changes in input variables
II	Task 4: to clarify the impact of the principles of income taxation and forms of payout on estimating a company's profitability via return on equity (ROE) from the theoretical perspective
	Task 5: to develop a tax- and leverage-adjusted fundamental price-to-book (P/B) ratio
III	Task 6: to examine the need to apply a tax-related adjustment measure in the valuation of the non-operating assets of a company operating under distributed profit taxation
IV	Task 7: to clarify implications of the distributed profit-based taxation system for an investment property's optimal holding period compared to other tax systems from a shareholder perspective by developing a specific theoretical model
	Task 8: to clarify the relationships between the values of the investment property under different systems of corporate-personal income taxation depending on the property's holding time
	Task 9: to clarify how the optimal holding periods of the investment property converge and diverge depending on changes in input variables
V	Task 10: to investigate finance professionals' practices or approaches regarding tax-related adjustments applied in the valuation of companies operating under the distributed profit taxation system
	Task 11: to assess whether finance practitioners consider the equity value of companies operating under DPT as higher than that of those operating under TPT.

Source: compiled by the author

While the research gaps are quite broad, the research tasks – especially research tasks 1–9, which cover Studies I–IV – are more specific. This can be justified by several considerations.

First, in order to fill research gaps 1 and 2, the author of the thesis picked up only a few valuation models for reasons described earlier in this subchapter.

Second, as the process of adjusting the valuation models for profit taxation is largely technical then this process of tax-related adjustments is split into several steps where each step represents an individual research task. Third, to demonstrate the distinctive character of the DPT system in the context of business valuation, it is necessary to compare theoretical valuation models under DPT with other systems of income taxation, primarily TPT. Therefore, a few respective research tasks were formulated for comparative purposes. Lastly, in view of research tasks 10 and 11, they are in concordance with the phenomenon studied within the corresponding research gap. As the author has chosen to approach RG3 from an empirical perspective, seeking to understand how financial professionals value companies operating under DPT, the last two research tasks effectively address this research gap within the author's chosen perspective.

The following Figure 6 represents the organization of the Studies in the thesis. One can see the focus of the Studies in relation to the valuation approaches, outlining among other things the connection between the research tasks (denoted by the dotted arrows).

Theoretical Studies I–IV address issues of valuation under DPT using various valuation approaches – income-based, market-based and assets-based. In Studies I–III, the analysis is conducted at corporate level, while in Study IV it is conducted at shareholder level. These studies proceed from the perspective of normative analysis; that is, analysis that examines questions of what ought to be (Mankiw 2014; Pindyck & Rubinfeld 2013). In the context of the present thesis "what ought to be" can be interpreted as how companies operating under the DPT system ought to be valued. Study V clarifies whether and how the characteristics of the distributed profit-based system are taken into account in the process of valuing companies operating under DPT. This study proceeds from the perspective of positive analysis; that is, analysis that explains how the world is (Mankiw 2014; Pindyck & Rubinfeld 2013). In the context of the present thesis positive analysis describes how practitioners value companies operating under DPT.

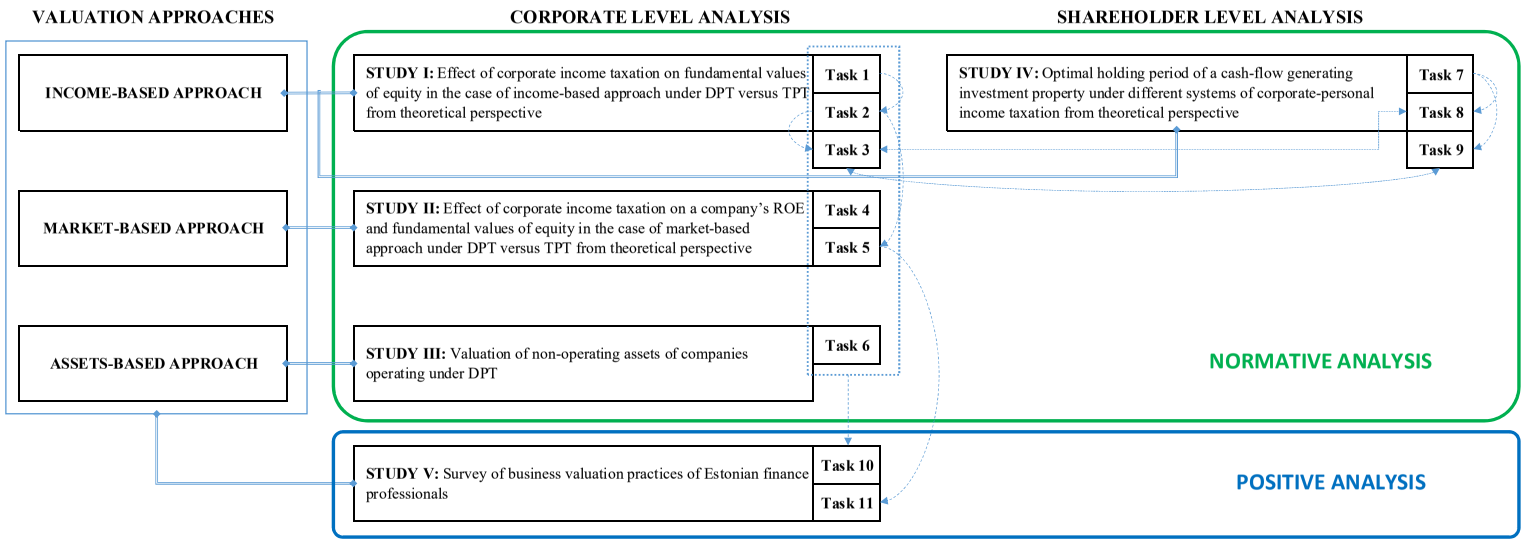

Figure 6. General view of the Studies with their research topics and research tasks (compiled by the author)

Study I deals with tax- and leverage-related adjustments to the income-based valuation models. Its main outputs are tax- and leverage adjusted dividend discount models. One of the key inputs in the DDM affected by income taxation is the dividend payout ratio. Assuming that a profitable company does not distribute all of its profits, then under a TPT regime the amount of dividends paid depends on pre-tax earnings and the company's tax liability, while under a DPT regime dividends paid affect corporate income tax liability and net earnings. Hence, in order to clarify the difference between equity value under DPT (that can be denoted as V_{DPT}) and equity value under TPT (that can be denoted as V_{TPT}) it is necessary to develop tax- and leverage-adjusted payout ratios,[18] since conventional DDM do not reckon either with corporate income taxation or with financial leverage (Task 1); the dividend payout ratio for a non-tax paying unleveraged firm serves as a benchmark. In turn, tax- and leverage-adjusted dividend payout ratios are employed to develop tax- and leverage-adjusted dividend discount models under TPT and DPT (Task 2).

The fundamental value of equity depends on the value of numerous input variables, such as the dividend payout ratio, cost of capital, growth rate of dividends (or other periodic cash flows), cash flow reinvestment rate etc. Depending on the increase or decrease in input variables, the fundamental value of equity for companies operating under different systems of corporate income taxation may converge or diverge. This implies that in certain circumstances V_{DPT} is not (significantly) different from that of operating under TPT and in certain cases the difference between equity value under DPT and TPT is remarkable.[19] In other words, in particular situations the peculiarities of the DPT system in corporate valuation are not so profound but in some situations these peculiarities cannot be ignored, since disregarding them leads to an undervaluation of the company. The impact of input variables on the convergence and divergence of V_{TPT} and V_{DPT} needs to be explored (Task 3).

Study II focuses on two ratios – the profitability ratio ROE and the P/B valuation ratio. Profitability ratios do not directly express the value of a company's equity, yet they are essential indicators of the company's financial performance. Return on equity is an important indicator from the shareholders' perspective since it demonstrates how efficiently equity is used to generate net earnings. The higher the ROE the more efficiently the company uses its equity. Although ROE is an accounting-based performance indicator, one can claim that the fundamental equity value of a company with higher ROE is greater than

[18] In his paper Hazak (2007) considered dividend decisions under DPT but no tax-adjusted payout ratios were developed or compared due to the specific setting of the value creation analysis employed in the paper.

[19] So far, Hazak (2007) demonstrated that under the dividend payout ratio of 100% and equality of corporate income tax and dividend tax, $V_{TPT} = V_{DPT}$ using the example of his two-period company value model. This two-period company value model combines an investor's consumption and received cash flows, and is not related to the valuation models presented earlier in the thesis.

the fundamental equity value of a company with lower ROE (*ceteris paribus*). Because ROE relies on net income and the book value of equity, then the rules of corporate income taxation affect the value of ROE. That is to say, the value of ROE for companies operating in different tax environments cannot be comparable if they are calculated using the same approach even if the income tax rates are equal. Besides, the issue of ROE in the context of the present thesis is relevant because ROE is one of the input variables in many valuation models; for example, the fundamental price-to-book valuation multiple (see Formula 3 in Subchapter 1.2). The relationship between a company's ROE (or profitability ratios in general) and market value has been scrutinized in several studies (e.g. Varaiya *et al.* 1987; Arkan 2016; Husain *et al.* 2020). Hence, the issues related to the measurement of the company's profitability using ROE proceeding from the impact of corporate income taxation need to be clarified (Task 4).

The fundamental P/B ratio represents one of the popular market-based valuation models. This multiple depends on a company's tax-adjusted dividend payout ratio and the book value of equity. In order to develop a tax-adjusted (and also leverage-adjusted) fundamental P/B ratio (Task 5), it is necessary to derive fundamental tax- and leverage-adjusted equity values (fulfilled under Task 2).

Study III focuses on the issue of the valuation of the non-operating assets of a company operating under DPT. Besides operating assets (i.e., assets that participate in creating core business value for the company), the value of the company also depends on the value of non-operating assets. A typical non-operating asset is excess cash, which may occur in companies regardless of their business field. Excess cash is cash that the company does not need to support its current business activities, and which can be used, for example, to earn interest income or for other speculative purposes. In an extreme case, excess cash is a dead load that generates neither income nor cost.

On the one hand, there are no problems with the valuation of excess cash to establish its value as such. There is no need to apply either an income-based approach (since excess cash usually does not generate future benefits which are greater or smaller than opportunity costs) or a market-based approach (since one euro or dollar on a bank account of one company is the equivalent euro or dollar on the bank account of another company given that both companies operate in the same country). Formally speaking, one can proceed from the liquidation value method in excess cash valuation – the book value of excess cash equals its fair actual value. Moreover, because cash is the most liquid asset then one does not have to apply any illiquidity discount.

On the other hand, under a distributed profit-based taxation system, cash holdings are in part locked in the company as any cash distribution to shareholders is taxed at the corporate level. This in turn raises the issue of a tax-related adjustment needing to be applied to non-core liquid assets (such as excess cash, marketable securities etc.) of a company operating under DPT (Task 6).

Study IV focuses on the optimal holding period of a cash-generating investment property. As rational investors seek to maximize the value of their investment assets, then from this perspective some assets should be held for a limited period after the end of which those assets should be either sold or liquidated. To put it differently, an optimal holding period (OHP) or optimal exit time for some assets exists. Among other factors, OHP depends on both corporate and personal income tax rates as well as the rules of income taxation since the rational investor proceeds from after-tax cash flows when making investment decisions.

Ignoring or misinterpreting the rules of income taxation can lead to exiting the investment earlier or later than OHP may suggest. This in turn results in a significant loss of value for the investor. Hence, it is important to understand the rules of corporate and personal taxation of income to correctly estimate the length of an optimal holding period at which the value of the asset is maximal. From this perspective it is necessary to clarify how the optimal holding period under DPT relates to optimal holding periods under other systems of income taxation, including TPT. This requires the development of an optimal holding period model for an investment property (see Task 7).

As the issue of the optimal holding period is directly connected to the value of assets, the value of investment properties under different systems of corporate-personal income taxation may converge (diverge) depending on the holding time of the property. As a result, in some situations the tax advantage of the DPT system over other tax systems may be less (more) profound (see Task 8). Since Task 8 focuses on the convergence (divergence) of equity values under different tax systems, it is related and similar to Task 3.

Depending on the values of input variables besides income tax rates, optimal holding periods under different tax systems may diverge or converge making a particular system more or less attractive from an investor's point of view. The impact of input variables on optimal holding periods for an investment property under different systems of corporate-personal income taxation needs to be clarified (see Task 9).

Study V presents the results of the survey of the valuation practices of Estonian finance practitioners. While theoretical issues of how to adjust valuation techniques for the peculiarities of the distributed profit taxation system are of primary interest, it is also important to investigate whether finance professionals consider those peculiarities in practice. By the time the idea for the present thesis was conceived, the system of distributed profit-based taxation in Estonia had been in force for almost a decade. This was a sufficient period for practitioners to adjust their valuation approaches (assuming one believed traditional valuation models could not be applied unadjusted when valuing companies operating under DPT). At that time, Estonia was also the only country in the world to employ the DPT system, and no academic studies on how to value companies under DPT had been published. This fact raised additional interest in learning about the practitioners' approach to valuing such companies.

A survey of practitioners dealing with corporate valuation can provide insight into whether and how they adjust different valuation approaches to suit the features of the DPT system. It is even more interesting to discover what kind of adjustments of techniques and models are applied, how they differ from one respondent to the next among other issues. The survey addressed two issues: one focusing on whether valuation practitioners adjust the models they use and the other examining which components of the models practitioners adjust and how (Task 10). Task 10 is largely connected to Tasks 1–6: while completion of Tasks 1–6 shows what kind of tax-related adjustments are necessary when valuing companies operating under DPT, the completion of Task 10 should demonstrate whether practitioners employ those tax-related adjustments.

Although it is possible to clarify the theoretical relationship between equity values under DPT and TPT, it is also necessary to ascertain if there is consensus among practitioners on the inequivalence of equity values under DPT and TPT. Instead of asking practitioners whether equity value under DPT is higher or lower than equity value under TPT, they can be asked to appraise the values of several hypothetical companies (Task 11). As the valuation of hypothetical companies relies on the fundamental price-to-book ratio developed in Study II, this circumstance connects Task 11 to Task 5.

If finance practitioners consider V_{DPT} to be higher than that of operating under TPT, then one can claim with certainty that there is intuitive or reasoned comprehension among finance professionals that companies operating under DPT cannot be valued in the same way as companies operating under TPT. This does not mean that any given practitioner applies the same valuation techniques as other practitioners when valuing such companies or that one relies on the models co-developed by the author of the thesis. Still, if (the majority of) finance professionals do consider V_{DPT} lower or equal to V_{TPT} then this raises the potential issue of a discrepancy between theory and practice.

2. STUDIES

3. RESULTS AND CONCLUSIONS

The current chapter provides an overview and discussion of the results of the Studies of the thesis based on the research tasks formulated in Chapter 1. Subsequently, the author presents practical implications, followed by a summary of the conclusions of the dissertation and, lastly, limitations of the study and avenues for future research.

3.1. The main findings of the Studies

This section discusses the main findings of the Studies. Previously, in Subchapter 1.4, the author formulated several research tasks to explore the peculiarities of corporate valuation under DPT, as well as to develop tax-adjusted valuation models applicable for DPT environments. To provide a comprehensive overview of how the Studies contribute to completing the research tasks of the thesis and the results obtained, the author includes Table 2 at the end of this subchapter.

A lesson in valuation from Estonia: The difference between the fundamental value of equity under distributed and traditional profit taxation systems

Study I focused on tax-related adjustments of the dividend discount model (DDM), which is probably the simplest valuation model of the income-based approach. As mentioned in Subchapter 1.4, the dividend payout ratio is a key variable in DDM but in a conventional form DDM neglects the impact of income taxation and financial leverage (see Formula 3 in Chapter 1). The purpose of Study I was to clarify how estimates of equity value obtained using tax- and leverage-adjusted DDMs differ under TPT and DPT. As in the case of DDM the impact of corporate income taxation on equity value reveals itself mainly via the dividend payout ratio, then the first step was to adjust the payout ratios for income taxation (this was completed under Task 1, which can be seen in Table 2).

The impact of corporate income taxation on the dividend payout ratio is quite straightforward. If companies follow a residual dividend policy, it is reasonable to assume that the shareholders of a tax paying company cannot enjoy the same proportion of distributed profit as shareholders of a company that does not pay income tax at all. The residual dividend policy refers to a profit distribution principle according to which companies focus on reinvesting retained earnings with the goal of maximizing the net present value of their projects and distribute only excess cash (Baker & Smith 2006). An assumption of residual dividend policy corresponds with the value-maximizing behavior of firms who must primarily canalize their profits into potentially profitable projects and distribute profits that cannot be invested.

Study I demonstrated that the payout ratio δ in a no-income-tax situation is higher compared with payout ratios under TPT (that can be denoted as δ_{TPT}) and DPT (that can be denoted as δ_{DPT}), where the following relationship holds: $\delta_{TPT} < \delta_{DPT} < \delta$. That relationship holds for both unleveraged and leveraged firms;[20] in the case of leveraged firms their tax-adjusted payout ratios look more complex compared with the tax-adjusted payout ratios of unleveraged companies (see pages 149–152 in Study I). Hence, the completion of Task 1 demonstrates that companies operating under DPT can distribute a higher proportion of their earnings compared with firms operating under TPT on the assumption that both companies reinvest the same amount of their earnings as companies which operate in an income tax-free environment.

Dividend payout ratios δ_{TPT} and δ_{DPT} served as inputs for valuation models developed further in Study I – in this way Task 2 was completed (also this implies that the completion of Task 1 was a prerequisite for the completion of Task 2). From the point of view of DDM, the larger the dividend payout ratio the larger the value of the company's equity (*ceteris paribus*). In Study I the author reached the conclusion that the value of the equity of the company in a situation without income taxation (that can be denoted as V) is the highest while the value of the equity of a company operating under TPT (denoted as V_{TPT}) is the lowest; at the same time the value of the equity of a company operating under DPT (denoted as V_{DPT}) is between V and V_{TPT}. The ranking of payout ratios also implies that $V_{TPT} < V_{DPT} < V$. And again, this ranking holds for both unleveraged and leveraged companies (see pages 149–152 in Study I).

The difference between V_{TPT} and V_{DPT} is not constant, equity values converge or diverge depending on the value of input variables (this aspect was addressed by Task 3). In some cases, the difference is inconsiderable, in some cases it is contrariwise. Study I demonstrated that V_{TPT} and V_{DPT} converged with the increase of the dividend payout ratio (see page 153 in Study I); if companies distribute all of their profits then $V_{TPT} = V_{DPT}$ for both unleveraged and leveraged firms. This complies with the results by Hazak (2007), who on the example of his two-period model demonstrated that if the profits of companies operating under TPT and DPT were fully distributed then from an investor's perspective $V_{TPT} = V_{DPT}$. This circumstance has a trivial explanation: if a company operating under DPT distributes all of its periodic earnings then it abandons its advantage (over a company operating under TPT) to postpone corporate income tax liability. Consequently, amounts of periodic dividends and income tax paid by companies under TPT and DPT are equal, which results in equal equity value for both companies.

[20] As a remark: the impact of financial leverage (ignoring income taxation) on the dividend payout ratio depends on the relationship between operating profit-based return on assets R_A and debt interest rate r. In the situation where $R_A > r$ the dividend payout ratio of a leveraged company δ_L is higher than that of an unleveraged company (and vice versa).

V_{TPT} and V_{DPT} also converge with an increase in the cost of capital and a decrease in return on assets (see pages 153–154 in Study I). This can be understood so that increasing the cost of capital diminishes the value of a company's equity; at high rates of cost of capital the impact of the rules of taxation on the value of equity becomes less significant. As a result, the difference between V_{TPT} and V_{DPT} becomes smaller. A similar logic can be applied to explaining the convergence of equity values under a decreasing return on assets: if companies are becoming less profitable then the amount of dividends decreases and the difference between income tax paid under TPT and DPT becomes smaller as well.

The findings of Study I provide food for thought on how the equity values of companies operating under DPT and TPT differ when the companies follow a constant dividend policy or a stable dividend policy.[21] Adjusting conventional corporate valuation models under constant and stable dividend policies is challenging due to the problems related with mathematical expression of such models. Among other things, modeling theoretical values of equity requires a revision of the assumptions employed in Study I.

Intuitively, under constant and stable dividend policies, the relationship $V_{TPT} < V_{DPT}$ still must hold. This intuition has a simple explanation: if companies choose to follow, for example, a stable dividend policy, then a company operating under DPT has more retained earnings that can be reinvested compared with a company operating under TPT. Certainly, this implies that equity value should be determined not only by dividends paid but also by capital gains – this is different from one of the key assumptions set in Study I according to which there were no capital gains (and respectively no capital gains taxation).

Comparing the outcomes of Study I with the results of previous theoretical studies on tax-adjusted valuation models is somewhat challenging, since the models developed in Study I rely on assumptions that differ from those in earlier literature. This comparison is especially problematic in the case of the tax-adjusted models used to value companies operating under DPT, since there are no comparable studies. However, the tax-adjusted model to be used for the valuation of companies operating under TPT developed in Study I conforms to the model developed by Haugen and Heins (1969): if one assumes no tax on capital gains then the formula for equity value in Haugen and Heins (1969) is identical to the model of V_{TPT} in Study I. This also applies to the model developed by O'Brien (1991), which is an elaboration of the model developed by Haugen and Heins (1969). Some resemblance can also be drawn with Denis and Sarin (2002): if there is only income tax paid on pre-tax earnings by a company

[21] A constant dividend policy, or constant dividend payout ratio policy refers to a policy according to which a company distributes every year a constant proportion of its earnings as dividends; a stable dividend policy refers to a policy according to which a company distributes a constant amount of dividends every year (Constant Dividend Payout Ratio Policy 2022, Stable Dividend Policy 2022).

operating under TPT and no income tax on dividends, then the difference between equity values of S and C corporations derived by Denis and Sarin (2002) is equal to the difference between V_{DPT} and V_{TPT}.

Effect of corporate taxation system on profitability and market ratios – the case of ROE and P/B ratios

Study II addresses two issues: the calculation of net income-based profitability ratios and the fundamental price-to-book ratio under TPT and DPT (these correspond to Task 4 and Task 5, see Table 2). Study II demonstrated that the value of return on equity (ROE) – which is calculated as net income over book value of equity – depends on the regime of corporate income taxation (see page 32 in Study II). ROE for a company operating under DPT is higher than ROE for a company operating under TPT that obliquely refers to the higher value of V_{DPT} compared with V_{TPT} (*ceteris paribus*). Consequently, returns on equity for companies operating under different systems of income taxation are not comparable. This is also valid for other net income-based profitability ratios; for example, net margin (profit margin), which is typically calculated as a ratio of net income over sales revenue (see page 32 in Study II), and some productivity ratios (net income per employee, net income per unit of product sold and the like). This is an important consideration from the perspective of the analysis and comparison of the financial performance of companies operating under different tax systems. It is also significant when one compares the profitability of companies operating under DPT that follow different payout policies: with all other things being equal, a company paying dividends will look to perform more poorly compared with a company not paying dividends. Moreover, under DPT the same payout ratio impacts ROE differently depending on the form of payout: cash dividends have a more adverse effect on return on equity compared with share repurchases. The difference between ROE resultant from the impact of different payout schemes becomes more substantial when the payout ratio is way more than 100% (see page 34 in Study II).

As a solution, one can proceed from pre-tax profit-based ROE (and profit margins) when comparing corporate financial performance. This applies not only to situations when comparing the profitability ratios of companies operating under DPT vis-à-vis those of companies operating under other tax systems but also when comparing the profitability ratios of companies operating under DPT.

In Study II the author also developed the tax- and leverage-adjusted price-to-book ratio (this corresponds to Task 5 which can be seen in Table 2). Since the fundamental P/B multiples elaborated in Study II proceed from the tax-adjusted dividend payout ratios derived in Study I (from this perspective Tasks 1, 2 and 5 are connected as demonstrated in Figure 6), then one can notice similarities between tax-adjusted DDMs and tax-adjusted P/B multiples (this similarity is self-evident since DDM and P/B are connected via the company's book value of equity). Although Study II contains only tax- and leverage-adjusted P/B ratios

(see page 36 in Study II), the relationship between P/B ratios under different regimes of income taxation holds for unleveraged and leveraged firms – $P/B_{TPT} < P/B_{DPT} < P/B$. The paper demonstrates that with P/B ratios under no income taxation, TPT and DPT converge with an increase in payout ratio, which is in concordance with a similar result from Study I.

It can be concluded that when using a market-based approach in the valuation of companies, it is also necessary to reckon with the impact of corporate income taxation. This applies not only to P/B multiples but also to other fundamental equity value-based multiples, such as the price-to-earnings (P/E) valuation ratio, price-to-earnings-to-growth (PEG) ratio, and the like. It is also crucial to clarify the impact of income taxation on both the numerator and denominator of a concrete ratio – P/E ratio is the most explicit case from this point of view.

From the perspective of the leverage-adjusted P/B multiple, the results obtained by the author of the thesis correspond to the results by Leibowitz (2002), who developed a leveraged P/E ratio (which neglects the impact of income taxation). If one assumes that the income tax rate in the models developed in Study II (see page 36) equals 0 then P/B can be transformed into the leveraged P/E ratio developed in Leibowitz (2002).

The Distributed Profit Based Corporate Taxation, and the Valuation of Cash Holdings

This Study addressed the issue of the valuation of non-operating assets, specifically the valuation of cash holdings under DPT. From the perspective of the theoretical relationship between corporate income taxation and corporate valuation, this Study has the narrowest scope compared with other Studies in the thesis (then there was only one research task – Task 6 – completed in this Study).

Prior to the publication of Study III, academic research on the theoretical relationship between taxation and the valuation of cash holdings had been almost non-existent, probably the only relevant study is by Chu (2012), which is of a rather legal scope. There are many empirical studies discussing, for example, the impact of corporate tax avoidance on the valuation of cash holdings (Dhaliwal *et al.* 2011), providing repatriation tax-based (Foley *et al.* 2007) or tax uncertainty related (Hanlon *et al.* 2013) explanations of the level of corporate cash holdings, and studying the impact of double taxation on cash holdings in small businesses (Di & Hanke 2013). However, there had been no research papers discussing the methodological issues related to the income tax-related adjustments of cash holdings in the context of business valuation, let alone the problem of the valuation of cash holdings under DPT. In fact, this lacuna concerns not only the relationship between income taxation and the valuation of cash holdings but income taxation and the valuation of non-operating (non-core) assets in general. Study III contributes to the theoretical

literature by showing *how* to value cash holdings of companies operating under the distributed profit taxation system.

The main output of this Study consists of a proposed discount rate necessary to apply when valuing the cash holdings of a company operating under DPT. The size of this discount rate depends positively on income tax rate and negatively on investors' required rate of return and the length of an investment horizon (see page 215 in Study III). Proceeding from this, the size of the discount fluctuates in the range from approximately 0 (if a company holds its cash for a very long period and this cash provides significant investment yield) to the corporate income tax rate (if a company is going to be liquidated immediately). The presence of such a discount in some ways can be explained by the lock-in effect; that is investors' willingness to hold valuable assets in order to postpone tax liability on accrued gains (Auerbach 1991).

As the size of the discount depends on the length of an investment horizon, it can be applied in corporate valuation using income-based and assets-based approaches. In other words, when a company is being liquidated, it is necessary to subtract from the value estimate the product of the income tax and the amount of cash holdings. On the other hand, under the going concern principle, the impact of the income tax rate – and consequently, the discount rate – becomes relatively insignificant.[22]

This result is important since it asserts that the tax advantage does not cover all the tax burden related to the distribution of cash at firm level. The result of the Study leads to the thought that a similar discount may be necessary to apply when valuing other non-operating assets of a company operating under the distributed profit taxation system.

Optimal holding period of an investment property under different systems of income taxation – a natural person's perspective

A complementary aspect which is important for corporate valuation and value management is related to the holding time of an investment asset the value of which is not constantly increasing in time (e.g., depreciating property, which generates incoming cash flows). This means that from a financial point of view some assets must be held for a limited amount of time. The issue of the holding period of an investment asset is relevant since the asset's holding period is closely connected to the asset's value. Holding the asset should not be a goal in itself – the investor should hold it to extract financial benefits in the best way

[22] The lock-in effect also explains why shareholders can accept lower pre-tax rates of return on their appreciated assets compared with rates of return in a situation when no accrued capital gains existed (Auerbach 1991). This may also be the case for companies operating under DPT with large amounts of cash holdings or other non-operating assets.

possible. Hence, the evaluation of the asset's optimal holding period goes hand in hand with its valuation.[23]

If Studies I and II focused on the difference between DPT and TPT, Study IV expands the comparative basis by including more systems – the partial integration and full integration systems of income taxation. As differences in the effects of systems of income taxation on wealth express themselves on the personal level, the theoretical analysis in Study IV was conducted on the personal or shareholder level.

Several aspects were the focus of Study IV (these are represented by Tasks 7, 8 and 9, which can be seen in Table 2). In order to clarify the implications of the DPT system for the optimal holding period of an investment property, it was necessary to develop a theoretical valuation model for an investment property, which made it possible to derive the optimal holding periods of the property under different systems of income taxation (this corresponds to Task 7).

The results of the modeling showed that the investment asset's optimal holding period under the DPT system is longer compared with under other systems of income taxation, especially TPT (see pages 19–20 in Study IV). That is to say, under a more favorable tax regime, an investor should not rush into selling or liquidating an asset compared with tax regimes which are less favorable to the investor. Interestingly, the optimal holding period under DPT equals that under no income taxation scenario. This implies that a miscalculation of the length of the holding period of the investment asset may result in the loss of one's equity value – at the optimal holding period the value of equity is maximal.

The study intended to clarify the relationship between the value of the investment property under different systems of corporate-personal income taxation (given the same tax rates) depending on the property's holding time (denoted as N). To put it differently, the task was to specify whether and how the property's holding time affected the ranking of its values under different tax systems (this corresponds to Task 8 described in Table 2).

The analysis of values shows that the relationship between a property's present value remains largely the same regardless of the holding period; that is, the holding time does not affect the ranking of the values, although the difference between the values is not constant. The only noticeable exception is the relationship between property values under TPT and the full integration system (FIS) – while generally V_{TPT} is smaller than V_{FIS} (which denotes equity or property value under the full integration system), at very large N V_{TPT} becomes superior to V_{FIS}. Remarkably, V_{DPT} is superior to equity values under other systems of income taxation, especially V_{TPT}. This is an additional proof of the idea that income taxation aspects play an important role in the process of

[23] Certainly, not all the assets have an optimal holding period (exit time), it may appear that in some cases an investor should liquidate the asset immediately or hold it as long as variables – cash flows growth rate, reinvestment rate, required rate of return and others – remain unchanged.

business valuation and that the DPT system is more advantageous from the perspective of wealth maximization.

However, from an investor level perspective, the advantage of the DPT system over other tax systems depends on the relationship between personal income tax rate (τ) and corporate income tax rate (t). If $\tau << t$ then V_{DPT} becomes smaller than V_{FIS} (see page 23 in Study IV). Also, if cash flows from the business are non-reinvestable, then V_{DPT} is equal to the value of equity under the reduced tax rate scheme of a partial integration system. Still, even in these cases $V_{DPT} > V_{TPT}$ (see page 24 in Study IV).

Task 8 is quite similar to Task 3 since both tasks focus on the convergence-divergence of equity values with respect to changes in input variables: while Task 3 clarifies the relationship between equity values and payout ratio, cost of capital and return on assets, Task 8 explores changes in equity values with respect to the property's holding time. Completing Task 8 demonstrated that from the moment of the property's acquisition until optimal exit time, the divergence of values increases, but at some moment beyond the optimal exit moment those values begin to converge again although the convergence paths for $N \to 0$ and $N \to \infty$ are different (see page 22 in Study IV).

Lastly, Study IV sought to clarify how the optimal holding periods of the investment property converge or diverge with respect to changes in input variables – cash flow growth rate, cash flow reinvestment rate and discount rate (this corresponds to Task 9, see Table 2). Optimal holding periods diverge with an increase in cash flow growth rate or cash flow reinvestment rate ρ and converge with an increase in the discount rate. In extreme cases, if $\rho = 0$ or if the discount rate is very high then optimal holding periods are the same for all systems of income taxation, including the optimal holding period for a no-income-tax scenario. In the opinion of the author, these extreme cases have important consequences from the policymaking perspective: the advantages of a particular tax system become more explicit if a business environment is favorable (i.e., where the level of risk is low and there are plenty of opportunities to make profitable investments).

To the author's best knowledge, there is only a handful of theoretical studies on holding periods for assets under taxation. Bertrand and Prigent (2016) demonstrated that in the case of the taxation of rents but no tax on capital gains, the optimal holding period of a real estate asset is longer compared with a no-tax situation. However, their analysis showed that if capital gains are also taxed then the optimal holding period becomes shorter compared with the scenario with no taxation; in some cases, the investor should immediately sell the asset. Some parallels can be drawn between Study IV and the studies by Pellechio (1988) and Hegemann *et al*. (2017), which allow us to conclude that income taxation (or changes in the rules of taxation) theoretically affects investors' decision about their assets' holding periods.

The comparability (or incomparability) of the results of various theoretical studies depends on the comparability of the models elaborated in those studies. It is important to note that the valuation model developed in Study IV is based

on a set of assumptions that render it incomparable with other popular models of asset valuation (see page 16 in Study IV for a description of the model). In fact, to the author's best knowledge, no such valuation model has either been developed or used in previous studies. Despite its quite unconventional setting, it nevertheless demonstrates the tax advantage of the DPT system over other systems of income taxation from the perspective of an individual investor. The author of the thesis is of the opinion that analyzing optimal holding periods using more sophisticated valuation models would result in similar conclusions.

Value in the eye of the beholder: a survey of valuation practices of Estonian financial professionals

Study V provides an empirical contribution to fulfilling the aims of the thesis. It addresses the valuation practices of Estonian finance professionals and in regard to the aims of the thesis, this Study considers two aspects: the approaches to tax-related adjustments professionals use in the process of valuing companies operating under DPT (related Task 10) and their view of the relative equity values of companies operating under different taxation regimes (related Task 11). The former should clarify whether there are uniform practices among Estonian professionals when treating tax-related features in the valuation of companies operating under DPT, the latter should clarify how widespread their understanding is that V_{DPT} is higher compared with V_{TPT}.

The results of the survey allow us to conclude that no uniform valuation practices or approaches exist when adjusting valuation models to suit the peculiarities of the DPT system. Approximately 40% of the survey respondents proceeded from the same basis when valuing companies operating under DPT and under non-DPT systems. Those practitioners who recognized the peculiarities of the DPT system adjusted their value estimates by neglecting income tax when calculating WACC or neglecting income tax in the case that a valued company was not going to pay dividends (see page 165 in Study V). In the opinion of the author, the lack of a uniform approach to the valuation of companies operating under DPT among the practitioners is not a very serious problem compared with the fact that a remarkable proportion of the practitioners treats companies operating under DPT in the same fashion as companies operating under TPT. The diverse approaches to valuing companies can be attributed to variations in the practitioners' educational backgrounds, skills and experience. However, this topic warrants further research, as it is an important and distinct area of research. This diversity can also be explained by the heterogeneity of the respondents in terms of how regularly the practitioners had to conduct business valuations. Besides those aspects, one has to keep in mind that appraisers sometimes have to value companies in situations where there is insufficient input data, which leads to a simplification of the valuation techniques. This may result in significant dissimilarities in the valuation estimates for the same asset or business.

While Studies I, II and IV and the respective research tasks showed that theoretically $V_{DPT} > V_{TPT}$, the estimates provided by the finance practitioners presented quite mixed evidence. In the survey, the practitioners were asked to value the value of equity for three hypothetical companies, of which one operated in an income tax-free environment, another operated under TPT and the last one under the DPT system. The hypothetical valuation cases were designed so that $V > V_{DPT} > V_{TPT}$ (see pages 162–163 in Study V).

The valuation estimates provided by Estonian financial professionals demonstrated that their median estimate of V_{DPT} was higher than the median estimate of V_{TPT} (see page 166 in Study V). Yet the median estimates of fundamental equity values were significantly lower than the theoretical ones (based on the models developed in Studies I and II). Finance practitioners were also asked to provide their estimates for the fundamental value of the equity of an unleveraged company operating in a no-tax environment (which served as a benchmark). Two-fifths of the practitioners valued V_{DPT} to be higher than V_{TPT}, and less than one-fifth of the respondents provided a correct ranking of equity values for all three companies; that is, $V > V_{DPT} > V_{TPT}$ (see page 166 in Study V). The valuation of the hypothetical companies also exposed significant variance in the estimates, especially for the value of the equity of the company operating under TPT (see Table 4 on page 166 in Study V).

The author of the thesis would like to stress that these results do not show that practitioners are not of the opinion that $V_{DPT} > V_{TPT}$. The results indicate that in general practitioners did not *value* the equity of companies operating under DPT to be higher than that of companies operating under TPT. These outcomes characterize very diverse approaches to corporate valuation and probably very different understandings of how a particular company should be appraised even in a simplified valuation case with a small amount of input variables.

While it is possible to compare the results of the survey with those of previous surveys from the perspective of valuation methods and models used (e.g. Study V shows that valuation ratios and DCF methods are the most popular approaches, which corresponds with the results of Bancel and Mittoo (2014); EV/EBITDA is the most popular market multiple among Estonian finance practitioners, which conforms the results of surveys by Vydržel and Soukupová (2012), Bancel and Mittoo (2014) etc.), it is somewhat problematic from the viewpoint of income tax-related issues arising in corporate valuation. Analogical previous surveys neither considered income tax-related issues in business valuation nor addressed the issue of tax-related adjustments of valuation models: this concerns, for example, the most cited survey of valuation analysts by Arnold and Moizer (1984) as well as the recent survey by Bancel and Mittoo (2014). A notable exception is the survey by Mukhlynina and Nyborg (2016), which was produced after Study V was published. Mukhlynina and Nyborg (2016) addressed the issue of the confusion that valuation practitioners experience with respect to the cost of capital and interest tax shields – one of their conclusions is that practitioners lack an understanding of how to

treat interest tax shields in DCF analysis. This conclusion provides reason to believe that income taxation is one of the sources of bewilderment in the valuation of companies and that challenges related to the proper recognition of the impact of income taxation on the value of a company are not limited to a particular system of income taxation.

In conclusion, the completed research tasks have made a dual contribution. On the one hand, they have aided in clarifying the peculiarities of corporate valuation under the system of distributed income taxation. On the other hand, they have contributed to the development of valuation models applicable for appraising companies operating under the system of distributed profit taxation. The features of a system of corporate income taxation translate into peculiarities of corporate valuation, and so it is the case with the DPT system. At least theoretically, the valuation of companies operating under the distributed profit-based income taxation system should be conducted differently compared to those operating under other systems of income taxation, especially traditional profit taxation. The results of the Studies provide evidence that the traits of the DPT system in the context of corporate valuation express themselves in every valuation approach. The theoretical models elaborated in Studies I–IV (see respective Tasks 2, 5, 6 and 7 in Table 2) – which can be considered the main output of the thesis – make it possible to clearly and unequivocally state that the value of a company operating under the distributed profit-based taxation system is higher compared with that of a company operating under traditional profit taxation. The results of the comparative analysis demonstrate that foremost profitable companies with low dividend payout ratios, low cost of capital, high return on assets and reinvestment rate benefit from the DPT system (vis-à-vis companies operating under the TPT system) from the perspective of their equity value, and in this the dividend payout ratio is probably of the greatest influence.

Since most, if not all, of the well-known and popular models of corporate valuation in their conventional forms either neglect income tax or proceed from traditional profit taxation, it is important to comprehend the impact of the characteristics of the system of distributed profit taxation in the process of business valuation. Additional research questions that can be raised in further academic studies will help to explore supplementary nuances in order to build a more integral picture to describe the implications of distributed profit taxation for corporate and asset valuation.

Table 2. Research tasks and results

Study	Tasks addressed	Results
I	Task 1: to derive tax- and leverage-adjusted dividend payout ratios for companies operating under traditional profit taxation and distributed profit taxation	Tax-adjusted dividend payout ratios are derived on the assumption of a company's residual dividend policy for unleveraged and leveraged companies.
	Task 2: to develop tax- and leverage-adjusted dividend discount models for companies operating under traditional profit taxation and distributed profit taxation	Tax- and leverage-adjusted dividend discount models are developed using the dividend payout ratios derived from Task 1.
	Task 3: to clarify how equity values under TPT and DPT diverge and converge depending on changes in input variables	V_{TPT} and V_{DPT} converge with an increase in dividend payout ratio and the cost of capital; V_{TPT} and V_{DPT} diverge with a rise in return on assets
II	Task 4: to clarify the impact of the principles of income taxation and forms of payout on estimating a company's profitability via return on equity (ROE) from the theoretical perspective	Principles of corporate income taxation affect ROE. Given the same level of pre-tax earnings, generally ROE_{TPT} differs from ROE_{DPT}. Depending on the payout ratio and form of payout, ROE_{DPT} can be greater or smaller than ROE_{TPT}.
	Task 5: to develop tax- and leverage-adjusted fundamental price-to-book (P/B) ratio for companies operating under traditional profit taxation and distributed profit taxation	Tax- and leverage-adjusted fundamental price-to-book ratios are developed using dividend payout ratios derived under Task 1
III	Task 6: to examine the need to apply a tax-related adjustment measure in the valuation of the non-operating assets of a company operating under distributed profit taxation	The size of a discount applicable to the corporate cash holdings of a company operating under the DPT system for the purpose of corporate valuation is derived. This discount rate depends on corporate income tax rate, rate of return and the length of the investment horizon.

Study	Tasks addressed	Results
IV	Task 7: to clarify implications of the distributed profit-based taxation system for an investment property's optimal holding period compared to other tax systems from a shareholder-level perspective by developing a specific theoretical model	The theoretical model is developed and optimal holding periods of an investment property are derived for different corporate-personal income taxation systems. From a shareholder's perspective, under the DPT system the optimal holding period of the property is the longest compared with other systems of income taxation.
	Task 8: to clarify the relationships between the value of the investment property under different systems of corporate-personal income taxation depending on the property's holding time	Generally, the investment property value under DPT is higher compared with that under other systems of corporate-personal income taxation regardless of the property holding time. The superiority of the value under DPT depends on the relationship between corporate and personal income tax rates, and cash flow reinvestment rate.
	Task 9: to clarify how the optimal holding periods of the investment property converge and diverge depending on changes in input variables	Optimal holding periods of an investment property under different systems of corporate-personal income taxation converge with the increase in discount rate and with the decrease in cash flow reinvestment rate and cash flow growth rate.
V	Task 10: to investigate finance professionals' practices or approaches regarding tax-related adjustments applied in the valuation of companies operating under the distributed profit taxation system	Demonstrates the versatility of practitioners' approaches to the treatment of income tax-related aspects in the valuation of companies operating under DPT.
	Task 11: to assess whether finance practitioners consider the equity value of a company operating under DPT higher than that of a company operating under TPT	Using the tax- and leverage-adjusted fundamental price-to-book (P/B) ratios developed during Task 5, it was demonstrated that practitioners have mixed views on the rankings of theoretical equity values of companies operating under the conditions of no income taxation, TPT and DPT.

Source: compiled by the author

3.2. Practical implications

The results of the dissertation raise several implications of a practical nature as well as new issues worthy of exploration. In this Subchapter, the author presents practical implications emerging from the theoretical basis of the research and the results of the Studies of the thesis. This Subchapter consists of two parts:

- In the first part, the author sums up practical implications directly resulting from the Studies of the thesis;
- In the second part, the author discusses practical implications related to the models discussed in Chapter 1 but not considered in the Studies of the thesis. However, these proposed implications are related to the findings of the Studies. In this section, the author neither introduces new research tasks nor discusses topics unrelated to the thesis theme.

3.2.1. Practical implications resulting from the Studies of the thesis

The following practical implications arise from the Studies of the thesis:

1. The thesis shows that at least at the corporate level the equity value of companies operating under DPT is higher compared with that of those operating under TPT. It also shows that under certain circumstances, from a shareholder-level perspective the equity value of a company operating under DPT is higher compared with that of companies operating also under other non-conventional tax systems given the same corporate and personal income tax rates. Although the thesis focused on relatively simple valuation models, the results demonstrate that in the process of the corporate valuation of companies operating under the distributed profit taxation system, income-tax related aspects should be approached differently vis-à-vis other taxation regimes.
2. The thesis highlights the impact of corporate income taxation on the measurement of corporate profitability ratios, especially ROE. While profitability ratios do not express the value of a company, they can serve as proxies of value – the higher the company's ROE, the more valuable it can be considered (*ceteris paribus*). The peculiarities of corporate income taxation have to be considered when analyzing and comparing the profitability of companies. This is relevant when comparing the profitability of companies operating under different tax systems – TPT and DPT – as well as when comparing the profitability of companies operating under DPT. Since corporate income tax liability under DPT depends on a company's dividend policy then proceeding from net income-based profitability ratios can lead to incorrect conclusions.
3. The thesis develops concrete models which can be used to estimate the value of real companies. This concerns not only companies operating under DPT but also (financially leveraged) companies operating under TPT. As all the valuation models are set on various restrictive assumptions, the

models developed in the thesis also contain certain limitations. Despite this, they can be considered more realistic compared with conventional models that do not include the impact of income taxation and financial leverage.

4. On the basis of the valuation models developed in the Studies, the thesis outlines the circumstances when the difference between equity value under DPT vis-à-vis that under TPT and other tax systems is more (less) profound. As the value of equity depends on many input variables besides income tax rate, then the tax advantage of the DPT system is more explicit for companies with high growth, retention and reinvestment rates, and low cost of equity (capital). The latter aspect is important from the perspective of policymaking – companies and their shareholders can enjoy the tax advantages of the DPT system in favorable, low-risk business environments where companies can grow and reinvest their profits. The formation and maintenance of such environments largely depends on political decision-makers.
5. The thesis clarified that when valuing the cash assets of a company operating under DPT, an income tax-related discount should be applied to this type of non-operating assets. From the practical perspective, this implies that a similar discount may be necessary when valuing other non-operating assets of the company operating under DPT. At least shareholders and corporate executives should evaluate the tax-related consequences of the transfer of such assets in the process of the company's sale, merger or acquisition.
6. The thesis reveals the versatility of the valuation practices of Estonian finance practitioners. This versatility concerns valuation methods and techniques employed by financial professionals as well as different approaches to treating the peculiarities of the DPT system in corporate valuation. The diversity of approaches results in a variability in the quality of practitioners' appraisals – the quality of appraisals is judged on how much the practitioner's estimate deviates from the fundamental (theoretically grounded) value. This aspect raises some concerns from a client's (i.e. the person ordering the valuation) perspective: if someone orders a valuation service then they want be sure that the value estimate is as close as possible to the actual (or fundamental) value of an asset or a company. This implies that the clients must be very diligent when selecting a value appraiser. However, how to assess the quality of a value appraiser is another issue.

3.2.2. Practical implications related to the findings of the Studies of the thesis

Next, the author would like to discuss in detail a few of the practical implications not resulting directly from but nevertheless related to the findings of the Studies. This means that these implications can be connected to the findings of

the Studies of the thesis although they do not emerge directly from those Studies. In particular, these implications concern the valuation models discussed in Chapter 1 of the present thesis but also some implications relevant in the Estonian context. The list of implications discussed below is not finite but the author focuses on the most important (or explicit) ones.

The tax advantage of corporate debt and the cost of capital under the distributed profit taxation system. One of the important implications of the system of distributed profit taxation concerns the debt interest tax shield, or the tax advantage of corporate debt. The completion of Task 10 (discussed in the previous subchapter) showed that those financial practitioners who considered the peculiarities of the distributed profit taxation system neglected the interest tax shield on debt. This means that for a company operating under (the Estonian version of) distributed profit taxation, the formula of WACC relevant for a company operating under traditional profit taxation (see Equation 9 in Subchapter 1.1) takes the following form:

$$WACC = \frac{D}{D+E} k_D + \frac{E}{D+E} k_E \quad (13)$$

Under the classical system of income taxation, corporate debt allows a company to decrease its income tax liability and save on income tax payments. It appears that under the version of the DPT system currently in force in Estonia the investor level-based tax advantage of corporate debt is absent (from this perspective the approach of some practitioners is in concordance with financial theory). In other words, investing a certain amount of capital into the company; for example, through the purchase of its bonds instead of the purchase of shares, does not grant the investor any personal level tax gain. Still, this implication only holds if there is flat tax rate for all the capital income received by the investor (as in Estonia, Latvia and Georgia). It can be shown that the tax advantage exists if the income tax rate on debt capital income is *lower* than the income tax rate on equity income.[24]

Still, the absence of a tax advantage of debt under DPT does not imply that the investor should be indifferent between debt and equity investment from the perspective of expected risk and return. Debt and equity are generally of different risk level, and investors usually require a higher rate of return on equity investment than debt investment (Bodie *et al.* 1986). Proportions of levels of risk of debt and equity to the investor depend on whether the investor is a majority or a minority shareholder, and whether one is the only creditor to the company.

[24] In order to prove this statement, the formula of the gain from leverage in Miller (1977) can serve as a starting point.

Free cash flows under the distributed profit taxation system. Another important implication of the DPT system for corporate valuation is related to the calculation of free cash flows, FCFF and FCFE, which are used in various DCF-based models of valuation. This implication is closely related to the findings of Study I, which considered the simplest form of DCF-based model, DDM.

Under the TPT system, free cash flow to firm (FCFF) is calculated by bringing EBIT onto an after-tax basis. When estimating the company's cash generation potential, it is assumed that the company operates without debt, and hence income tax liability is deducted from EBIT, not pre-tax profit (EBT). Because under the DPT system corporate income tax liability depends on the amount of distributed profit, then the income tax rate has to be adjusted for the unleveraged company's dividend payout ratio δ_U (where $\delta_U = \frac{Gross\ dividends_n}{EBIT_n}$). Hence, Formula 6 transforms into the following:

$$(14) \quad FCFF_n^{DPT} = EBIT_n(1 - \delta_U t) + D\&A_n - CAPEX_n - \Delta NWC_n$$

Therefore, if $\delta_U = 1$ then $FCFF_n^{DPT} = FCFF_n^{TPT}$. This implies that if the company operating under DPT distributes all of its earnings, then it has no tax advantage over a similar company operating under TPT, and the value of companies operating under DPT and TPT are equal. This is in concordance with the results of Study I.

Adjusting income tax rate for the dividend payout ratio δ_U is also necessary when calculating free cash flow to equity under DPT; that is $FCFE_n^{DPT}$. It has to be noted that in order to calculate $FCFE_n^{DPT}$ one can proceed from Formula 7 presented in Subchapter 1.1. But this should not lead to the conclusion that $FCFE_n^{DPT}$ and $FCFE_n^{TPT}$ are as if identical.

We have to keep in mind the circumstance that the computational procedure of net income NI under TPT is different from that under DPT – this is especially important in the case of a financially leveraged company. For a leveraged company operating under TPT, net income is calculated as:

$$(15) \quad NI_n^{TPT} = (EBIT_n - I_n)(1 - t)\ ,$$

whereas under the system of distributed profit taxation, where debt interest payments do not decrease taxable earnings (there is no interest tax shield), net income is calculated as:

$$(16) \quad NI_n^{DPT} = EBIT_n(1 - \delta_U t) - I_n$$

Let's look at the payout ratio δ_U again. Neglecting the possibility to distribute profits on the account of retained earnings, a financially leveraged company operating under DPT can distribute as gross dividends maximally $EBIT_n - I_n$.

Therefore, for the financially leveraged company δ_U is always less than 1. If this company distributes a maximal amount as gross dividends then the payout ratio equals:

$$\delta_U = \frac{EBIT_n - I_n}{EBIT_n} \tag{17}$$

from which one can see that in this case $NI_n^{TPT} = NI_n^{DPT}$. This can be confirmed by substituting $\frac{EBIT_n - I_n}{EBIT_n}$ from Formula 17 into Formula 16:

$$\begin{aligned} NI_n^{DPT} &= EBIT_n\left(1 - \frac{EBIT_n - I_n}{EBIT_n}t\right) - I_n = \\ &= EBIT_n - (EBIT_n - I_n)t - I_n = \\ &= (EBIT_n - I_n) - (EBIT_n - I_n)t = (EBIT_n - I_n)(1 - t) = NI_n^{TPT} \end{aligned} \tag{18}$$

And only in this case is $FCFE_n^{TPT} = FCFE_n^{DPT}$. On the contrary, if the company retains all of its profits then in the calculation of $FCFE_n^{DPT}$ no adjustment for corporate income tax rate has to be made.

Additionally, if we want to express free cash flow to equity via free cash flow to firm under DPT (similar to Formula 8 for a company operating under TPT) then intuitively the following relationship must hold:

$$FCFE_n^{DPT} = FCFF_n^{DPT} - I_n - \Delta L_n \tag{19}$$

Formula 19 states that as there is no interest tax shield under DPT; therefore, interest payments of a leveraged company operating under DPT must not be brought on after a particular income tax level.

The previous discussion infers that the FCFF and FCFE of a company operating under DPT depend on the size of distributed profits, the company's payout ratio. If a company operating under DPT does not distribute all of its current year's earnings then $FCFF_n^{DPT} > FCFF_n^{TPT}$ and $FCFE_n^{DPT} > FCFE_n^{TPT}$ (*ceteris paribus*). The difference between $FCFF_n^{DPT}$ and $FCFF_n^{TPT}$ ($FCFE_n^{DPT}$ and $FCFE_n^{TPT}$) is largest if a company operating under DPT retains all of its profits. This suggests that if one uses FCFF or FCFE models for business valuation then the enterprise and equity values under DPT would be higher compared to those under TPT.

Price-to-earnings multiple under the distributed profit taxation system. One of the practical implications of the research is related to the application of

the market-based price-to-earnings (P/E) multiple for the valuation of companies operating under DPT. Market-based valuation ratios are different from fundamental valuation ratios (one of which, the fundamental P/B ratio, was discussed in Study II of the thesis) – while the latter show what the value of a ratio should be, the former show the actual values of ratios based on the market prices of public companies.

The P/E multiple is one of the most popular market-based approach valuation models (Fernández 2002a). The market-based P/E multiple can be used to clarify whether a share of a publicly traded company is over- or undervalued compared with those of peer companies; this can also be used to estimate the equity value of a non-listed company on the basis of the market-based P/E ratios of public peer companies. When calculating the P/E ratio, the market price of a share of a company is divided by earnings per share (EPS), or net income (net profit) per share; alternatively, one gets the P/E ratio by dividing the company's market capitalization by the company's net income (Fernando 2022). Among others, the company's EPS depends on the income tax paid by the company.

However, in a situation where the market-based P/E ratio calculated for a company operating under DPT, the ratio's denominator – EPS – is affected by income tax which in turn depends not on pre-tax profit (which is the case for TPT) but on dividends paid by the company. This implies that when using the EPS of a company operating under DPT, EPS_{DPT}, to calculate its P/E_{DPT} the result can be distortive due to ignoring the peculiarities of the DPT system. This nuance becomes particularly explicit when one calculates P/E_{DPT} ratios for two otherwise identical companies A and B that differ only in their dividend policies. If both companies have equal pre-tax profit and equal market capitalization but in a given year company A does not distribute dividends while company B does, then the P/E_{DPT} ratio for company B is higher than for company A. This may lead to the conclusion that the shares of company B are more expensive relative to those of company A. In an extreme case, if company B distributes gross dividends in the amount of $1/t$ times higher compared with the current year's net income (on account of retained earnings) one may conclude that company B is losing money. This, however, is an incorrect conclusion because the profitability (measured, for example, via pre-tax profit margin) of both companies is in fact the same. Hence, when calculating the market-based P/E_{DPT} one should proceed from pre-tax EPS.

This raises a potential debate about calculating P/E ratios in general; that is, one can argue that the P/E ratios of companies operating under TPT are also distorted by corporate income tax rates, especially when a sample of comparable companies consists of firms operating on different markets with different income tax rates. This debate goes beyond the scope of the present dissertation but in the opinion of the author of the thesis companies operating under TPT have less influence over their statutory income tax liability compared with those operating under DPT. In other words, profitable companies operating under TPT cannot choose to pay less or more tax or postpone its income tax

liability (leaving aside various tax avoidance schemes) compared with profitable companies operating under DPT.

Next, the author would like to discuss couple of practical implications relevant in the context of Estonia. At this point, the author neither develops new models nor raises new issues beyond the scope of the dissertation.

Corporate valuation under distributed profit taxation with regular dividends. As pointed out in Chapter 1 of the thesis, starting from 2018 dividends paid by Estonian companies on a regular basis are taxed at 14% at the corporate level and at 7% at the shareholder level if a dividend recipient is a natural person (Income Tax Act 2023). When dividends are paid to a legal person, further taxation depends on the recipient's residential status and also on how many links in the chain exist between the dividend paying company and the actual beneficiary. Results of the Studies of this thesis rely on the pre-2018 taxation framework; that is, when there were no differences in the taxation of regular and irregular dividends. This may raise a legitimate question on whether the results are applicable to the valuation of companies that operate under DPT and pay dividends regularly.[25]

At first sight, the framework involving regular dividends may look confusing, as it seemingly contains the double taxation of distributed profits, first at the corporate and then at the personal level. However, the regular distribution of profits does not alter the conclusions of this thesis; in other words, there is no additional need to adjust the valuation models for regular dividends. This claim is valid foremost for the framework where the shareholders of a dividend paying company are natural persons and Estonian tax residents. Let us discuss this in more detail.

If we look at the situation from the perspective of a natural person, then regular profit distribution only slightly decreases the amount of net dividends received by the person. Consider the following example: if a company pays an irregular gross dividend of DPS_g euros, then the shareholders will receive a net dividend in the amount of $DPS_g \times (1 - 20\%)$ euros minus 20% of income tax paid at the corporate level and no income tax at the personal level. If DPS_g euros to be distributed are paid on a regular basis, then first the company has to pay $14\% \times DPS_g$ euros of income tax and the shareholders have to pay 7% on $DPS_g \times (1 - 14\%)$ euros, which implies that they can pocket $DPS_g \times (1 - 14\%) \times (1 - 7\%)$ euros. Comparing $DPS_g \times (1 - 14\%) \times (1 - 7\%)$ to $DPS_g \times (1 - 20\%)$ we can learn that the former amount is smaller than the

[25] It has to be mentioned that at the time of writing, the government of Estonia abolished the corporate level taxation of regular dividends at the lower rate (and additional taxation at the personal level), and restored the pre-2018 taxation framework from 2025 (Riigikogu võttis vastu maksumuudatused 2023).

latter only by 0.025% – this measure remains constant regardless of the amount of dividends paid.

This difference becomes somewhat conditional when we introduce additional legal entities between the dividend paying company and a natural person – it is quite common in Estonia and elsewhere for natural persons to own shares in companies indirectly, via intermediary companies. For brevity, let us consider the situation where there is one company, *F2*, between the dividend paying company, *F1*, and a natural person (the actual beneficiary); the natural person owns 100% shares of *F2*. For simplicity also let us assume that there is no time lag between payment by the dividend payer and the intermediary company – dividends paid by *F1* to *F2* are instantly paid to the natural person by *F2*.

When *F1* pays *F2* a regular gross dividend in the amount of DPS_g, then *F1* has to pay income tax on the distributed profit in the amount of $14\% \times DPS_g$. Next, if *F2* owns less than 10% of the shares of *F1* and chooses to pay regular dividends as well, then *F2* has to pay an additional 14% on the gross amount received from *F1*; in other words, $14\% \times DPS_g \times (1 - 14\%)$. Finally, the natural person has to pay 7% on the amount received from *F2*; that is, $7\% \times DPS_g \times (1 - 14\%)^2$. This implies that the actual beneficiary receives $DPS_g \times (1 - 14\%)^2 \times (1 - 7\%)$. Under the pre-2018 framework the same beneficiary would receive $DPS_g \times (1 - 20\%)^2$. Comparing amounts of net dividend under the post-2018 and pre-2018 frameworks one can see that the amount received by the actual beneficiary is by $\frac{(1-14\%)^2 \times (1-7\%)}{(1-20\%)^2} - 1 \approx 7.47\%$ *higher*; that is, the tax burden of the actual beneficiary is *lower* under the post-2018 framework given the same amount of gross dividend distributed by *F1*. Again, this difference is constant regardless of the amount of distributed profit.

If *F2* owns 10% or more of the shares of *F1* then under the post-2018 framework *F2* has no liability to pay 14% in income tax but the natural person has to pay 7% income tax at the personal level. Under the pre-2018 framework, *F2* did not have to pay 20% income tax nor did income tax have to be paid by the actual beneficiary. In this case, under the post-2018 framework the natural person would receive $\frac{(1-14\%) \times (1-7\%)}{(1-20\%)} - 1 \approx -0.025\%$ *less*. This difference is equivalent to the difference which exists in the situation where the natural person holds shares in the dividend paying company.

All in all, the regularity or irregularity of dividend payments does not change much from the perspective of corporate valuation: dividend paying companies can save some money on income tax liability, while for natural persons – actual beneficiaries – the amount of net dividends received can be larger or smaller.[26]

[26] It also has to be added that before 2018, the dividends of a natural person were not considered part of their taxable income and did not have to be declared; starting from 2018 dividends are included in taxable income.

The bottom line is that from the practical perspective regular dividends *conceptually* do not affect the valuation framework under DPT.

The valuation of Estonian commercial banks. Currently, a remarkable exception (arising from the post-2018 income taxation framework) to the Estonian system of distributed profit taxation is income taxation for commercial banks (credit institutions). Commercial banks operating in Estonia – resident credit institutions of Estonia and Estonian branches of non-resident credit institutions – are required to make advance income tax payments on the profit earned in the previous quarter at a tax rate of 14% (Income Tax Act 2023). This extraordinary way of taxing commercial banks with the aim of increasing the contribution of banks in the state's tax revenues came into force in 2018 along with the differential taxation of regular dividends (Valitsus leppis kokku … 2017). Hence, this interesting aspect also needs to be paid attention to in the context of the present thesis.

Leaving aside the discussion of the pros and cons of the system of advance payments and its impact on the financial condition of the banks, it can be concluded that the exceptional approach to corporate income taxation of Estonian commercial banks also implies a different approach to their valuation. It has to be mentioned that this aspect of valuation is relevant for a very small number of companies: as of the beginning of 2023 in Estonia there exist nine resident credit institutions and five branches of non-resident credit institutions (Supervised Entities … 2022). Despite the relatively small number of banks, they play a significant role in the economy: as of the end of 2021, the total assets of Estonian credit institutions were 37.92 billion euros (Aggregated balance sheet of commercial banks… 2023). For comparison, at the end of the same year the total assets of all nonfinancial companies who provided their financial data to Statistics Estonia were 101.2 billion euros (EM009: ENTERPRISES' ASSETS... 2023)[27].

According to the system of advance payments, these payments are not repayable: if a bank chooses to distribute its profits to shareholders, then at the moment of profit distribution the bank does not have to pay income tax at a rate of 14%; the shareholders of the bank have to pay their part of 7% income tax as in the case with regular dividends (Income Tax Act 2023). If the bank chooses not to distribute its profits, then the tax authority simply keeps the money. In other words, unlike other companies, Estonian banks cannot postpone their income tax liability.

In the opinion of the author of the thesis the system of advance payments resembles a classical no integration system of income taxation: at the corporate level the bank pays income tax on total profits (almost) at the moment of

[27] The data provided by Statistics Estonia does not cover all Estonian companies. Hence, the value of total assets of all nonfinancial companies is supposedly much larger. Even so, the ratio of assets held by Estonian commercial banks to the total assets of all companies in Estonia can be considered quite high.

earning the profits, later at personal level, when the bank distributes profits, the shareholders pay income tax on the distributed part of the profits.[28]

Despite the fact that the system of advance income tax payments creates some time-related distortion in the Estonian DPT environment, from the perspective of corporate valuation it seems that Estonian banks have to be valued as companies operating under a classical system of income taxation with a corporate income tax rate of 14%.

3.3. Summary of the thesis

The aim of the dissertation was to provide a comprehensive understanding of the peculiarities of the valuation of companies operating under the system of distributed profit taxation compared with the valuation of companies operating under classical (traditional) income taxation regimes. The aim was achieved by setting eleven research tasks which were answered in five individual Studies. Since, to the author's best knowledge, there are no previous theoretical studies connecting the fields of corporate (asset) valuation and distributed profit taxation, then in some sense the Studies of this thesis can be considered path setting.

The results of Studies demonstrated that well-known valuation approaches should be adjusted for the features of distributed profit taxation. This concerns income-based (the dividend discount model), market-based (price-to-book valuation multiple) as well as assets-based (valuation of non-operating assets) approaches, although the number of adjustments elaborated in the Studies are not finite. The findings demonstrate that at corporate level the equity value of a company operating under the distributed profit taxation system is higher compared with that of operating under the traditional (or classical) system of income taxation. The results also suggest that in some circumstances the DPT system may provide the company's shareholders a tax advantage over other systems of income taxation. The different procedure involved in the valuation of companies operating under DPT vis-à-vis companies operating under TPT and other systems of income taxation alludes to the different approach to assessing the financial performance (especially the profitability) of companies operating under DPT, compared with firms operating under other tax systems. The peculiarities of the DPT system impact the optimal holding period of investment assets, which is longer compared with the optimal holding periods under other income tax systems.

There is mixed evidence on how financial professionals perceive the difference between the value of companies operating under the DPT system vis-à-vis those operating under the TPT system. The median estimate of the equity

[28] Interestingly, if Estonian banks made advance payments at 20% income tax and shareholders would not have to pay income tax on distributed profits (the case of 'irregular' dividends), then the system of advance payments would be similar to a full integration system.

value of a company operating under the distributed profit taxation system provided by surveyed finance practitioners was higher than the median estimate of the equity value a company operating under traditional profit taxation. The majority of practitioners though did not estimate the equity value of a company operating under DPT to be higher than the equity value of a company operating under TPT. This allows us to potentially conclude that DPT system-related nuances are somewhat challenging or confusing for many finance practitioners, at least on the basis of provided valuation estimates.

Although the topic of the thesis is quite specific, and the thesis itself is mainly of a theoretical nature, its results concern many economic agents, primarily business owners and valuation practitioners. In addition, professional business advisors and corporate managers can also be interested in the findings of this dissertation. Therefore, the author of the thesis claims that the dissertation has significant relevance at a societal level.

3.4. Limitations of the thesis

This dissertation is restricted by both theoretical and empirical limitations.

Theoretical limitations. The author provides theoretical evidence on how the valuation of companies operating under DPT in respect to profit tax should differ from those operating under TPT. However, the author of the thesis admits that he does not address the full specter of theoretical issues associated with the peculiarities of valuation under distributed profit taxation which imposes certain limitations. Those limitations can be broken down into several considerations.

One of those considerations is related to the narrow focus on valuation models. The thesis does not cover DPT-induced valuation peculiarities for all appraisal methods and models, especially the popular ones. None of the Studies of the dissertation discusses the consequences of the DPT system for FCFF and FCFE valuation models. Earlier in this chapter, the author concluded that the calculation of free cash flow to firm and free cash flow to equity under DPT is different from that under TPT. However, besides cash flows there are other components of FCFF and FCFE models worthy of scrutiny, foremost discount rate and terminal value. Although in Study I the author of the thesis relied on the dividend discount model, which can serve as a simplified proxy for all the DCF-based models, FCFF- and FCFE-based valuation approaches are much more nuanced compared with DDM, and profit tax-related aspects have to be clarified additionally.

The situation with the narrow focus is applicable to valuation using market multiples which is considered in Study II. Study II is based on the fundamental price-to-book ratio. Although P/B ratio can be modified into other related multiples, such as price-to-earnings, price-to-earnings growth (PEG) and price-to-dividend yield, there are many other popular market multiples, application of which may require clarification of profit tax-related aspects; for example, the enterprise value-to-EBITDA (EV/EBITDA) multiple.

Another consideration is related to the absence of personal income tax level-based analysis in Studies I, II and III. (In Study IV the impact of personal income taxation is considered but the valuation framework employed in the Study is unconventional, it is not based on a typical valuation approach.) As shareholders consider (or at least – should consider) the value of their investment based on its after personal income tax level worth, then the comparative analysis of corporate valuation under TPT vis-à-vis under DPT shall be conducted on a personal (after-tax) level. However, this kind of analysis is aggravated by the circumstance that personal income taxation rules are more complicated compared with corporate income taxation rules due to miscellaneous exemptions, different tax rates applied to different sources of income and other nuances. Also, personal level income taxation rules differ by country as do the rules of corporate taxation: this means that even if two countries (e.g. Estonia and Latvia) have the distributed profit taxation system, income taxation rules on the personal level in those two countries are not comparable.

The third consideration resonates with the previous one. All the theoretical Studies are based on a version of the DPT system currently employed in Estonia, which assumes that distributed profits are not taxed at the personal level. However, should any country implement the DPT system, it may not necessarily follow the Estonian model. Additionally, it is also possible to think of the modified DPT system under which retained earnings are taxed at a lower income tax rate compared with distributed ones. This implies that the valuation models presented in the Studies (as well as the results) are not universal and should be adjusted for a situation where retained earnings are taxed as well.

Fourth, corporate valuation in an international context is especially challenging. There are many foreign companies with ownership in Estonian companies and vice versa. The thesis does not address the issue of transborder cash flow taxation, which is of particular interest to Estonian companies with ownership in foreign companies and to foreign companies with stakes in Estonian companies. Such an analysis would require working through tax legislation of the main foreign investor countries (Finland, Latvia, Sweden, Germany among others) as well as the tax treaties between Estonia and those countries. In the author's opinion, the issue of corporate income taxation in the valuation of companies with foreign ownership is relevant from the perspective of both the operating and non-operating assets of a company, such as (excess) cash holdings.

The last but not least theoretical limitation is related to the fact that any system of taxation is not static; it can be modified by policymakers for various economic and political considerations. Changes in the system can affect valuation models with regard to corporate income tax, potentially necessitating revisions and corrections.

Empirical limitations. The present dissertation is mostly theoretical and written mainly from a normative perspective. Empirical Study V addresses the issue of whether and how Estonian practitioners adjust their valuation approaches

when valuing companies operating under DPT. The empirical study's limitations stem from a relatively small sample size, given the larger population of practitioners in Estonia engaged in corporate valuation. In addition, the study is influenced by the diverse educational and professional backgrounds of the participants, the restricted scope of aspects covered by the survey, and occasionally the shallow responses to certain questions. While some respondents noted they did employ tax-related adjustments when valuing companies operating under DPT, it would be hard to verify whether it was really the case (and whether those adjustments were made correctly). After all, any survey can be considered a 'snapshot', practices and understandings do not change over time.

A potentially good source of information on the approach of practitioners to corporate valuation are their valuation reports. They shed the light on how practitioners actually value companies, and how they consider aspects of corporate income taxation. However, the problem with valuation reports is that they are typically confidential which largely means that the data are not available.

The author believes that empirical research would help to handle the research problem from the perspective of positive economics (and in fact, the only empirical study of the thesis does so). Empirical studies could help answer a few more important questions, especially on whether the shift to distributed profit taxation from total profit taxation substantially affects the equity value of companies. To answer the question on the impact of the shift from total profit taxation to distributed profit taxation on corporate value, one should use historical data on the stock prices of Estonian companies from the period 1999–2000. Practical problems are related to the small number of listed companies at that time (23 in 1999 and 20 in 2000) and the low liquidity of the shares of those companies (Listed domestic companies… 2023). Also, it is challenging to point out an exact moment when stock prices considered the impact of tax regime change.

3.5. Avenues for future research

The realm of corporate taxation is in constant change. Those changes apply not only to changes in tax rates but also to changes in the rules of taxation, the abolition of old taxes and the introduction of new ones. Relatively simple tax systems may evolve into more complex and contrariwise. Every change, even minor, can provide good prospects for academic research.

As mentioned in the previous subchapter, despite its narrow scope the thesis does not cover all the theoretical aspects related to corporate valuation under DPT. There are still many issues waiting for answers. A significant portion of the ideas for future research can be derived from the limitations of the present dissertation.

One of the issues is the development of complete FCFF and FCFE models under DPT. This also applies to the adjusted present value (APV) model not

discussed in the current thesis along with many other valuation models and methods (e.g. discounted earnings method). In addition to studies on adjustments to the income-based valuation models the research on tax-related adjustment of valuation multiples – especially the EV/EBITDA multiple – may also provide interesting outcomes. The present study also barely touched the problem of assets-based valuation under DPT, which also needs further elaboration.

The theoretical models constructed in the thesis can be developed into more universal ones by, for example, incorporating personal level income taxation and the possibilities of the taxation of retained earnings. Certainly, there are possibilities to merge the fields of finance, taxation and law to research the problem of the valuation of multinational corporations that operate on markets with different systems of corporate income taxation, including DPT.

There are also possibilities to elaborate a survey of valuation practitioners. As currently, a system of distributed profit taxation is in force also in Latvia and Georgia, it would be interesting to learn whether and how finance professionals in these countries consider the impact of the DPT system on the value of equity. In order to better understand *how* practitioners recognize aspects of income taxation in the process of valuation one can conduct in-depth interviews combined with simplified appraisals of (hypothetical) companies – that kind of study will help to understand also which inputs practitioners use in corporate valuation.

The leitmotif of the current dissertation is the question of how companies operating under the DPT system should be valued compared with companies operating under a classical system of corporate income taxation. In the opinion of the author, it is necessary to study the other side of the coin, namely whether the equity of (public) companies operating under DPT are indeed more valuable vis-à-vis their peers operating under TPT. Over the last couple of years, the Estonian stock market has experienced tremendous growth in terms of the number of listed companies: as of the end of 2022 there were 33 public companies listed on the Nasdaq Tallinn Stock Exchange; a significant number of companies – 11 – went public in 2021 and 2022. For comparison: during the period 2016–2020 only five companies went public (Investor Calendar … 2022). Although there are some challenges with the data (e.g. many stocks are rather illiquid, underlying companies operate on several markets), there are promising prospects to explore the impact of the DPT system on the value of equity of companies.

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SUMMARY IN ESTONIAN

ETTEVÕTETE VÄÄRTUSE HINDAMINE JAOTATUD KASUMI MAKSUSTAMISE SÜSTEEMI TINGIMUSTES

Uuringu põhjendus

Ettevõtete väärtuse hindamine on jätkuvalt aktuaalne teema iga firma jaoks, kuna iga ettevõte juhtkond peab pidama silmas väärtuse maksimeerimise põhimõtet, mis on kaasaegse ärirahanduse nurgakivi. Selle põhimõtte kinnitust võib leida igast laialdaselt tuntud rahanduse õpikust (vt. Brigham & Ehrhardt 2017; Brealey *et al*. 2017); väärtuse maksimeerimise põhimõtte osas valitseb konsensus ka praktikute seas (vt nt Servaes & Tufano 2006). Mõiste *väärtus* viitab antud kontekstis puhtalt *rahanduslikule* väärtusele. Vastavalt väärtuse maksimeerimise põhimõttele on ettevõtte tegevuse peamiseks eesmärgiks selle väärtuse maksimeerimine nii praeguste kui ka tulevaste omanike jaoks pikemas perspektiivis. See tähendab, et iga ettevõtte poolt langetatud otsus peab olema orienteeritud ettevõtte, eriti selle omakapitali, väärtuse kasvule. Seega, vajadus äriühingu väärtuse hindamise järele võib tekkida hindamaks kuivõrd tulemuslik on äriorganisatsiooni juhtimine, kuid see pole ainus juhtum, kus väärtuse hindamine võib olla tarvilik.

Äriühingute väärtuse hindamine on seotud paljude kontseptuaalsete ning praktiliste väljakutsetega. Finantsväärtuse hindamiseks eksisteerib palju erinevaid, keerulisemaid ja lihtsamaid meetodeid; mõnede lähenemiste rakendamiseks pole vaja eriti palju andmesisendeid, samas kui teiste jaoks on neid vaja piisavalt palju. Reaalsuses on ettevõtte väärtus omamoodi funktsioon paljudest nii sisemistest (ehk ettevõtte poolt kontrollitavatest) kui ka välistest (ettevõtte poolt mittekontrollitavatest) käituritest. Need sisemised ja välised väärtuskäiturid sisaldavad muuhulgas ettevõtte müügitulu kasvumäära, kasumlikkust, varade struktuuri, juhtimise kvaliteeti, turuintressimäärasid, erinevaid riskipreemiaid, maksusid jpt. Arvukate maksude hulgas on väärtuse käiturina suur tähendus ettevõtte tulumaksul, kuigi see ei pruugi olla kõige olulisem mõjur. Vaatamata võimalusele optimeerida maksukoormust läbi erinevate maksude vältimise skeemide, ei saa enamus firmadest tulumaksu tasumisest täielikult kõrvale hoiduda. Seega on ettevõtte tulumaks (ka kasumimaks) asjaolu, mida praktikud väärtuse hindamise protsessis ei saa ega tohi ignoreerida.

Eesti kontekstis on ettevõtte tulumaksustamise ja väärtuse hindamise vahelise seose uurimise peamiseks põhjuseks omamoodi unikaalne tulumaksusüsteem, mis kehtestati esmakordselt Eestis 2000. aastal, ning mida teatakse jaotatud kasumi maksustamise (edaspidi ka DPT – *distributed profit taxation*) süsteemi nimetuse all. Mõnedes allikates viidatakse taolisele süsteemile kui jaotusmaksu (*distribution tax*) režiimile (Ahtiainen 2022; Pillar Two GloBE Rules… 2023). Taolise maksustamise režiimi tingimustes toimivad äriühingud peavad tasuma tulumaksu mitte kasumi teenimise, vaid selle jaotamise hetkel. Teisiti öeldes, DPT süsteemi tingimustes mingil konkreetsel aastal maksavad

ettevõtted tulumaksu vaid selle kasumiosa pealt, mis on omanikele jaotatud dividendide või mingi muu kasumijaotuse vormi kujul. See erineb oluliselt maksustamisest klassikalise tulumaksusüsteemi tingimustes.

Autori arvamuse kohaselt on väitekirja teema tähtis ka rahvusvahelisel tasandil. Kuigi DPT süsteem on kõige kauem olnud kasutusel Eestis, kehtib see praegu ka teistes Euroopa riikides: 2017. aastal Eestiga sarnane süsteem oli juurutatud Gruusias ning 2018. aastal Lätis. Mõned aastad tagasi käis arutelu jaotatud kasumi põhise maksu rakendamisest Ukrainas (Hnatyuk 2019). Põhja-Makedoonias kehtis jaotatud kasumi maksustamise süsteem lühikest aega perioodil 2009–2013, 2014. aastal taastati riigis vana ettevõtete maksustamise süsteem suurendamaks riigitulusid (Saha & Betliy 2017). Seega väitekirja tulemused ja järeldused võivad olla huvitavad DPT süsteemiga riikide äritegelaste ja majanduspoliitikate kujundajatele ning ka nende riikide ettevõtjatele ja poliitikutele, kes plaanivad või kaaluvad taolise süsteemi juurutamist.

Jaotatud kasumi maksustamise põhine süsteem on juba pälvinud arvestatavat tähelepanu akadeemilistes ringkondades. DPT süsteemi järelmeid on uuritud nii makroökonoomilisel (nt Funke & Strulik 2006; Masso & Meriküll 2011) kui mikroökonoomilisel tasandil (Masso *et al*. 2013). Akadeemiliste uuringute arv, mis on pühendatud selle süsteemi mõjude ja tagajärgede analüüsimisele ettevõtte tasandil, pole väga suur, seosed DPT süsteemi ja ettevõtete väärtuse hindamise vahel on seni praktiliselt käsitlemata. Käesolev väitekiri on suunatud selle uurimistühiku täitmiseks.

Asjaolu, et jaotatud kasumi maksustamise süsteemi tingimustes tegutsevad firmad saavad lükata edasi oma kohustust tasuda tulumaksu jaotamata kasumi pealt määramatuks ajaks, loob taoliste firmade omanikele potentsiaalse eelise klassikalise tulumaksusüsteemi tingimustes tegutsevate ettevõtete omanike ees. Klassikaline kasumi maksustamise süsteem, või klassikaline tulumaksusüsteem, on selline süsteem, kus äriühingu kasumit maksustatakse kaks korda – esmalt tasub ettevõte tulumaksu kogu tulumaksueelse kasumi pealt, seejärel tasuvad omanikud tulumaksu dividendide ning kapitali kasvutulu pealt[29] (Kari & Ylä-Liedenpohja 2002). Käesolevas dissertatsioonis viitab töö autor sellele süsteemile ka kui traditsioonilisele tulumaksusüsteemile (kasutades lühendit TPT – *traditional profit taxation*).

Teoreetilisest vaatenurgast, DPT tingimustes tegutsevad rentaablid ettevõtted teenivad suuremaid kasumeid, mida nad saavad reinvesteerida võrreldes analoogsete TPT tingimustes tegutsevate ettevõtetega (*ceteris paribus*). Eeldusel, et leidub piisavalt tasuvaid investeerimisprojekte, saavad DPT keskkonnas tegutsevad firmad erinevalt TPT keskkonnas tegutsevatest firmadest investeerida rohkem nendesse projektidesse. See arvatavasti tekitab esimestele ettevõtetele

[29] Kasumite topeltmaksustamine võib toimuda ka DPT süsteemis. Võtmeerinevus maksustamises TPT ja DPT vahel seisneb siiski kasumite maksustamises just *äriühingu* tasandil: kui TPT puhul maksustatakse kogu tulumaksueelne kasum, siis DPT puhul vaid jaotatud kasumi osa. Käesolevas väitekirjas jaotatud kasumi maksustamise süsteemi käsitlemisel lähtutakse vaikimisi Eestis kehtivast DPT süsteemi versioonist.

rohkem võimalusi väärtuse loomiseks võrreldes viimati mainitud ettevõtetega. Seega, DPT tingimustes tegutsevate äriühingute väärtust ei saa hinnata samadel alustel TPT tingimustes tegutsevate äriühingute väärtusega: rakendada laialdaselt tuntud teoreetilistest uurimustest pärit suuniseid ja tüüpilisi väärtuse hindamise valemeid selgitamaks Eesti, Gruusia ja Läti ettevõtete väärtust võib viia ekslike tulemuste ja järeldusteni. Võib väita, et jaotatud kasumi maksustamise tingimustes tegutsevate ettevõtete väärtuse hindamise osas puuduvad nii konsensus, kui ka ühesed juhised või soovitused. Üksmeele puudumine võib viia Eestis kehtiva kasumimaksu erisugusele käsitlusele, mis omakorda võib tekitada segadust nii investorite, ettevõtjate ja erinevate otsustajate seas.

Kuna väärtuse hindamine tugineb formaalsete meetodite rakendamisele, siis võib äride või varade väärtuse hindamisel teha kergesti vigu; need hindamisvead võivad tekkida ka kasumimaksu väärtõlgendamise tõttu. See on paljuski seotud maksustamise reeglite komplekssusega, mis on rahvusvahelises kontekstis eriti aktuaalne probleem. Sellegipoolest võib kasumi maksustamist võtta valesti arvesse ka lihtsamates väärtuse hindamise juhtumites. Erialases kirjanduses on käsitletud erinevaid väärtuse hindamisega seotud peamisi ja vähemtähtsamaid vigu (vt nt. Fernández & Bilan 2007), kuid nende kõrval pole praktiliselt pööratud tähelepanu ettevõtete tulumaksustamisest tulenevatele vigadele.

Väärtuse hindamisega seotud järelmite uurimine võib selgitada olulisi aspekte nii äripraktikute kui ka poliitikakujundajate jaoks. Praktikute seisukohast võib täpsem väärtushinnang aidata kaasa paremate otsuste langetamisele seoses ettevõtte osaluse müügi või ostmise, uue investeerimisprojekti käivitamise või finantsturult kapitali kaasamisega. Väärtuse hindamise teema on tähtis ka avaliku sektori tegelaste jaoks, nt erastamist või majanduslikku kahju hindamist puudutavates küsimustes.

Uuringu eesmärk ja töö struktuur

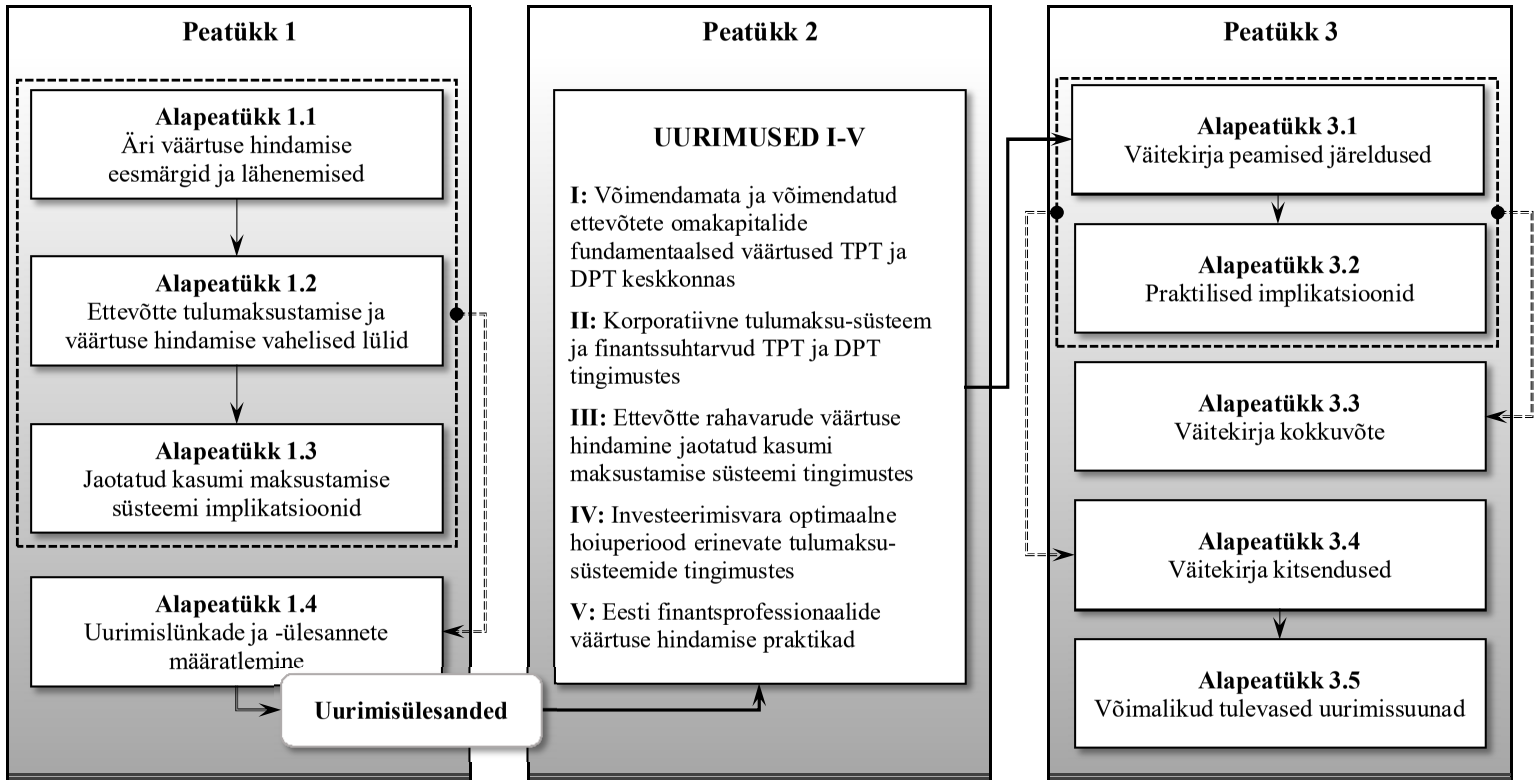
Väitekirja eesmärgiks on selgitada jaotatud kasumi maksustamise süsteemiga keskkonnas tegutsevate ettevõtete väärtuse hindamise eripärasid ning arendada mainitud ettevõtete väärtuse hindamiseks sobilikke, tulumaksuga kohandatud teoreetilisi finantsmudeleid. Mitmed asjaolud tekitavad vajaduse jõuda selgusele antud uurimisküsimuses. Nende asjaolude hulka kuuluvad nii vastavasisuliste varasemate teadusuurimuste puudumine, DPT keskkonna eripäradega arvestava väärtuse hindamise üldise praktika või suuniste puudumine, samuti konsensuse puudumine hindamispraktikute seas. Väitekirja autori põhitees seisneb selles, et vähemalt teoorias ei tohiks DPT süsteemi tingimustes tegutsevate ettevõtete väärtuse hindamine lähtuda samadest mudelitest nagu teiste tulumaksusüsteemide tingimustes tegutsevate ettevõtete väärtuse hindamine. Dissertatsioonis selgitatakse väärtuse hindamise eripärasid osaliselt võrdluses klassikalise tulumaksusüsteemi iseärasustega, kuna enamik üldtuntud väärtuse hindamise mudeleid oli välja töötatud klassikalises tulumaksusüsteemis toimivate firmade väärtuse hindamiseks. Tuleks mainida ka seda, et

väärtuse hindamise omapärasid DPT keskkonnas uuritakse mitte ainult teoreetilisest, aga ka empiirilisest (s.t. finantspraktikute) perspektiivist.

Hoomamaks ettevõtete väärtuse hindamise eripärasid DPT tingimustes on oluline uurida ühenduslülisid äriühingute väärtuse hindamise ja jaotatud kasumi maksustamise vahel väärtuse hindamise erinevate lähenemiste kontekstis. Lähtuvalt sellest on autori peamiseks sihiks arendada maksuga kohandatud väärtuse hindamise mudeleid, mis oleksid rakendatavad DPT süsteemiga keskkonnas. Enamgi veel, autor soovib töötada välja mudeleid, mis oleksid sobilikud nii finantsvõimenduseta kui ka -võimendusega ettevõtete väärtuse hindamiseks. Lisaks sellele esitatakse ka äripraktikutele mõeldud soovituste kogumit. Seega on uuringu eesmärgi saavutamiseks vaja läbida järgnevad uurimissammud:

1. Tuua välja ettevõtete väärtuse hindamise eesmärgid ja lähenemised (Alapeatükk 1.1).
2. Arutleda kasumimaksu kui väärtuskäituri tähenduse üle äriühingute väärtuse hindamisel, selgitada jaotatud kasumi maksustamise süsteemi peamisi eriomadusi ning selle positsiooni teiste ettevõtete tulumaksustamise süsteemide seas (Alapeatükk 1.2).
3. Sünteesida varasemate kasumi maksustamise ja ettevõtete väärtuse hindamise vahelisi seoseid käsitlevate, samuti jaotatud kasumi maksustamise süsteemi järelmeid käsitlevate uurimuste tulemusi (Alapeatükk 1.3).
4. Määratleda uurimislüngad ja uurimisülesanded (Alapeatükk 1.4).
5. Esitleda uurimislünkasid ja uurimisülesandeid täitvad Uurimused (Peatükk 2).
6. Võtta kokku väitekirja Uurimuste peamised järeldused, tuua välja nende praktilised järelmid, väitekirja kitsendused ning võimalikud tulevased uurimissuunad (Peatükk 3).

Kuna doktoritöö tugineb viiele eraldiseisvale Uurimusele, tuleks neid ühendada ühtsesse uurimisraamistikku. Kui uurimissammud 1–6 panustavad üldise raamistiku rajamisse, siis uurimisülesanded on palju fokusseeritumad ning uurimislünkade täitmisele suunatud. Joonis 1 järgmisel leheküljel esitleb doktoritöö struktuuri, illustreerides muuhulgas ka seda, kuidas Uurimused on lõimitud uuringu raamistikku.



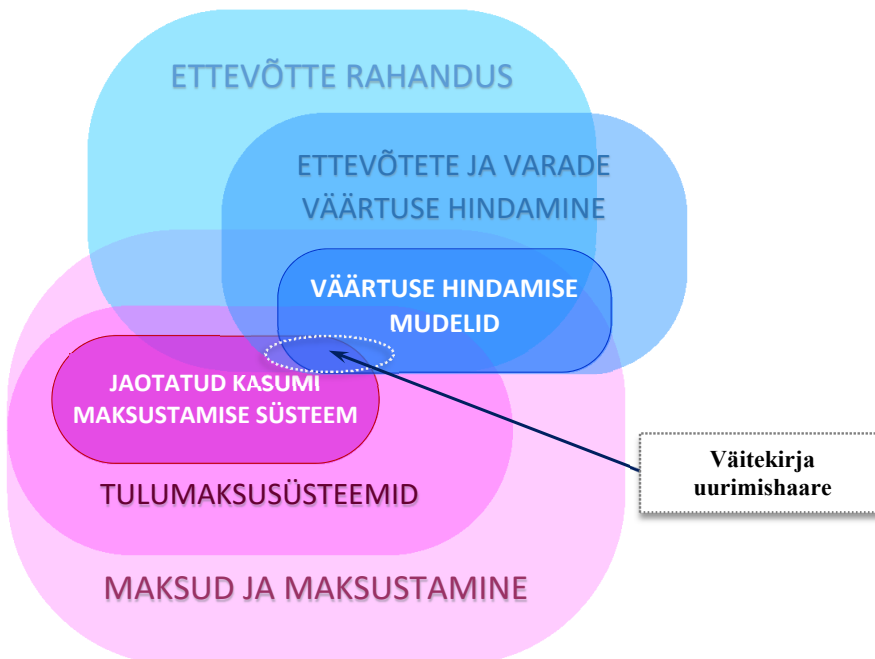
Joonis 1. Doktoriväitekirja struktuur (autori koostatud).

Järgnevalt toob autor välja uuringu panuse ning väitekirja uurimishaarde. See aitab paremini mõtestada lahti väitekirja uudsust.

Uuringu panus

Käesolev väitekiri panustab teadusvaldkonda nii teoreetilisel kui ka empiirilisel tasandil. Kui vaadata laiemalt, siis käesoleva uuringu panus paikneb ettevõtte rahanduse ja maksude ning maksustamise uurimisvaldkondade ühisosas. Ettevõtte rahanduse vaatenurgast võib väärtuse hindamise mudelite (valuatsioonimudelite) temaatikat käsitleda ettevõtete ja varade väärtuse hindamise uurimisvaldkonna alamvaldkonnana, väärtuse hindamise uurimisvaldkond on omakorda ettevõtte rahanduse uurimisvaldkonna alamvaldkond (väärtuse hindamise temaatika ulatub väljapoole ettevõtte rahanduse valdkonnast). Maksude ja maksustamise uurimisvaldkonna vaatenurgast lähtuvalt kuulub jaotatud kasumi maksustamise süsteemi uurimisvaldkond paljude erinevate tulumaksusüsteemide uurimisvaldkonda; tulumaksusüsteemide teemalisi uurimusi võib omakorda käsitleda maksude ja maksustamise valdkonna osana.

Uuringu panust aitab paremini mõista alljärgnev Joonis 2. Sellel joonisel on doktoritöö uurimishaare märgitud täpilise ellipsiga.



Joonis 2. Doktoriväitekirja uurimishaare (autori koostatud).

Mis puudutab uurimishaaret, siis käesoleva väitekirja teema paikneb peamiselt jaotatud kasumi maksustamise ja väärtuse hindamise mudelite uurimisvaldkondade ühisosas ning uuringu peamine panus asub samuti selles piirkonnas. Teisiti öeldes, dissertatsiooni põhifookus on väärtuse hindamise mudelitel jaotatud kasumi maksustamise süsteemis. Siiski hõlmab doktoritöö ka väärtuse hindamise mudelitega seotud DPT süsteemi väliseid aspekte, keskendudes eelkõige maksuga kohandatud mudelitele TPT süsteemis – seda peamiselt võrdlemaks maksudega kohandatud mudeleid erinevates maksukeskkondades. Täiendavalt käsitleb uuring DPT keskkonnaga seotud väärtuse hindamise aspekte, mis ei puuduta ainult väärtuse hindamise mudeleid – nimelt uuritakse doktoritöös praktikute lähenemist DPT keskkonnas tegutsevate ettevõtete väärtuse hindamisele. Need asjaolud mõnevõrra laiendavad väitekirja uurimishaaret, nagu Joonis 2 seda ka illustreerib. Väitekiri panustab teoreetilisse kirjandusse, pakkudes täiendavat käsitlust äriühingute väärtuse hindamise kohta mittetraditsioonilistes tulumaksusüsteemides. Samal ajal kui leidub päris palju akadeemilisi töid nt osalise integratsiooni süsteemi järelmite kohta (Ashton 1989a; Ashton 1989b; Monkhouse 1996; Lally 2000 jt.), siis siiani pole uuringuid, mis käsitleksid jaotatud kasumi maksustamise põhise süsteemi järelmeid äriühingute väärtuse hindamise jaoks – neid käesolev väitekiri adresseeribki.

Autor ei nendi, et tema väitekiri on esimene teadustöö, mis käsitleb äriühingu väärtuse ja DPT süsteemi omavahelisi lülisid. Varasemad teoreetilised uuringud mainitud seose kohta seonduvad peamiselt Hazak'i (2007, 2008, 2009) ja Sander'i (2005, 2009) uurimustega, kuid nad ei käsitle üksikasjalikult väärtuse hindamise aspekte, s.t. *kuidas* hinnata jaotatud kasumi maksustamise süsteemi tingimustes tegutsevate ettevõtete väärtust. Võib väita, et vaatlusaluse uurimissuuna kontekstis väljendab käesolev doktoritöö omamoodi sammu edasi, kuna töös arendatakse konkreetseid finantsmudeleid, mida saab rakendada jaotatud kasumi maksustamisega keskkonnas tegutsevate ettevõtete väärtuse hindamiseks.

Pole mingit põhjust arvata, et ühes eraldivõetud väitekirjas saaks katta kõiki ettevõtte hindamise jaoks olulisi maksualaseid aspekte ja nüansse. Samuti pole mõeldav ühe töö raames maksualaste kohanduste tuletamine kõikide praktikas kasutatavate väärtuse hindamise mudelite jaoks. Sellegipoolest võib käesolevas dissertatsioonis konstrueeritud mudeleid käsitleda lähtepunktina edasisteks uuringuteks, mis selgitaksid seda, kuidas kohandada jaotatud kasumi maksustamise süsteemi iseärasustega erinevaid väärtuse hindamise aluseid.

Positivistliku majandusteaduse perspektiivist heidab käesolev väitekiri valgust Eesti finantsala professionaalide väärtuse hindamise praktikatele. Muuhulgas selgitatakse doktoritöös seda, kas ja kuidas Eesti praktikud arvestavad Eesti ettevõtete tulumaksusüsteemi eripäradega väärtuse hindamisel. Siiski on väitekirja primaarne panus seotud teoreetiliselt tõendatud põhjenduse väljatoomisega DPT-d eristavate omaduste kohta ettevõtete väärtuse hindamise kontekstis.

Uuringus kasutatud meetodid

Käesolev väitekiri on tugeva teoreetilise kallakuga. Doktoritöö viiest teadusartiklist neli (Uurimused I–IV) on teoreetilised, kus peamiste tulemuste ja järelduste saavutamiseks ei kasutata empiirilisi andmeid. Uurimus III küll sisaldab teisejärgulise tähtsusega statistilist ülevaadet, kuid see otseselt ei panusta artiklis määratletud eesmärgi saavutamisesse. Ainus empiiriline artikkel (Uurimus V) on Eesti finantsvaldkonna professionaalide kvalitatiivne küsitlus. Kui Uurimused I–IV keskenduvad üldiselt sellele, ***kuidas tuleks teoreetiliselt hinnata DPT tingimustes toimivate ettevõtete (äride) väärtust***, siis Uurimus V keskendub sellele, ***kuidas hinnatakse DPT tingimustes toimivate ettevõtete (äride) väärtust praktikas***.

Teoreetilised Uurimused olid läbi viidud eeskätt laialdaselt tuntud teoreetiliste väärtuse hindamise mudelite modifitseerimise kaudu ettevõtete tulumaksustamise ja finantsilise võimendusega kohandatud mudeliteks. Uurimus I lähtub geneerilisest ehk tavapärasest dividendide diskonteerimise mudelist (DDM – *dividend discount model*), vastavalt millele sõltub ettevõtte väärtus ettevõtte dividendi väljamaksekordajast, omakapitali kulukuse määrast ja omakapitali rentaablusest (ROE – *return on equity*). Tavapärane DDM eeldab nii kasumi maksustamise kui ka finantsvõimenduse puudumist. Uurimus I sisaldab (a) DPT ja TPT-ga kohandatud DDM matemaatilist tuletust nii laenukapitali kasutavate kui ka seda mittekasutavate ettevõtete jaoks ning (b) DPT ja TPT-ga kohandatud omakapitalide fundamentaalsete väärtuste numbrilist võrdlevanalüüsi hüpoteetilise äriühingu näitel. Uurimuses analüüsitakse, kuidas mõjutab dividendide väljamaksekordaja, kapitali kulukuse määr ja varade rentaablus ettevõtte omakapitali väärtust sõltuvalt ettevõtte kapitali struktuurist ning tulude maksustamisest. Tulemuste arvuline valideerimine oli läbi viidud Microsoft Excel tarkvaraprogrammis.

Uurimuse II raamistik sarnaneb paljuski Uurimus I omaga: Uurimus II keskendub ettevõtte ROE ja turuhinna-raamatupidamisväärtuse (P/B) väärtuskordaja erinevustele DPT ja TPT tingimustes hüpoteetilise ettevõtte näitel; P/B väärtuskordaja puhul olid vastavad mudelid kohandatud ka finantsvõimendusega. Nagu ka Uurimuses I, oli tulemuste arvuline valideerimine viidud läbi tabelarvutusprogrammis.

Uurimus III keskendub jaotatud kasumi maksustamise järelmitele äriühingu rahavarude väärtuse hindamise jaoks. See Uurimus on üles ehitatud omaniku maksujärgse rikkuse matemaatilisele analüüsile ning DPT tingimustes asetleidva rahavarude väärtuse hindamiseks rakendatava diskontomäära tuletamisele. Vaatamata oma teoreetilisele kallakule sisaldab Uurimus III samuti ka statistilist ülevaadet Eesti ettevõtete rahavarude kohta ajavahemikus 1995–2011, ülevaadet Eesti ettevõtete jaotuse kohta lähtuvalt nende raha-vara suhtarvust (*cash-to-assets ratio*) ning ettevõtte suuruse ja raha-vara suhtarvu seose kohta (2011. aastal).

Uurimuses IV on seatud fookusesse investeerimisvara optimaalne hoiuperiood erinevates tulumaksusüsteemides. See Uurimus on ehitatud üles erine-

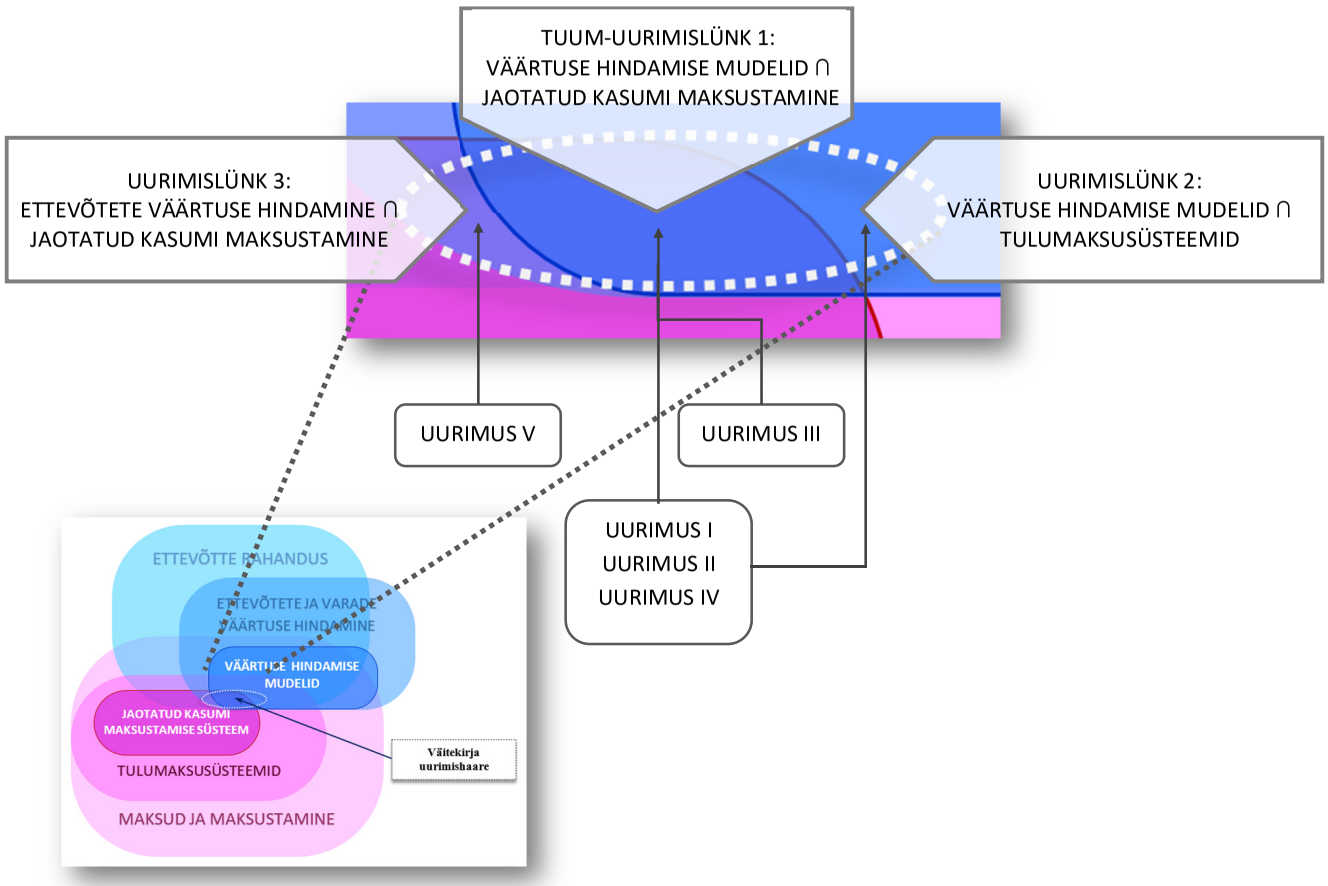
vates tulumaksusüsteemides hoitava vara hoiuperioodide võrdleva optimeerimisanalüüsi ümber. Saadud tulemusi analüüsitakse hüpoteetilise kaasuse näitel. Nagu ka Uurimustes I ja II, oli tuletatud valemite arvuline valideerimine viidud läbi tabelarvutusprogrammis.

Uurimus V on Eesti finantsvaldkonna professionaalide küsitlus, milles selgitatakse nende väärtuse hindamise praktikaid ning seda, kuidas vastajad lähenevad jaotatud kasumi maksustamise tingimustes tegutsevate ettevõtete väärtuse hindamisele. Küsitlus tugineb küsimustikule ning selle vastused olid kogutud investeerimis- ja finantsanalüütikutelt, nõustajatelt, juhtidelt ja teistelt äripraktikutelt. Küsitlusele vastas 32 finantspraktikut, kellest suur hulk töötas uuringu läbiviimise hetkel tuntud finants- ja nõustamisettevõtetes. Küsimustik koosnes viiest plokist, millest üks sisaldas lihtsustatud väärtuse hindamise kaasust (mille koostamisel oli võetud aluseks Uurimuse II tulemused), mida saab käsitleda uudse aspektina taoliste küsitluste läbiviimises. Küsitluse tulemusi analüüsiti kasutades nii kvalitatiivseid kui kvantitatiivsed andmeanalüüsi meetodeid; tulemusi võrreldi ka varasemate väärtuse hindamise praktikaid käsitlevate küsitluste tulemustega.

Väitekirja teoreetiline fookus suuresti määratleb ette asjaolu, et dissertatsioon on koostatud normativistliku majandusteaduse vaatenurgast. Kuna töö autor soovis näidata, *kuidas peaks* hindama DPT süsteemi tingimustes tegutsevate ettevõtete väärtust võrreldes TPT süsteemi tingimustes tegutsevate ettevõtete väärtusega, siis pidid vastavad seisukohad olema tõestatud või ümber lükatud teoreetilisest vaatenurgast. Taoline lähenemine on kooskõlas paljude varasemate teadustöödega, mis käsitlevad ettevõtete tulumaksustamise mõju nende väärtustele.

Väitekirja uurimislüngad ja uurimisülesanded

Lähtuvalt doktoritöös käsitletud aspektidest võib väita, et puuduvad varasemad, eeskätt teoreetilised uuringud DPT süsteemi järelmite kohta äriühingute väärtuse hindamise jaoks. Seega, see teaduslikus mõttes puutumata ala viitab eksisteerivale uurimislüngale. Kõnealune uurimislünk ühtlasi paikneb varasemalt käsitletud uurimishaarde piires. Siiski, võib uurimishaarde siseselt välja tuua ka teisi lünkasid, mida käesolev uuring adresseerib. Joonis 3 demonstreerib, kuidas erinevad väitekirja Uurimused panustavad erinevatesse valdkondadesse ning kuidas needsamad Uurimused täidavad eri valdkondade uurimislünkasid uurimishaarde erinevates alades.



Joonis 3. Seosed väitekirja Uurimuste ja uurimislünkade vahel (autori koostatud).

Joonis 3 kujutab endast Joonise 2 suurendatud osa. Uurimishaardes on võimalik tuvastada kolme uurimislünkade ala, mis tekivad nelja kattuva välja tulemusena:

- uurimislünk 1 (UL1) – *väärtuse hindamise mudelid ∩ jaotatud kasumi maksustamine*[30],
- uurimislünk 2 (UL2) – *väärtuse hindamise mudelid ∩ tulumaksusüsteemid* ning
- uurimislünk 3 (UL3) – *ettevõtte väärtuse hindamine ∩ jaotatud kasumi maksustamine*.

Neid kattuvaid väljasid võib käsitleda eraldiseisvate uurimisvaldkondadena. Uurimislünk 1 on tuum-uurimislünk, kuna väitekirja autori teadmiste kohaselt pole selles vallas üldse viidud läbi teaduslikke uurimusi. Teoreetilisest vaatenurgast eeldab see ala teadustööde olemasolu väärtuse hindamise mudelite kohta jaotatud kasumi maksustamise süsteemis ehk uurimistöid, mis käsitleksid seda, kuidas kohandada või modifitseerida väärtuse hindamise mudeleid arvestades DPT süsteemi iseärasusi võrdluses teiste süsteemidega. See ala pole varasemate akadeemiliste uuringutega kaetud, mis avab teadlase jaoks palju võimalusi selle täitmiseks. Teisiti väljendades, seni käsitlemata uurimisvaldkonnas panustab iga akadeemiline töö suuremal või väiksemal määral uurimislünga täitmisesse. Kuna kogu UL1 täitmine ühe väitekirja raames on mõeldamatu, siis keskendub autor doktoritöö teema seisukohast valitud relevantsetele aspektidele, pidades ühtlasi silmas ka väitekirja eesmärki.

Arvestades asjaolut, et väärtuse hindamise mudelite hulk on suur, siis on UL1 ja UL2 täitmiseks kõige otstarbekamaks lähenemiseks valida igast väärtuse hindamise lähenemisest vaid mõni mudel. Uurimaks DPT implikatsioone tulupõhise lähenemise jaoks võttis autor aluseks dividendide diskonteerimise mudeli kui lihtsaima DCF-põhise mudeli; samuti töötas autor välja ühe lihtsustatud tulupõhise hindamismudeli selgitamaks nii ettevõtte kui ka eraisiku tasandi maksustamise mõju omakapitali väärtusele ja vara hoiuperioodi pikkusele erinevate maksusüsteemide tingimustes. DPT süsteemi järelmid turupõhise lähenemise jaoks olid uuritud fundamentaalse turuhinna-raamatupidamisväärtuse suhtarvu näitel. Lisaks uuris autor tulumaksukohandusi ROE näitel, kuna omakapitali rentaablus on sisendiks paljudele omakapitali väärtuse põhiste valuatsioonimudelite jaoks; ROE-d võib samuti käsitleda ka väärtusloome asendusnäitajana. Selgitamaks DPT süsteemi järelmeid varapõhise lähenemise jaoks keskendus autor äriühingu rahavarudele, kuna võrreldes teiste varadega on rahavarud arvatavasti kõige levinum põhitegevuses mitteosalev vara. Finantsmudelite arendamine mitme väärtuse hindamise lähenemise raames võimaldab

[30] Matemaatiline sümbol ∩ tähendab kahe hulga (antud väitekirja kontekstis – uurimisvaldkonna) ühisosa. Nt. *väärtuse hindamise mudelid ∩ jaotatud kasumi maksustamine* viitab väärtuse hindamise mudelite ja jaotatud kasumi maksustamise uurimisvaldkondade kattuvusele.

luua terviklikuma pildi DPT süsteemi eripäradest äriühingute väärtuse hindamise kontekstis, nagu see on deklareeritud eesmärgipüstituses.

Uurimused I–IV on pühendatud erinevate, DPT süsteemis tegutsevate ettevõtete hindamiseks rakendatavate teoreetilise mudelite arendamisele, seekaudu otseselt panustades tuum-uurimislünga täitmisesse. See, kuidas väitekirja autor täitis antud lünga, määras suuresti ka vastavad uurimisülesanded (vt Tabelit 1 allpool) – need on võrreldes uurimislünkadega palju spetsiifilisemad.

Mis puudutab teisi uurimislünkasid, siis on uurimislünk 2 täidetud läbi tulumaksuga kohandatud väärtuse hindamise mudelite arendamise DPT-väliste maksusüsteemide jaoks. See puudutab peamiselt traditsioonilist kasumi maksustamise süsteemi (Uurimused I ja II), kuid ka teisi mittekonventsionaalseid maksusüsteeme (Uurimus IV). UL2 täitmine on tähtis võrdlemaks, kuidas kasumi maksustamine mõjutab väärtuse hindamise mudeleid erinevates maksurežiimides. UL3 täitmiseks käsitles väitekirja autor praktikute lähenemisi DPT tingimustes tegutsevate ettevõtete väärtuse hindamisele – sellele on pühendatud Uurimus V. Muuhulgas heidab Uurimus V valgust Eesti finantsala professionaalide väärtuse hindamise praktikatele, mida pole varasemalt akadeemilises kirjanduses uuritud.

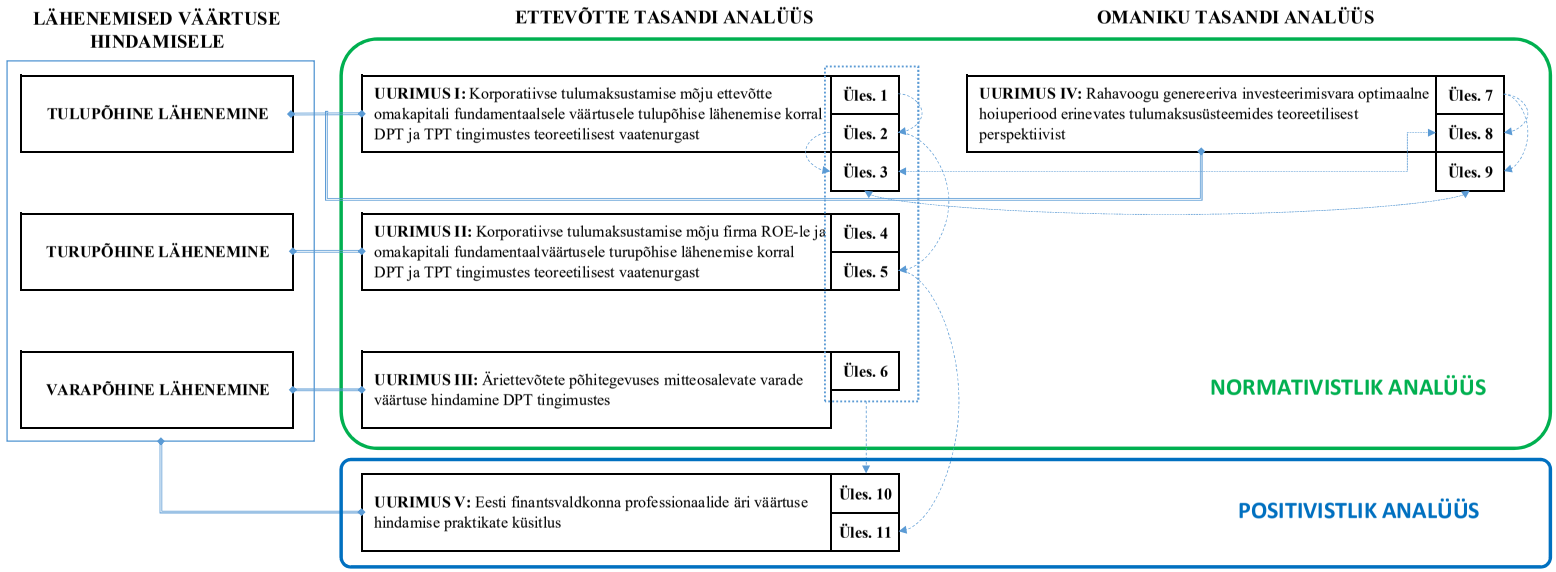
Piiritletud uurimislünkade baasil töötas doktoritöö autor välja nimekirja uurimisülesannetest (vt Tabelit 1 järgmisel leheküljel), mida täidetakse Uurimuste raames ning mis tervikuna panustavad väitekirja eesmärgi täitmisesse. Valdav enamus uurimisülesannetest (Ülesanded 1–9) on seotud tuum-uurimislüngaga; siiski peaaegu kõik nendest ülesannetest (Ülesanded 1–5, 7–9) täidavad samaaegselt ka UL1 ja UL2-e.

Tabel 1. Väitekirjas püstitatud uurimisülesanded

Uurimus	Uurimisülesanne
I	Ülesanne 1: tuletada maksuga ja võimendusega kohandatud dividendi väljamaksekordajad traditsioonilises tulumaksusüsteemis ja jaotatud kasumi maksustamise süsteemis tegutsevate ettevõtete jaoks
	Ülesanne 2: arendada maksuga ja võimendusega kohandatud dividendide diskonteerimismudelid traditsioonilises tulumaksusüsteemis ja jaotatud kasumi maksustamise süsteemis tegutsevate ettevõtete jaoks
	Ülesanne 3: selgitada, kuidas omakapitali väärtused TPT ja DPT tingimustes koonduvad ja lahknevad sõltuvalt muutustest sisendmuutujate väärtustes
II	Ülesanne 4: selgitada ettevõtte tulumaksustamise ja kasumijaotusvormide mõju ettevõtte kasumlikkuse hindamisele omakapitali rentaabluse (ROE) kaudu teoreetilisest vaatenurgast
	Ülesanne 5: tuletada maksuga ja finantsvõimendusega kohandatud fundamentaalne turuhinna-raamatupidamisväärtuse (P/B) suhtarv
III	Ülesanne 6: uurida tulumaksuga seotud kohanduse vajadust ettevõtte põhitegevuses mitteosalevate varade väärtuse hindamisel jaotatud kasumi maksustamise tingimustes
IV	Ülesanne 7: selgitada jaotatud kasumi maksustamisel põhineva maksusüsteemi järelmeid investeerimisvara optimaalse hoiuperioodi jaoks võrdluses teiste maksusüsteemidega omaniku tasandi perspektiivist spetsiifilise teoreetilise mudeli arendamise kaudu
	Ülesanne 8: selgitada, kuidas suhestuvad investeerimisvara väärtused erinevates tulumaksusüsteemides sõltuvalt vara hoiuperioodist
	Ülesanne 9: selgitada, kuidas investeerimisvara optimaalsed hoiuperioodid koonduvad ja lahknevad sõltuvalt muutustest erinevate sisendmuutujate väärtustes
V	Ülesanne 10: uurida finantsvaldkonna professionaalide praktikaid või lähenemisi, mis seonduvad maksualaste kohanduste rakendamisega ettevõtete väärtuse hindamisel jaotatud kasumi maksustamise tingimustes
	Ülesanne 11: selgitada, kas finantspraktikud hindavad DPT tingimustes tegutseva ettevõtte omakapitali väärtust suuremana võrreldes TPT tingimustes tegutseva ettevõtte omakapitali väärtusega

Allikas: autori poolt koostatud

Joonis 4 järgmisel leheküljel esitleb tervikvaadet väitekirja Uurimustest. Sellel on ära märgitud nii Uurimuste teemad kui ka uurimisülesanded koos nendevaheliste seostega.



Joonis 4. Tervikvaade väitekirja Uurimustest koos uurimisteemade ja -ülesannetega (autori koostatud).

Uurimuste kokkuvõte

Väärtuse hindamise õppetund Eestist: omakapitali fundamentaalsete väärtuste erinevused jaotatud kasumi maksustamise ja traditsioonilise tulumaksustamise süsteemide vahel

Uurimus I keskendus dividendide diskonteerimise mudeli (DDM) maksualastel kohandustel. Uurimuse eesmärgiks oli selgitada, kuidas maksu ja finantsvõimendusega kohandatud DDM abil saadud hinnangulised omakapitali väärtused erinevad TPT ja DPT tingimustes. Kuna dividendide diskonteerimise mudeli puhul avaldub ettevõtte tulumaksustamise mõju omakapitali väärtusele peamiselt dividendi väljamaksekordaja kaudu, siis esimese sammuna oli vaja välja töötada tulumaksuga kohandatud väljamaksekordajaid (see oli teostatud Ülesande 1 täitmise raames – vt Tabel 2 käesoleva osa lõpus, kus on esitatud nii uurimisülesanded kui ka nende täitmisel saavutatud tulemused).

Uurimus I näitas, et väljamaksekordaja δ tulumaksuvabas keskkonnas on kõrgem väljamaksekordajatest TPT ja DPT tingimustes (neid näitajaid võib tähistada vastavalt δ_{TPT} ja δ_{DPT}). Sealjuures kehtib seos $\delta_{TPT} < \delta_{DPT} < \delta$. Selline järjestus peab paika nii finantsvõimenduseta kui ka -võimendusega ettevõtete puhul; finantsvõimendusega ettevõtete tulumaksuga kohandatud dividendi väljamaksekordaja valem on palju komplekssem võrreldes valemiga finantsvõimenduseta ettevõtte jaoks (vt Uurimus I, lk 149–152). Seega, Ülesande 1 täitmine demonstreeris seda, et DPT tingimustes tegutsevad ettevõtted saavad võrreldes TPT tingimustes tegutsevate ettevõtetega jaotada suurema osa oma kasumist eeldusel, et mõlemad ettevõtted säilitavad (reinvesteerivad) samapalju kasumit nagu ka maksuvabas keskkonnas tegutsevad ettevõtted.

Dividendi väljamaksekordajad δ_{TPT} ja δ_{DPT} olid sisenditeks Uurimuse I raames välja töötatud väärtuse hindamise mudelite jaoks – seeläbi oli täidetud Ülesanne 2. DDM seisukohast, mida suurem väljamaksekordaja, seda suurem ka ettevõtte omakapitali väärtus (*ceteris paribus*). Uurimuses I jõudis autor järelduseni, et ettevõtte omakapitali väärtus maksuvabas keskkonnas (mida võib tähistada kui V) on kõrgeim, samas kui TPT tingimustes tegutseva ettevõtte omakapitali väärtus (mida võib tähistada kui V_{TPT}) on madalaim; DPT tingimustes tegutseva ettevõtte väärtus (mida võib tähistada kui V_{DPT}) asub V ja V_{TPT} vahel. Dividendi väljamaksekordajate järjestus ühtlasi sätestab, et $V_{TPT} < V_{DPT} < V$. Jällegi, see järjestus kehtib nii võimendamata kui ka võimendatud ettevõtete jaoks (vt Uurimus I, lk 149–152).

Erinevus V_{TPT} ja V_{DPT} vahel ei ole konstantne, omakapitali väärtused koonduvad või lahknevad sõltuvalt sisendmuutujate väärtusest (seda aspekti adresseeriti Ülesandes 3). Mõningatel juhtudel on see vahe mitte eriti märkimisväärne, teatud tingimustel aga vastupidi. Uurimuses I oli näidatud, et V_{TPT} ja V_{DPT} koonduvad dividendi väljamaksekordaja suurenemisega (vt Uurimus I, lk 153); kui DPT ja TPT tingimustes tegutsevad ettevõtted jaotavad kogu oma teenitud kasumi, siis nii finantsiliselt võimendatud kui ka võimendamata ettevõtete jaoks $V_{TPT} = V_{DPT}$ – see on kooskõlas Hazak'i (2007) tulemustega.

V_{TPT} ja V_{DPT} samuti koonduvad kapitali kulukuse määra kasvu ning varade rentaabluse langusega (vt Uurimus I, lk 153–154). Antud asjaolu võib mõista nii, et kasvav kapitali kulukuse määr vähendab ettevõtte omakapitali väärtust; kulukuse määra kõrgemate tasemete juures muutub maksustamise reeglite mõju omakapitali väärtusele järjest vähemtähtsaks. Selle tulemusena muutub ka erinevus V_{TPT} ja V_{DPT} vahel väiksemaks. Sarnase loogika abil võib selgitada omakapitali väärtuste koondumist langeva varade rentaabluse tingimustes: kui ettevõtted muutuvad vähemkasumlikemaks, siis nende poolt makstavad dividendid vähenevad samuti, mille tõttu väheneb ka erinevus TPT ja DPT tingimustes tegutsevate ettevõtete poolt makstud tulumaksusummade vahel.

Ettevõtte tulumaksustamise süsteemi mõju ettevõtte kasumlikkuse ja turuväärtuse suhtarvudele ROE ja P/B suhtarvude näitel

Uurimus II adresseerib kahte küsimust: puhaskasumi põhiste rentaablussuhtarvude arvutamine ja fundamentaalse turuhinna-raamatupidamisväärtuse arvutamine TPT ja DPT tingimustes (need vastavad Ülesannetele 4 ja 5, vt Tabel 2). Uurimuses II oli näidatud, et omakapitali rentaabluse (ROE) väärtus sõltub ettevõtte tulumaksustamise režiimist (vt Uurimus II, lk 32). DPT tingimustes tegutseva ettevõtte ROE on kõrgem võrreldes TPT tingimustes tegutseva ettevõtte ROE-ga, mis kaudselt viitab sellele, et ka V_{DPT} on kõrgem kui V_{TPT} (*ceteris paribus*). Tulenevalt sellest pole erinevates tulumaksustamise režiimides tegutsevate ettevõtete omakapitali rentaablused, aga ka teised puhaskasumi põhised suhtarvud (vt Uurimus II, lk 32) ning ka mõningad tootlikkuse suhtarvud võrreldavad. See on oluline kaalutlus erinevate maksusüsteemide tingimustes tegutsevate ettevõtete finantstulemuslikkuse hindamisel ja võrdlemisel. Lisaks on antud nüanss tähtis DPT tingimustes tegutsevate, erinevaid dividendipoliitikaid järgivate firmade kasumlikkuse võrdlemisel: muudel samadel tingimustel dividende maksva ettevõtte finantstulemuslikkus näeb dividende mittemaksva ettevõtte omast kehvem välja. Peale selle, mõjutab DPT tingimustes samasuur väljamaksekordaja ROE-d olenevalt kasumijaotusvormist erisuguselt: rahalised dividendid avaldavad rentaablusele ebasoodsamat mõju võrreldes aktsiate (osade) tagasiostuga. Erinevatest kasumijaotuse skeemidest tingitud ROE-de vahe muutub kaalukamaks juhul, kui väljamaksekordaja ületab 100% taseme (vt Uurimus II, lk 34).

Ületamaks kasumlikkuse analüüsi ja võrdlusega seonduvaid probleeme võib lähtuda maksueelsest omakapitali rentaablusest. See puudutab mitte ainult olukordi, kus võrreldakse eri maksusüsteemides tegutsevate ettevõtete kasumlikkuse suhtarvusid, aga ka situatsioone, kus võrreldakse DPT tingimustes tegutsevate ettevõtete kasumlikkuse näitajaid.

Uurimuses II koostas autor tulumaksuga ja finantsvõimendusega kohandatud turuhinna-raamatupidamisväärtuse suhtarvud (mis vastab Ülesandele 5, vt Tabel 2). Kuna välja töötatud fundamentaalsed P/B suhtarvud põhinevad Uurimuses I arendatud väljamaksekordajatel (selles mõttes on Ülesanded 1, 2 ja 5 omavahel seotud, nagu Jooniselt 4 on näha), siis võib täheldada sarnasusi maksuga kohan-

datud dividendide diskonteerimise mudelite ja maksuga kohandatud P/B kordajate vahel. Kuigi Uurimuses II figureerivad ainult finantsvõimendust eeldavad maksukohandatud P/B kordajad (vt Uurimus II, lk 36), kehtivad seosed ettevõtte P/B suhtarvude väärtuste vahel erinevates maksurežiimides nii finantsvõimenduseta kui ka -võimendusega ettevõtete jaoks sarnaselt, s.t. $P/B_{TPT} < P/B_{DPT} < P/B$. Artiklis on näidatud, et P/B suhtarvud maksuvabas, TPT ja DPT keskkonnas koonduvad dividendi väljamaksekordaja kasvuga – see on kooskõlas Uurimuses I saavutatud analoogse tulemusega.

Võib järeldada, et turupõhise lähenemise kasutamisel ettevõtete väärtuse hindamisel on samuti vajalik arvestada ettevõtte tulumaksustamise mõjuga. Mainitud asjaolu puudutab mitte ainult P/B kordajat, aga ka teisi fundamentaalseid omakapitali väärtuse põhiseid kordajaid, nagu turuhinna-puhaskasumi (P/E) väärtuskordaja, turuhinna-puhaskasumi kasvu (PEG) kordaja jt. Samuti on tähtis selgitada tulumaksustamise mõju konkreetse väärtuskordaja nii lugeja kui ka nimetaja suurusele – selles mõttes on P/E suhtarv kõige ilmekam näide.

Äriühingute jaotatud kasumi põhine tulumaksustamine ja rahavarude väärtuse hindamine

See Uurimus käsitleb jaotatud kasumi maksustamise tingimustes tegutseva firma põhitegevuses mitteosalevate varade, täpsemalt rahavarude, väärtuse hindamist. Võrreldes väitekirja teiste Uurimustega on sellel artiklil kõige kitsam uurimishaare (lähtuvalt sellest oli antud Uurimuse raames püstitatud ja täidetud ainult üks uurimisülesanne – Ülesanne 6).

Selle Uurimuse peamine väljund seisneb DPT tingimustes tegutseva ettevõtte rahaliste varude väärtuse hindamiseks vajaliku allahindluse määra tuletamises. Allahindluse määra suurus sõltub positiivselt tulumaksumäärast ning negatiivselt investorite nõutavast tulunormist ja investeerimishorisondist (vt Uurimus III, lk 215). Lähtuvalt sellest kõigub allahindluse määra väärtus vahemikus 0 (kui firma rahavarude hoidmise periood on väga pikk ning need teenivad märkimisväärset tootlust) kuni ettevõtte tulumaksumääraga võrdse suuruseni (juhul, kui ettevõte likvideeritakse koheselt). Taolise diskonto olemasolu võib mõningal määral olla seletatav lukustumise efektiga (*lock-in effect*), s.t. investorite valmidusega hoida väärtuslikke varasid selleks, et lükata edasi nende pealt teenitud tuluga kaasnevat tulumaksukohustust (Auerbach 1991).

Kuna diskonto suurus sõltub investeerimishorisondi pikkusest, siis võib seda rakendada nii tulu- kui ka varapõhisel lähenemisel põhinevates väärtuse hindamistes. See tähendab, kui hinnatakse likvideerimisele kuuluva firma väärtust, siis hinnangulisest väärtusest on vaja lahutada tulumaksumäära ja rahaliste varude summa korrutis. Teisalt, kui eeldatakse firma tegevuse jätkamist, siis tulumaksumäära – ning lähtuvalt sellest ka allahindluse määra – mõju muutub vähemoluliseks.

Uurimuse järeldus on oluline, kuna see tõendab, et maksueelis ei kata kogu maksukoormust, mis on seotud ettevõtte tasandil toimuva rahajaotusega. Uurimuse tulemus viib mõtteni, et sarnast diskontot võib olla vajalik rakendada ka

teiste jaotatud kasumi maksustamise tingimustes tegutseva ettevõtte põhitegevuses mitteosalevate varade väärtuse hindamisel.

Investeerimisvara optimaalne hoiuperiood erinevate tulumaksustamise süsteemide tingimustes – eraisiku vaade

Investeerimisvara hoiuperioodi küsimus on relevantne, kuna vara hoiuperiood on lahutamatult seotud vara väärtusega. Vara hoidmine ei tohiks olla eesmärk omaette, investor peaks seda hoidma ammutamaks parimal viisil vara omamisest saadavaid finantskasusid. Seega käib vara hoiuperioodi hindamine käsikäes selle väärtuse hindamisega.

Uurimuses IV oli tähelepanu keskmes mitu aspekti (need on välja toodud Ülesannetes 7–9, vt Tabel 2). Selgitamaks jaotatud kasumi maksustamise süsteemi järelmeid investeerimisvara hoiuperioodi jaoks oli vaja koostada investeerimisvara teoreetiline väärtuse hindamise mudel, mis võimaldas tuletada vara optimaalse hoiuperioodi pikkusi erinevate tulumaksusüsteemide tingimustes (see vastab Ülesandele 7).

Modelleerimise tulemused näitasid, et investeerimisvara optimaalne hoiuperiood DPT süsteemi tingimustes on võrreldes teiste tulumaksusüsteemidega pikim (vt Uurimus IV, lk 19–20). See tähendab, et palju soodsamas maksurežiimis ei tohiks investor kiirustada vara müügi või likvideerimisega võrreldes režiimidega, kus tulude maksustamine tema seisukohast nii soodne pole. Huvitav tulemus seisnes ka selles, et optimaalse hoiuperioodi pikkused DPT ja maksuvabas keskkonnas olid võrdsed. Seega, investeeringu hoiuperioodi pikkuse väärhindamine võib viia omakapitali väärtuse kaoni – omakapitali väärtus saavutab oma maksimumi optimaalse hoiuperioodi juures.

Artiklis selgitati seoseid investeerimisvara väärtuste vahel erinevates tulumaksusüsteemides (identsete tulumaksumäärade juures) sõltuvalt vara hoiuperioodi pikkusest. Täpsemalt selgitati uurimisülesande raames seda, kas ja kuidas mõjutab vara hoidmise aeg vara väärtuste järjestust erinevate tulumaksusüsteemide tingimustes (see vastab Ülesandele 8, vt Tabel 2).

Väärtuste analüüs näitas, et varade nüüdisväärtuste järjestus jääb suuresti samaks sõltumata hoiuperioodist, s.t. vara hoidmise aeg ei mõjuta väärtuste järjestust, kuigi vahe väärtuste vahel pole konstantne. Märkimisväärne järeldus seisneb selles, et V_{DPT} ületab omakapitali väärtusi ülejäänud tulumaksustamise süsteemides. See on täiendav kinnitus asjaolule, et tulude maksustamine mängib tähtsat rolli äride väärtuse hindamise protsessis ning et DPT süsteem on omakapitaliinvestori rikkuse maksimeerimise seisukohast soodsaim.

Investori tasandilt vaadatuna sõltub jaotatud kasumi maksustamise süsteemi eelis teiste süsteemide ees eraisiku tulumaksumäära (τ) ja ettevõtte tulumaksumäära (t) vahekorrast, samuti ärist tekkivate rahavoogude reinvesteerimismäärast (ρ). Sellegipoolest, V_{DPT} on V_{TPT}-st kõrgem sõltumata sellest, kas $\tau > t$ või $\tau < t$ ning ka siis, kui $\rho = 0$ (vt Uurimus IV, lk 24).

Ülesande 8 raames oli selgitatud omakapitali väärtuste muutused erinevates tulumaksusüsteemides sõltuvalt investeerimisvara hoiuperioodist. Alates vara

omandamisest kuni optimaalse väljumishetke saabumiseni väärtuste lahknemine suureneb, kuid alates teatud hetkest pärast optimaalse väljumishetke saabumist hakkavad need väärtused taas koonduma (vt Uurimus IV, lk 22).

Uurimuses IV selgitati, kuidas investeerimisvara optimaalsed hoiuperioodid koonduvad või lahknevad sõltuvalt muutustest sisendite – rahavoogude kasvumäär, nende reinvesteerimismäär ja diskontomäär – väärtustes (see vastab Ülesandele 9, vt Tabel 2). Hoiuperioodi optimaalsed pikkused lahknevad rahavoogude kasvumäära ja rahavoogude reinvesteerimismäära ρ kasvades ning koonduvad diskontomäära kasvades. Äärmuslikel juhtudel, kui $\rho = 0$ või väga kõrge diskontomäära juures on hoiuperioodide optimaalsed pikkused samasugused kõikide tulumaksusüsteemide puhul. Väitekirja autori arvates on nendel ekstreemsetel juhtudel olulised järelmid poliitika kujundamise vaatenurgast: konkreetse maksusüsteemi eelised on ilmekamad soodsamas ärikeskkonnas, s.t. seal, kus riskitase on madal ning on palju võimalusi tulusate investeeringute tegemiseks.

Väärtus vaataja silmis: Eesti finantsvaldkonna professionaalide väärtuse hindamise praktikate küsitlusuuring

Uurimus V lisab väitekirja eesmärgi täitmisesse empiirilise tahu. Artikkel adresseerib Eesti finantsvaldkonna professionaalide hindamispraktikaid ning käsitleb seoses väitekirja eesmärgiga kahte aspekti: praktikute lähenemised maksualaste kohanduste rakendamisele DPT tingimustes tegutsevate ettevõtete väärtuse hindamises (seotud Ülesanne 10) ning nägemused erinevates maksustamisrežiimides tegutsevate ettevõtete omakapitali väärtustest (seotud Ülesanne 11). Esmalt mainitud aspekt pidi selgitama, kas DPT tingimustes tegutsevate ettevõtete väärtuse hindamisega seotud maksualaste eripärade käsitlemise praktikad on ühetaolised või mitte; viimati mainitud aspekt pidi selgitama, kuivõrd on praktikute seas levinud arusaam, et $V_{DPT} > V_{TPT}$.

Mis puudutab hindamismudelite kohandamist DPT süsteemi eripäradega, siis küsitlusanalüüsi tulemused näitasid, et ühtsed praktikad puuduvad. Umbes 40% küsitluses vastanutest lähtusid DPT tingimustes tegutsevate ettevõtete väärtuse hindamisel samadest alustest nagu ka mitte-DPT süsteemis tegutsevate firmade väärtuse hindamisel. Need praktikud, kes arvestasid DPT süsteemi erisustega, kohandasid oma väärtushinnanguid jättes arvesse võtmata tulumaksumäära kapitali kulukuse määra (WACC) arvutamisel või eirates tulumaksu juhul, kui hinnatav ettevõte ei kavatsenud maksta dividende (vt Uurimus V, lk 165). Väitekirja autori arvates, ühtlustatud lähenemise puudumine DPT tingimustes tegutsevate ettevõtete väärtuse hindamisele ei ole väga tõsine probleem võrreldes asjaoluga, et märkimisväärne osa praktikutest kohtles DPT süsteemis tegutsevaid ettevõtteid sarnaselt TPT süsteemis tegutsevate ettevõtetega. Erilaadsed lähenemised äriühingute väärtuse hindamisele võivad olla seletatavad erinevustega praktikute haridustasemes, oskustes ja kogemustes. Siinkohal on oluline arvestada ka respondentide heterogeensusega vastavalt sellele, kui regulaarselt hindavad praktikud ettevõtete või äride väärtusi. Lisaks

nendele aspektidele tuleb meeles pidada, et mõnikord peavad väärtuse hindajad töötama situatsioonides, kus puudub piisavas koguses sisendandmeid, mis viib hindamistehnikate lihtsustamiseni. See võib päädida oluliste erinevustega hinnangutes sama äri või firma väärtuse kohta.

Kui Uurimused I, II ja IV näitasid, et teoreetiliselt $V_{DPT} > V_{TPT}$, siis praktikute poolt esitatud hinnangud osutavad üsna segastele tulemustele. Küsitluse raames paluti praktikutelt hinnata kolme hüpoteetilise ettevõtte omakapitalide väärtusi: vastavalt lähtetingimustele tegutses üks ettevõte tulumaksuvabas keskkonnas, teine ja kolmas vastavalt TPT ja DPT süsteemiga keskkondades. Hüpoteetilised väärtuse hindamise kaasused olid kujundatud selliselt, et $V > V_{DPT} > V_{TPT}$ (vt Uurimus V, lk 162–163).

Eesti finantsvaldkonna professionaalide poolt edastatud väärtushinnangud näitasid, et V_{DPT} mediaanväärtus oli V_{TPT} mediaanväärtusest kõrgem (vt Uurimus V, lk 166). Siiski olid vastajate omakapitali väärtuse mediaanhinnangud teoreetiliselt põhjendatud hinnangute tasemetest märkimisväärselt madalamad (tuginedes Uurimustes I ja II välja töötatud mudelitele). Samuti paluti finantspraktikutel anda hinnang tulumaksuvabas keskkonnas tegutsevale finantsvõimenduseta ettevõtte omakapitali fundamentaalsele väärtusele (mis oli omamoodi mõõtemärgiks). Kaks viiendikku respondentidest hindas V_{DPT} V_{TPT}-st kõrgemana ning vähem kui üks viiendik vastajatest esitas ka omakapitali väärtuste korrektse järjestuse, s.t. $V > V_{DPT} > V_{TPT}$ (vt Uurimus V, lk 166). Hüpoteetiliste ettevõtete väärtuse hindamine paljastas samuti ka väärtushinnangute olulise variatiivsuse, eriti mis puudutab hinnangut TPT tingimustes tegutseva ettevõtte omakapitali väärtuse kohta (vt Uurimus V, Tabel 4).

Väitekirja autor sooviks rõhutada, et need tulemused ei näita, et praktikute arvates ei ole V_{DPT} suurem V_{TPT}-st. Tulemused osutavad sellele, et üldiselt praktikud *ei hinnanud* DPT tingimustes tegutseva ettevõtte omakapitali väärtust kõrgemaks võrreldes TPT tingimustes tegutseva ettevõtte omakapitali väärtusega. Need väljundid iseloomustavad väärtuse hindamise lähenemiste erilaadsust ning arvatavasti väga erinevaid arusaamasid sellest, kuidas hinnata eraldivõetud ettevõtet isegi vähese sisendnäitajate arvu ning lihtsustatud püstituse korral.

Kokkuvõtvalt: täidetud uurimisülesannetel on kahetine tähtsus. Ühest küljest aitasid nad selgitada äriühingute väärtuse hindamise eripärasid jaotatud kasumi maksustamise süsteemis. Teisest küljest toetasid nad jaotatud kasumi maksustamise tingimustes tegutsevate ettevõtete väärtuse hindamiseks sobilike mudelite väljatöötamist. Ettevõtete tulumaksustamise süsteemi iseärasused kanduvad üle ka ettevõtete väärtuse hindamisse – see tõsiasi kehtib ka DPT süsteemi kohta. Vähemalt teoreetiliselt, peab jaotatud kasumi maksustamise tingimustes tegutsevate äriühingute väärtuse hindamine toimuma teisiti võrreldes muude maksusüsteemide tingimustes tegutsevate ettevõtete väärtuse hindamisega. Uurimuste tulemused viitavad asjaolule, et DPT süsteemi erisused väljenduvad igas väärtuse hindamise lähenemises. Uurimustes arendatud teoreetilised mudelid – mida võib pidada väitekirja peamiseks väljundiks – võimaldavad

selgelt ja ühemõtteliselt väita, et DPT tingimustes tegutseva ettevõtte väärtus on TPT süsteemis tegutseva ettevõtte väärtusest kõrgem. Võrdlevanalüüsi tulemused demonstreerivad seda, et omakapitali väärtuse seisukohast saavad suuremat kasu DPT süsteemist (võrreldes TPT-ga) eeskätt madala dividendi väljamaksekordaja, madala kapitali kulukuse määra, kõrge varade rentaabluse ja kõrge kasumi reinvesteerimismääraga kasumlikud ettevõtted. Siinkohal on dividendi väljamaksekordajal ehk suurim mõju.

Kuna paljud, kui mitte kõik laialdaselt tuntud ja populaarsed väärtuse hindamise mudelid nende tavapärasel kujul kas ei arvesta tulumaksustamise efektiga või lähtuvad traditsioonilisest tulumaksustamisest, siis on oluline hoomata jaotatud kasumi maksustamise süsteemi karakterisikute mõju väärtushinnangutele. Tulevastes akadeemilistes töödes tõstatatavad uurimisküsimused võivad täiendavate nüansside avastamisele ja selgitamisele kaasa aidata. Selle tulemusena tekiks palju terviklikum, jaotatud kasumi maksustamise järelmeid väärtuse hindamise jaoks selgitav vaade.

Tabel 2. Uurimisülesanded ja tulemused

Uurimus	Uurimisülesanne	Tulemused
I	Ülesanne 1: tuletada maksuga ja võimendusega kohandatud dividendi väljamaksekordajad traditsioonilises tulumaksu-süsteemis ja jaotatud kasumi maksustamise süsteemis tegutsevate ettevõtete jaoks	On tuletatud ettevõtte jääkdividendipoliitikat eeldavad tulumaksuga kohandatud dividendi väljamaksekordajad nii võimendamata kui ka võimendatud ettevõtete jaoks
	Ülesanne 2: arendada maksuga ja võimendusega kohandatud dividendide diskonteerimismudelid traditsioonilises tulumaksu-süsteemis ja jaotatud kasumi maksustamise süsteemis tegutsevate ettevõtete jaoks	On arendatud maksude ja finantsvõimendusega kohandatud dividendide diskonteerimismudelid tuginedes Ülesandes 1 tuletatud väljamaksekordajatele
	Ülesanne 3: selgitada, kuidas omakapitali väärtused TPT ja DPT tingimustes koonduvad ja lahknevad sõltuvalt muutustest sisendmuutujate väärtustes	V_{TPT} ja V_{DPT} koonduvad dividendi väljamaksekordaja ja kapitali kulukuse määra kasvuga; V_{TPT} ja V_{DPT} lahknevad varade rentaabluse kasvuga
II	Ülesanne 4: selgitada ettevõtte tulumaksustamise ja kasumijaotusvormide mõju ettevõtte kasumlikkuse hindamisele omakapitali rentaabluse (ROE) kaudu teoreetilisest vaatenurgast	Ettevõtte tulumaksustamise põhimõtted mõjutavad ROE-d. Sarnase maksueelse kasumi taseme juures erineb ROE_{TPT} ROE_{DPT}-st. Sõltuvalt dividendi väljamaksekordajast ja kasumijaotusvormist võib ROE_{DPT} olla ROE_{TPT}-st kõrgem või madalam.
	Ülesanne 5: tuletada maksuga ja finantsvõimendusega kohandatud fundamentaalne turuhinna-raamatupidamisväärtuse (P/B) suhtarv	On arendatud maksude ja finantsvõimendusega kohandatud fundamentaalsed turuhinna-raamatupidamisväärtuse väärtuskordajad tuginedes Ülesandes 1 tuletatud väljamaksekordajatele
III	Ülesanne 6: uurida tulumaksuga seotud kohanduse vajadust ettevõtte põhitegevuses mitteosalevate varade väärtuse hindamisel jaotatud kasumi maksustamise tingimustes	On tuletatud väärtuse hindamise eesmärkidel DPT tingimustes tegutseva ettevõtte rahavarudele rakendatava diskonto suurus. Allahindluse määra suurus sõltub ettevõtte tulumaksumäärast, nõutavast tulunormist (tulumäärast) ja investeerimishorisondi pikkusest

Uurimus	Uurimisülesanne	Tulemused
IV	Ülesanne 7: selgitada jaotatud kasumi maksustamisel põhineva maksusüsteemi järelmeid investeerimisvara optimaalse hoiuperioodi jaoks võrdluses teiste maksusüsteemidega omaniku tasandi perspektiivist spetsiifilise teoreetilise mudeli arendamise kaudu	On arendatud teoreetiline finantsmudel ning tuletatud investeerimisvara optimaalsed hoiuperioodid erinevate tulumaksusüsteemide jaoks. Omaniku tasandi perspektiivist on vara optimaalne hoiuperiood DPT tingimustes pikim võrreldes teiste tulumaksusüsteemidega
	Ülesanne 8: selgitada, kuidas suhestuvad investeerimisvara väärtused erinevates tulumaksusüsteemides sõltuvalt vara hoiuperioodist	Üldiselt on investeerimisvara väärtus DPT tingimustes kõrgeim võrreldes selle vara väärtusega teiste tulumaksu-süsteemide tingimustes sõltumata vara hoiuperioodist. DPT süsteemi eelis vara väärtuse seisukohast sõltub seosest ettevõtte ja eraisiku tulumaksumäärade vahel ning rahavoogude reinvesteerimise määrast
	Ülesanne 9: selgitada, kuidas investeerimisvara optimaalsed hoiuperioodid koonduvad ja lahknevad sõltuvalt muutustest erinevate sisendmuutujate väärtustes	Investeerimisvara optimaalsed hoiuperioodid erinevates tulumaksusüsteemides koonduvad diskontomäära tõusuga ning rahavoogude reinvesteerimis- ja kasvumäära langusega
V	Ülesanne 10: uurida finantsvaldkonna professionaalide praktikaid või lähenemisi, mis seonduvad maksualaste kohanduste rakendamisega ettevõtete väärtuse hindamisel jaotatud kasumi maksustamise tingimustes	On täheldatav praktikute lähenemisviiside mitmekesisus tulumaksuga seotud aspektide käsitlemisel DPT tingimustes tegutsevate ettevõtete väärtuse hindamisel
	Ülesanne 11: selgitada, kas finantspraktikud hindavad DPT tingimustes tegutseva ettevõtte omakapitali väärtust suuremana võrreldes TPT tingimustes tegutseva ettevõtte omakapitali väärtusega	Tuginedes Ülesande 5 raames arendatud maksuga ja finantsvõimendusega kohandatud P/B kordajatele oli selgitatud asjaolu, et finantspraktikutel on erisugused vaated TPT, DPT ja tulumaksuvabas keskkonnas tegutsevate ettevõtete omakapitalide teoreetiliste väärtuste järjestusele

Allikas: autori koostatud

Praktilised järelmid

Doktoritöö tulemustest koorub välja mitmeid praktilisi järeldusi, nagu ka uusi, uurimist väärivaid küsimusi. Järgnevalt käsitleb autor neid praktilisi järelmeid, mis tulenevad otseselt Uurimustest ning ka neid, mis otseselt Uurimustest ei tulene, kuid on nende tulemustega tihedalt seotud.

Väitekirja Uurimuste tulemustest tulenevad järelmid. Väitekirja Uurimuste tulemustest tulenevad järgmised praktilised järelmid:

1. Väitekirjas demonstreeritakse, et vähemalt ettevõtte tasandil on DPT tingimustes tegutseva ettevõtte omakapitali väärtus kõrgem võrreldes TPT tingimustes tegutseva ettevõtte omakapitali väärtusega. Töö näitab ka seda, et teatud juhtudel on omaniku tasandi perspektiivist DPT süsteemis tegutseva ettevõtte omakapitali väärtus samuti kõrgem kui teistes mittekonventsionaalsetes maksusüsteemides tegutsevate ettevõtete omakapitalide väärtused. Jaotatud kasumi maksustamise tingimustes tegutsevate ettevõtete väärtuse hindamisel tuleks maksualaseid aspekte arvestada teistsuguselt võrreldes ülejäänud maksusüsteemide iseärasustega.
2. Väitekiri rõhutab ettevõtete tulumaksustamise mõju ettevõtete kasumlikkuse suhtarvude, eriti ROE arvutamisele. Ettevõtete tulumaksustamise iseärasustega tuleks arvestada nii üksiku ettevõtte kasumlikkuse analüüsimisel kui ka erinevate ettevõtete kasumlikkuse võrdlemisel. Kuna DPT tingimustes tegutseva firma poolt makstava tulumaksu suurus sõltub firma dividendipoliitikast, siis lähtumine puhaskasumi põhistest rentaabluse näitajatest kasumlikkuse hindamisel võib viia ebakorrektsete järeldusteni.
3. Väitekirjas töötati välja konkreetsed väärtuse hindamise mudelid, mida saab rakendada reaalsete ettevõtete väärtuse hindamiseks. See puudutab mitte ainult DPT, aga ka TPT tingimustes tegutsevaid nii finantsvõimenduseta kui ka -võimendusega ettevõtteid. Vaatamata nende mudelitega seotud eeldustele, võib neid pidada märksa realistlikemaks võrreldes paljude tavapäraste väärtuse hindamise mudelitega.
4. Väitekirja Uurimustes arendatud väärtuse hindamise mudelite baasil on välja toodud, millistes tingimustes vahe omakapitali väärtuste vahel DPT ja TPT tingimustes on märkimisväärsem (ja vastupidi). DPT süsteemi maksueelis väljendub selgemini kõrge kasvu- ja reinvesteerimismääraga ning madala dividendide väljamaksekordaja ja kapitali kulukuse määraga ettevõtete puhul. Viimati mainitud aspekt on oluline poliitika kujundamise seisukohast: ettevõtted ja nende omanikud saavad tuntavat kasu jaotatud kasumi maksustamise süsteemist juhul, kui nad tegutsevad madala riskiga ärikeskkonnas.
5. Väitekirjas on selgitatud, et DPT tingimustes tegutseva ettevõtte rahavarude väärtuse hindamisel tuleks rakendada tulumaksumääraga seotud diskontot. Sellest järeldub, et sarnast diskontot võib olla tarvilik rakendada DPT süsteemis toimiva firma ka teiste põhitegevuses mitteosalevate varade väärtuse hindamisel.

6. Väitekiri toob esile Eesti finantsvaldkonna professionaalide väärtuse hindamise praktikate mitmekesisust. See mitmekesisus on seotud nii rakendatavate väärtuse hindamise meetodite ja tehnikate kui ka erinevate lähenemistega DPT süsteemi iseärasuste käsitlemisele ettevõtete väärtuse hindamise kontekstis. Lähenemiste erilaadsus kandub üle edasi praktikute väärtushinnangute kvaliteedi varieeruvusse, kui määratleda hinnangu kvaliteeti praktiku väärtushinnangu hälbimise kaudu fundamentaalsest (s.t. teoreetiliselt põhjendatud) väärtusest. Mainitud aspekt tekitab kliendi (s.t. hindamisteenust telliva isiku) seisukohast mõningaid muresid: kui keegi tellib väärtuse hindamise teenust, siis tahab ta olla kindel, et väärtushinnang on vara või ettevõtte tegelikule (või fundamentaalsele) väärtusele võimalikult lähedal. See tähendab, et kliendid peavad olema väga hoolikad väärtuse hindaja valimisel. Siiski jääb avatuks küsimus, kuidas hinnata väärtuse hindaja kvaliteeti.

Väitekirja Uurimuste tulemustega seotud järelmid. Väitekirja Uurimused tõstatavad ka rida praktilisi järelmeid, mis ei tulene otseselt Uurimuste tulemustest, kuid on nendega seotud. See tähendab, et neid implikatsioone saab seostada Uurimuste tulemustega, kuigi nad ei johtu otseselt väitekirja Uurimustest. Peamiselt, kuid mitte ainult, puudutavad need praktilised järeldused doktoritöös käsitletud väärtuse hindamise mudeleid; samas puudutavad nad ka Eesti kontekstis relevantseid aspekte. Siinkohal võib välja tuua järgmise loetelu:

- **Ettevõtte laenukapitali maksueelis ja kapitali kulukuse määr jaotatud kasumi maksustamise tingimustes.** DPT süsteemi üks oluline järelm puudutab intressi maksukilpi, s.t. ettevõtte poolt laenukapitali kasutamisest tulenevat tulumaksueelist. Selgub, et DPT süsteemi Eesti versiooni puhul, kus kõikidele kapitalituludele kehtib ühtne maksumäär (*flat tax rate*) ning jaotatud kasumi maksustamine toimub ainult üks kord ettevõtte tasandil, intressi maksukilpi ei eksisteeri ehk laenukapitali kaasamine välise omakapitali asemel ei anna mingit tulumaksueelist. Lähtuvalt sellest taolise DPT versiooniga keskkonnas tegutseva ettevõtte kapitali kulukuse määra hindamisel ei tohiks viia laenukapitali kulukuse määra üle tulumaksujärgsele tasemele.
- **Vabade rahavoogude FCFF ja FCFE arvutamine jaotatud kasumi maksustamise tingimustes.** DPT süsteemi üks olulistest järelmitest väärtuse hindamise kontekstis on seotud ettevõttele ja omanikele suunatud vabade rahavoogude, FCFF ja FCFE, arvutamisega. See järeldus on seotud Uurimus I tulemustega. Nii TPT kui ka DPT tingimustes tegutsevate firmade vabade rahavoogude suurused sõltuvad ettevõtte tulumaksumäärast, kuid DPT keskkonnas tegutsevate firmade vabadele rahavoogudele avaldab tulumaksumäär mõju ühiselt dividendi väljamaksekordajaga: mida väiksem dividendide väljamaksekordaja, seda väiksem tulumaksumäära mõju DPT tingimustes tegutseva firma FCFF ja FCFE suurustele. Kui jaotatud kasumi maksustamise tingimustes tegutsev ettevõte jätab mingil aastal kasumi

jaotamata, siis sellisel juhul ei mõjuta tulumaksumäär selle ettevõtte antud aasta vabade rahavoogude suurust.

- **Aktsia hinna-puhaskasumi (P/E) väärtuskordaja jaotatud kasumi maksustamise tingimustes.** Veel üks praktiline järelm puudutab turupõhise P/E väärtuskordaja rakendamist ettevõtte väärtuse hindamisel jaotatud kasumi maksustamise tingimustes. Turupõhise P/E väärtuskordaja leidmiseks jagatakse ettevõtte aktsia turuhind puhaskasumiga aktsia kohta ehk EPS-iga (*earnings per share*) või siis jagatakse ettevõtte turukapitalisatsioon tema puhaskasumiga. Olukorras, kus turupõhist P/E kordajat arvutatakse DPT tingimustes tegutseva ettevõtte jaoks, on puhaskasum aktsia kohta mõjutatud firma makstud tulumaksu poolt, mis ei sõltu tulumaksueelsest kasumi (nagu TPT tingimustes), vaid jaotatud kasumi suurusest. Sellest johtuvalt võib EPSi kasutamine P/E suhtarvu arvutamisel DPT keskkonnas viia moonutava tulemuseni DPT süsteemi eripärade ignoreerimise tõttu. See nüanss võib muutuda eriti ilmekaks, kui arvutada P/E kordajate väärtusi kahe DPT keskkonnas tegutseva sarnase ettevõtte jaoks, kes järgivad erinevaid dividendipoliitikaid. Ületamaks sellisel juhul P/E kasutamisega seonduvaid probleeme, võiks kaaluda alternatiivina kasutada tulumaksueelset kasumit aktsia kohta.
- **Väärtuse hindamine DPT süsteemi tingimustes regulaarsete dividendimaksete puhul.** Alates 2018. aastast Eesti ettevõtete poolt regulaarselt makstavaid dividende maksustatakse 14% tulumaksumäära alusel ettevõtte tasandil ning 7%-lise tulumaksumäära alusel dividendisaaja tasandil juhul, kui dividendisaajaks on Eestis resideeruv eraisik (Income Tax Act 2023)[31]. Juhul kui dividende makstakse juriidilisele isikule, siis sõltub edasine maksustamine dividendisaaja residentsusest ning sellest, mitu lüli on dividende maksva ettevõte ja tegeliku kasusaaja vahel. Doktoritöö tugineb enne 2018. a kehtinud maksustamise raamistikule – mille kohaselt polnud vahet regulaarsete ja ebaregulaarsete dividendide maksustamisel, – mis tõstatab õigustatud küsimuse selle kohta, kuivõrd rakendatavad on väitekirja tulemused DPT tingimustes tegutsevate ning regulaarselt dividende maks-vate ettevõtete väärtuse hindamisel. Kuigi esmapilgul paistab, et regulaarsete dividendide raamistik sisaldab topeltmaksustamist (esmalt ettevõtte ja seejärel aktsionäri või osaniku tasandil), siis tegelikult ei mõjuta dividendide regulaarsus kuidagi väitekirja tulemusi ja järeldusi. Teisisõnu, pole vaja kohandada väitekirjas välja töötatud väärtuse hindamise mudeleid regulaarsete dividendidega olukorra jaoks. See väide peab eelkõige paika juhul, kui hinnatavate ettevõtete omanikeks on Eesti füüsilistest isikutest maksuresidendid.

[31] Töö kirjutamise hetkel otsustas Eesti Vabariigi valitsus loobuda regulaarsete dividendide maksustamisest madalama tulumaksumäära alusel ettevõtte tasandil (ja lisamaksustamisest eraisiku tasandil) ning 2025. aastal taastada enne 2018. a kehtinud maksustamisraamistiku (Riigikogu võttis vastu maksumuudatused 2023).

- **Jaotatud kasumi maksustamine ja Eesti kommertspankade väärtuse hindamine.** Käesolevalt on Eestis kehtiva jaotatud kasumi maksustamise süsteemi märkimisväärseks erandiks Eesti kommertspankade (krediidiasutuste) tulumaksustamine. Eestis tegutsevad kommertspangad peavad tasuma avansilist tulumaksu eelmises kvartalis teenitud kasumi pealt 14%-lise tulumaksumäära alusel. Kui pank soovib maksta oma aktsionäridele dividende, siis kasumi jaotamise hetkel ei peab pank tasuma tulumaksu 14%-lise määra alusel; panga aktsionärid peavad tasuma täiendavat tulumaksu 7%-lise määra alusel, nagu ka regulaarsete dividendide maksustamise juhul. Kui pank otsustab dividende mitte maksta, siis jääb raha lihtsalt maksuhalduri kätte. See tähendab seda, et võrreldes teiste ettevõtetega ei saa Eesti kommertspangad lükata oma tulumaksukohustust edasi. Väitekirja autori arvates sarnaneb avansiliste maksete süsteem klassikalise tulumaksusüsteemiga: ettevõtte tasandil maksab pank tulumaksu kogupuhaskasumilt (peaaegu) kasumi teenimise hetkel; hiljem, investori tasandil, kui pank jaotab kasumit, tasuvad aktsionärid tulumaksu jaotatud kasumi osalt. Huvitav on ka see, et kui pangad tasuksid avansilisi makseid 20% tulumaksumäära alusel ning aktsionärid poleks kasumi jaotamise hetkel tulumaksu tasunud (nagu nn ebaregulaarsete dividendide puhul), siis oleks avansiliste maksete süsteem ekvivalentne täieliku integratsiooni süsteemiga. Vaatamata sellele, et avansilise tulumaksu süsteem tekitab teatud ajalisi moonutusi tulenevalt erinevast tulumaksu tasumise ajast pankade ja nende aktsionäride poolt, tuleks Eesti pankade väärtuse hindamisele läheneda klassikalise tulumaksusüsteemi perspektiivist.

Väitekirja kitsendused

Teoreetilised kitsendused. Mis puudutab ettevõtte kasumi maksustamise arvestamist äriühingute väärtuse hindamisel, siis teoreetilisest vaatest DPT süsteemi tingimustes tegutsevate ettevõtete väärtuse hindamisel peab see toimuma teistmoodi kui TPT süsteemi tingimustes tegutsevate ettevõtete väärtuse hindamisel. Siiski, autor möönab, et oma töös ei käsitle ta täies ulatuses kõiki teoreetilisi küsimusi, mis seonduvad väärtuse hindamisega jaotatud kasumi maksustamise tingimustes. See omakorda seab esile mitmeid teoreetiliste kitsendustega seotud kaalutlusi.

Üks nendest kaalutlustest on seotud väitekirja kitsa fookusega väärtuse hindamise mudelitel. Väitekiri ei kata DPT-st tulenevaid väärtuse hindamise iseärasusi kõikide, eriti väga populaarsete meetodite ja mudelite jaoks. Ükski Uurimustest ei käsitle DPT süsteemi järelmeid nt FCFF ja FCFE mudelite jaoks. Nagu eelnevalt mainitud, siis ettevõttele ja omanikele suunatud vabade rahavoogude arvutamine DPT-ga keskkonnas erineb nende arvutamisest TPT-ga keskkonnas. Siiski, peale rahavoogude endi on FCFF ja FCFE mudelites teised sisendkomponendid, mille maksudega kohandamist oleks vaja uurida – eeskätt puudutab see diskontomäära ja lõppväärtust. Väitekirja kitsas fookus puudutab ka väärtuskordajatel põhinevat väärtuse hindamist, mida autor käsitles

Uurimuses II. Uurimus II põhineb fundamentaalsel turuhinna-raamatupidamisväärtuse suhtarvul. Kuigi P/B suhtarvu võib modifitseerida teisteks sarnasteks kordajateks, nagu nt P/E, PEG jpt, on ka teisi väärtuskordajaid, mille rakendamine praktikas võib nõuda kasumi maksustamisega seotud aspektide selgitamist, nt. ettevõtte väärtuse ja laenuintresside, tulumaksu ning põhivara kulumi eelse kasumi ehk EV/EBITDA kordaja.

Veel üks kitsendus seondub eraisiku tasandi tulumaksustamise puudumisega Uurimustes I–III läbiviidud analüüsides. Uurimuses IV on eraisiku tulumaksustamisega arvestatud, kuid artiklis rakendatud väärtuse hindamise raamistik on pigem erakordne, praktilise rakenduse seisukohast ebatüüpiline. Kuna ettevõtete omanikud arvestavad (või vähemalt peaksid arvestama) otsuste langetamisel eraisiku tasandi maksujärgse rikkusega, siis DPT- ja TPT-põhise väärtuse hindamise võrdlemisel tuleks arvestada mitte ainult kasumi, aga ka eraisiku tasandi kapitalitulu maksustamisega. Taoline analüüs on muidugi raskendatud, kuna eraisikute tulude maksustamine on võrreldes ettevõtete tulumaksustamisega reeglina palju komplitseeritum. Lisaks, nagu ka ettevõtete maksustamise reeglid, on eraisikute maksustamise reeglid riikide lõikes erinevad.

Kolmas kaalutlus johtub eelmisest. Kõik teoreetilised Uurimused tuginevad Eestis kehtiva DPT süsteemi versioonile, mille kohaselt jaotatud kasumi maksustamine toimub ainult üks kord ning ettevõtte tasandil (v.a. regulaarsete dividendide maksustamine, kuid ka siis ei saa rääkida kasumi topeltmaksustamisest). Samas ei pruugi mõni teine riik rakendada Eestiga sarnast DPT süsteemi. Lisaks võib mõelda ka sellisele DPT süsteemi variandile, kus jaotamata kasum on samuti maksustatud (madalama tulumaksumäära alusel). See tähendab, et väitekirjas loodud mudelid pole universaalsed ning neid tuleks kohandada ka jaotamata kasumi maksustamist arvestava stsenaariumi jaoks.

Neljandaks, suured väljakutsed seonduvad äriühingute väärtuse hindamisega rahvusvahelises kontekstis. Paljudel välismaistel ettevõtetel on osalused Eesti firmades ning ka vastupidi. Väitekirjas ei tõstatata piiriüleste rahavoogude maksustamise küsimusi, mis kindlasti pakuvad huvi nii välismaistele ettevõtetele, kellel on osalus Eestis ettevõtetes, kui ka Eesti ettevõtetele, kellel on osalus välismaistes ettevõtetes. Taoline analüüs eeldaks Eesti peamiste partnerriikide maksualaste õigusaktide nagu ka kahepoolsete maksulepingute läbitöötamist.

Viimane teoreetiline kitsendus on seotud asjaoluga, et iga maksusüsteem pole staatiline; poliitikakujundajad võivad muuta maksusüsteeme erinevatest majanduslikest ja poliitilistest kaalutlustest lähtuvalt. Need muutused süsteemis võivad mõjutada ka väärtuse hindamise mudeleid, mis tähendab seda, et neid mudeleid tuleks revideerida ja korrigeerida.

Empiirilised kitsendused. Käesolev väitekiri on peamiselt teoreetilise suunitlusega ning kirjutatud valdavalt normativistlikust perspektiivist. Empiiriline Uurimus V käsitleb küsimust kas ja kuidas Eesti praktikud kohandavad oma väärtuse hindamise lähenemisi DPT tingimustes tegutsevate ettevõtete väärtuse hindamisel. Empiirilise uuringu kitsendused seonduvad suhteliselt väikese valimiga, küsitlusega kaetud aspektide vähesusega ning respondentide pinna-

pealsete vastustega mõnedele küsimustele. Kuigi mõned respondendid märkisid, et nad rakendasid maksualaseid kohandusi DPT tingimustes tegutsevate ettevõtete väärtuse hindamisel, oli raske hinnata, kas see tõesti oli nii (ning kas need kohandused olid tehtud korrektselt). Pealegi võib iga küsitlust vaadelda kui hetkepilti, aja jooksul praktikad ja arusaamad tõenäoliselt muutuvad.

Potentsiaalselt heaks infoallikaks väärtuse hindamisega tegelevate praktikute lähenemise kohta äriühingute väärtuse hindamisele on nende koostatud hindamisaruanded. Kõnealused aruanded võivad heita valgust sellele, kuidas praktikud tegelikult ettevõtete väärtust hindavad, kuidas nad käsitlevad kasumi maksustamisega seotud aspekte. Siinkohal on piiravaks teguriks asjaolu, et tüüpiliselt on väärtuse hindamise aruanded konfidentsiaalsed ehk vastavad andmed pole kättesaadavad.

Empiirilised uuringud võimaldaksid vastata paljudele olulistele küsimustele positivistlikust perspektiivist, nt kas üleminek klassikaliselt tulumaksustamiselt jaotatud kasumi maksustamisele mõjutab olulisel määral ettevõtete omakapitalide väärtusi. Sellele küsimusele vastamiseks Eesti näitel peaks kasutama Eesti börsiettevõtete 1999–2000. aa. aktsiahindasid. Siinkohal kerkib mitu praktilist probleemi: mainitud ajavahemikus oli börsil noteeritud suhteliselt vähe ettevõtteid (23 ettevõtet 1999. aastal ning 20 ettevõtet 2000. aastal) ning aktsiad on olnud pigem madala likviidsusega (Listed domestic companies 2023). Samuti on omaette väljakutse selgitada välja see ajahetk, mil muudatused maksurežiimis olid aktsiatesse sisse hinnastatud.

Võimalikud tulevased uurimissuunad

Ettevõtete maksustamise valdkond on pidevas muutuses. Need muutused puudutavad mitte ainult muutusi maksumäärades, aga ka maksustamise reeglites, ühtede maksude ära kaotamises ja uute maksude kehtestamises. Suhteliselt lihtsad maksusüsteemid võivad aja jooksul areneda palju keerulisemateks ning vastupidi. Iga isegi vähemtähtis muudatus võib pakkuda head ainestikku akadeemiliste uuringute jaoks.

Nagu oli eelnevalt rõhutatud, siis vaatamata oma kitsale uurimishaardele ei kata väitekiri kõiki teoreetilisi aspekte, mis on seotud äriühingute väärtuse hindamisega DPT tingimustes. Leidub veel palju vastust ootavaid uurimisküsimusi. Märkimisväärne osa ideedest edasisteks uuringuteks on tuletatav käesoleva väitekirja kitsendustest.

Üks küsimustest seondub jaotatud kasumi maksustamise süsteemi iseärasustega arvestavate FCFF ja FCFE terviklike mudelite arendamisega. See puudutab ka kohandatud nüüdisväärtuse (*adjusted present value* – APV) mudelit, mida, nagu ka palju teisi väärtuse hindamise mudeleid ja -meetodeid (nt diskonteeritud kasumite meetod) pole käesolevas väitekirjas käsitletud. Lisaks tulupõhise meetodi maksualaste kohandustega seonduvatele uuringutele võivad huvitavaid tulemusi pakkuda väärtuskordajate maksualaseid kohandusi käsitlevad uurimistööd; viimaste seas oleks eriti tähelepanuväärne EV/EBITDA kordaja teoreetiline analüüs. Käesolev töö puudutas üsna vähe varapõhist

lähenemist väärtuse hindamisele DPT tingimustes, mis samuti vajaks edasist arendust.

Käesoleva doktoritöö raames loodud teoreetilisi mudeleid võiks arendada edasi nende universaliseerimise suunas, s.t. lisades täiendavate teguritena omaniku tasandi maksustamise ning samuti jaotamata kasumi maksustamise. Ettevõtte rahanduse, maksustamise ja õigusteaduse uurimisvaldkondade omavaheline põimimine võimaldaks uurida hargmaiste korporatsioonide, mis tegutsevad erinevate ettevõtete tulumaksustamise süsteemidega turgudel, väärtuse hindamise probleeme.

On võimalik täiustada ka väärtuse hindamise praktikute küsitlusuuringut. Kuna lisaks Eestile kehtib käesolevalt jaotatud kasumi maksustamise süsteem ka Lätis ja Gruusias, siis oleks huvitav selgitada, kas ja kuidas nende riikide finantsvaldkonna professionaalid arvestavad DPT süsteemi mõjuga ettevõtete väärtuse hindamisel. Saamaks aru *kuidas* praktikud arvestavad kasumi maksustamise aspektidega väärtuse hindamise protsessis, võib viia läbi süvaintervjuusid, kombineerides neid (hüpoteetiliste) ettevõtete lihtsustatud väärtuse hindamise ülesannete täitmisega. See ühtlasi võimaldaks saada aru, milliseid andmesisendeid kasutavad praktikud äriühingute väärtuse hindamisel.

Käesoleva dissertatsiooni juhtmotiiviks oli küsimus selle kohta, kuidas tuleks hinnata DPT süsteemi tingimustes tegutsevate ettevõtete väärtust võrreldes TPT süsteemi tingimustes tegutsevate ettevõtete väärtusega. Töö autori arvates tuleks pöörata tähelepanu ka küsimusele, kas DPT tingimustes börsil kaubeldavate ettevõtete aktsiad on tõepoolest väärtuslikumad võrreldes sarnaste TPT tingimustes tegutsevate ettevõtete aktsiatega. Viimase paari aasta jooksul oli Eesti aktsiaturul täheldatav hüppeline noteeritud ettevõtete arvu kasv: 2022. a lõpu seisuga oli Nasdaq Tallinna börsil 33 noteeritud ettevõtet; märkimisväärne ettevõtete arv – 11 – tuli börsile 2021. a ja 2022. a. Võrdluseks: ajavahemikus 2016–2020 tuli börsile ainult viis ettevõtet. (Investor Calendar … 2022) Kuigi empiirilise analüüsi jaoks kasutatud andmetega seondub palju probleeme (paljud aktsiad on pigem mittelikviidsed, mõned börsiettevõtted tegutsevad mitmel turul jmt.) võiks arvata, et DPT süsteemi mõju selgitamine börsiettevõtete omakapitali väärtusele on perspektiivne uurimissuund.

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Professional experience:

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Teaching:	Conducted courses for bachelor and master's level students, including Financial Management, Corporate Finance, Investment Analysis, Personal Finance, Financial Modeling, Financial Derivatives, Green Finance and others
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