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Curbing Abnormal Trading: The Effectiveness of TRACE in Combating Withholding Tax Schemes in Finland

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ABSTRACT:
Dividend withholding tax (DWT) schemes, such as cum-cum and cum-ex, have exploited regulatory loopholes across Europe, leading to significant tax revenue losses. In response to these issues, Finland implemented the TRACE policy to combat DWT schemes. This thesis examines the effectiveness of TRACE by investigating its impact on trading volumes around ex-dividend dates and assessing whether the policy has successfully reduced abnormal trading activity linked to these schemes. Taxation has long faced challenges adapting to situations where legal and economic ownership are not fully aligned, such as in the cum-cum and cum-ex schemes mentioned above.

Using an event study methodology, this thesis examines daily trading volume data from 2013 to 2023 of 100 of the most actively traded dividend-paying companies in Finland. This thesis focuses on two big events, a share's ex-dividend date and the introduction of TRACE. Abnormal trading volumes are calculated by contrasting trading activity within event windows with baseline activity external to these windows. Statistical methods, including t-tests, are employed to estimate the success of TRACE at lowering abnormal trading volumes.

Consistent with past studies and data of DWT schemes, this thesis's results show notable abnormal trading volumes around ex-dividend dates in the pre-policy period. A significant decline in abnormal trading volumes following the TRACE policy's implementation indicates the policy's effectiveness. TRACE effectively targeted DWT schemes and other abusive behaviours without interfering with or interrupting regular market activity, as seen by the stable trading volumes outside the event window.

This thesis highlights the importance of TRACE in reducing DWT schemes in Finland and supports findings from similar reforms in countries like Germany and Denmark. These results highlight the possibility for targeted regulatory interventions to reduce aggressive tax planning and improve the integrity of tax systems. These findings also further promote the importance of TRACE as a regulatory tool for addressing DWT schemes and support the broader adoption of similar measures, such as the FASTER directive, across Europe. Lastly, this thesis contributes to the ongoing efforts to create a more transparent and equitable financial system by offering new insights into the effectiveness of targeted tax reforms.

KEYWORDS: Dividend withholding scheme, Withholding tax, Dividend withholding tax, Cum-ex, Cum-cum, Dividend taxation, Tax planning

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TIIVISTELMÄ:
Osinkojen lähdeverojärjestelmiin liittyvät järjestelyt, kuten cum-cum ja cum-ex, ovat merkittävä haaste Euroopan verojärjestelmille, sillä ne hyödyntävät sääntelyyn liittyviä heikkouksia ja aiheuttavat merkittäviä verotulojen menetyksiä. Nämä järjestelyt hyödyntävät lainsäädännön porsaanreikiä ja luovat keinotekoisia rakenteita, joiden avulla verovelvolliset voivat saada esimerkiksi perusteettomia veronpalautuksia. Verotus on jo pitkään kohdannut haasteita mukautua tilanteisiin, joissa oikeudellinen ja taloudellinen omistus eivät ole täysin linjassa keskenään, kuten näissä edellä mainituissa cum-cum ja cum-ex järjestelyissä.

Tässä pro gradu -tutkielmassa tarkastellaan Suomessa vuonna 2021 käyttöön otetun TRACE-direktiivin vaikutuksia näiden järjestelyiden torjumiseksi. Tämän tutkielman tavoitteena on selvittää, vaikuttaako TRACE osakkeiden kaupankäyntivolyymeihin osingon irtoamispäivän ympärillä ja onko poikkeuksellista kaupankäyntiä havaittavissa ennen ja jälkeen TRACE-direktiivin käyttöönoton.

Tämä tutkielma perustuu tapahtumatutkimukseen ja analysoi päivittäisiä kaupankäyntivolyymeja vuosilta 2013–2023. Tutkielmassa tarkastellaan 100 aktiivisimmin kaupankäydyn ja osinkoja maksavan suomalaisen yhtiön dataa. Pro gradu -tutkielman keskiössä ovat kaksi keskeistä tapahtumaa, jotka ovat osakkeen irtoamispäivä sekä TRACE:n käyttöönotto Suomessa. Tilastollisina menetelminä käytetään muun muassa t-testiä, joka auttaa mittaamaan TRACE:n tehokkuuden epänormaalin kaupankäynnin vähentämisessä.

Tulokset osoittavat, että ennen TRACE:n käyttöönottoa osingon irtoamispäivän ympärillä esiintyi merkittävää, tavallisesta poikkeavan suurta kaupankäyntiä, mikä viittaa osinkojen lähdeveropetoksien esiintyvyyteen. TRACE:n käyttöönoton jälkeen tavallisesta poikkeavan suuri kaupankäynti väheni huomattavasti, mikä osoittaa TRACE:n onnistuneen osinkojen lähdeveropetoksien torjumisessa. Samalla kaupankäyntivolyymit pysyivät vakaana tapahtumaikkunan ulkopuolella, mikä viittaa siihen, että TRACE kohdistui nimenomaan osinkojen lähdeveropetoksiin vaikuttamatta normaaliin markkinatoimintaan.

Tämän tutkielman tulokset korostavat TRACE:n merkitystä tehokkaana sääntelykeinona osinkojen lähdeveropetoksien torjunnassa ja tukevat vastaavien toimien, kuten FASTER-direktiivin, laajempaa käyttöönottoa koko Euroopassa. Tämä tukee aiempia havaintoja tutkimuksissa, joissa vastaavat lainsäädännölliset uudistukset Saksassa ja Tanskassa ovat osoittautuneet tehokkaiksi. Tulokset vahvistavat, että kohdennetut verouudistukset voivat vähentää aggressiivista verosuunnittelua ja parantaa verotusjärjestelmien läpinäkyvyyttä. Tämä tutkielma tarjoaa myös uusia näkökulmia kohdennettujen verouudistusten tehokkuudesta.

AVAINSANAT: Dividend withholding scheme, Withholding tax, Dividend withholding tax, Cum-ex, Cum-cum, Dividend taxation, Tax planning

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Abbreviations

ATAD	Anti-Tax Avoidance Directive
DWT	Dividend Withholding Tax
EU	European Union
FASTER	Framework for Authorised Systematic and Transparent Exchange of Relief
GAAR	General Anti-Avoidance Rule
LOB	Limitation of Benefits
MNE	Multinational Enterprise
PPT	Principal Purpose Test
TRACE	Treaty Relief and Compliance Enhancement
TRS	Total Return Swap

1 Introduction

The mobile capital tax base is leaking in Finland and across Europe, which poses a serious threat to economic stability and equity. One example is the phenomenon commonly referred to as withholding tax schemes. As a result of leaks such as the Panama Papers (OECD, 2023), tax evasion and aggressive tax planning have been revealed as widely adopted business practices worldwide. The complexity and poorly managed tax systems allow wealthy individuals and global enterprises to reduce their tax burden by taking advantage of loopholes in the tax legislation. This thesis investigates trading schemes associated with dividend withholding tax (DWT), which have incurred significant costs for European taxpayers in recent decades.

An OECD report on dividend tax schemes released in 2023 describes dividend withholding tax schemes as a process in which shares are traded, sold, and repurchased to avoid paying dividend taxes or claiming refunds for unjustified taxes.

Withholding tax schemes and other abuses related to withholding tax are typically based on the abuse of benefits based on tax treaties and directives (Finnwatch, 2024). The rationale for arrangements lies in that dividends distributed to different countries are treated differently in terms of withholding tax: for example, the tax agreements between Finland and Great Britain, Finland and Ireland, and Finland and the United Arab Emirates exclude dividends distributed to the tax treaty partner country completely from withholding tax (Verohallinto, 2023). This creates a motive to artificially direct dividends accrued in Finland by the countries in question in situations where the actual recipient of the dividend is beyond the countries in question, and withholding tax would be charged on the dividends when paid out to the country in question.

1.1 Background

Dividend taxation has become an international topic of discussion following the revelations of dividend tax refund schemes in the media. Tax avoidance related to dividend

payments made it into public discussion in 2018 when an international group of journalists published the so-called CumEx Files data leak documents. According to Yle's MOT program, the Finnish government lost an estimated 100 million euros annually due to the laundering of dividends, or a total of 1.3 billion euros between 2005 and 2017 (Sokala, 2018a; Sokala, 2018b).

Informal calculations suggest that cum-ex transactions alone have led to revenue losses totaling 69.2 billion euros across the EU (Correctiv, 2018). However, subsequent investigations have shown even higher losses surpassing €100 billion across a broader geographical scope than initially revealed in the Cum-Ex Files (ESMA, 2020). According to Correctiv (2021), when cum-ex and cum-cum transactions in 12 countries, including the United States, are factored in, the losses are estimated at 150 billion euros. Therefore, based on the estimates mentioned above, this form of dividend tax arbitrage stands as the most extensive tax arbitrage scheme ever revealed globally.

These schemes are facilitated by major European banks exploiting legal and regulatory loopholes to evade taxes on behalf of certain investors, and as a result, transferring the tax burden onto the society, according to an article by the New York Times (2020). Some banks also received bailouts from treasuries during the 2008 financial crisis. These schemes yielded almost risk-free profits from European treasuries, with one former participant aptly describing them as "The Devil’s Machine" in an interview with Segal (2020) of the New York Times.

In the Cum-Ex Files, financial sector agents employed intricate strategies involving ownership changes around ex-dates. Through technically legal means, these schemes were used to evade taxes and, in more severe instances, to claim multiple tax refunds from a single tax payment (Correctiv, 2018). These methods are called cum-cum and cum-ex, and they are discussed in the third chapter. These trading schemes are collectively referred to as dividend withholding tax (DWT) schemes targeted at minimizing or avoiding dividend withholding tax.

The first DWT schemes were initiated in 2001 by German state tax auditor Hanno Berger, also known as Mr. Cum-Ex (Doctorow, 2020). In many jurisdictions, determining whether DWT schemes are legal is challenging, as they operate at the crossing of financial markets and tax laws. In addition, communication among financial and tax authorities both domestically and internationally is imperfect. This institutional failure has, however, hindered efforts to address DWT schemes effectively (ESMA, 2020). Hence, several European countries have introduced legal measures to combat DWT schemes.

However, there are still serious challenges to monitoring and dealing with collusive action, in part because of the complex and sometimes hidden patterns of modern tax evasion activity. New legislative efforts, such as the European Union's FASTER directive proposal, are some of the measures directed toward the development of greater transparency and enforcement on cross-border financial flows.

1.2 Literature review

Following the revelations from the CumEx-files, numerous studies have investigated DWT schemes across Europe. A consistent finding among these studies is evidence suggesting the widespread use of DWT schemes in various European countries. Many of these analyses rely on the distinct trading patterns that DWT schemes generate near ex-dividend dates to identify the presence of extensive cum-cum or cum-ex trading activity.

Buettner, Holzmann, Kreidl, and Scholz, in their 2020 paper “Withholding-tax non-compliance: the case of cum-ex stock-market transactions, ” studied Germany’s reform in 2012, which attempted to combat cum-ex schemes. They analyzed publicly traded companies in Germany from 2009 to 2015. The findings of the study show that the reform was successful in reducing the spike in the trading volume on the German stock exchange during the dividend payment period, which implies that cum-ex trading was being effectively addressed.

Casi, Gavrilova, Murphy, and Zoutman in 2022 assessed the impact of Denmark's 2016 reform which was implemented to ensure that dividend withholding tax (DWT) was not misused. They compared Denmark to other Nordic countries and evaluated them before and after Denmark's 2016 reform. The study revealed that the reform effectively eliminated the known patterns of the DWT scheme trading. Denmark was able to collect an additional $1.3 billion as tax revenue every year. The study also found that there was evidence that Germany's 2016 reforms were able to stop cum-cum trading, and it also pointed out that DWT schemes are still a big issue in several other European countries.

Laturnus et al. (2022) used different sources of data than Buettner et al. (2020) and Casi et al. (2022) and still came to the same conclusion that Germany's measures were effective. Moreover, Wagner and Wei (2022) investigated several financial markets in Western Europe and found abnormal trading activities in every country on the ex-dividend date. They also estimated the amount of loss for the countries involved.

Haesner and Schanz (2013) discuss the German context where there are huge trading volumes on ex-dividend dates. While there have been several other studies, which have provided different explanations for these patterns in anomalous trading activity surrounding the record date, including Lakonishok and Vermaelen (1986), Karpof and Walkling (1990), Michaely and Vila (1995), Dhaliwal and Li (2006), Akhmedov and Jakob (2010), Haesner and Schanz (2013), Hartzmark and Solomon (2013), and Henry and Koski (2017), this thesis argues that non-compliance with withholding tax legislation provides an additional explanation for these patterns. Later, in Chapter 2.6, this thesis will explore studies with alternative explanations for trading spikes near the ex-date.

1.3 Purpose of the study

The goal of this master's thesis is to make a comprehensive and quantitative analysis of dividend withholding tax (DWT) schemes, such as cum-cum and cum-ex, focusing on their exploitation of weaknesses in tax systems. Finland has become the first EU member state to accept the TRACE policy to fight DWT schemes. Based on this, the EU is preparing

to introduce the FASTER directive to other EU member states. The FASTER directive is modelled after Finland's TRACE policy. This thesis examines the impact of TRACE to evaluate whether implementing the FASTER directive across the rest of Europe would be a beneficial and effective measure.

This thesis describes how these DWT schemes work, how often they occur in European countries while focusing on Finland, and how TRACE works to curb these schemes. To get a sense of the scope and trend of these schemes, this thesis looks at trading volumes daily and pays particular attention to trading on ex-dividend days. Anomalies in the data may be related to cum-cum and cum-ex schemes. This thesis also assesses the efficacy of the TRACE policy by comparing trading activities at the ex-dividend date before and after the implementation of the regulatory changes made by the TRACE. By focusing on trading volume data, this thesis also bridges a gap in existing literature, where previous research has predominantly relied on share lending or derivatives data, thereby adding a novel dimension to the analysis.

The prevalence of DWT schemes in Europe has been well-documented, as discussed in the literature review chapter. However, there is limited research on the measures taken to curb these schemes and the effectiveness of such interventions. Notable exceptions include studies on Germany and Denmark, where reforms have shown significant success. However, there has been no evaluation of the impact of the TRACE policy implementation in Finland, which is the focus of this thesis. Through this analysis, the thesis aims to provide valuable insights for current and future policymakers.

International investors and cross-border trading have become widespread in the last few decades due to the rapid development of the capital markets around the world. For example, between 1980 and 2017, foreign ownership of publicly traded equities in the UK increased from 4% to 54% (Tang et al., 2019), a trend also observable in other European markets. Examining dividend withholding tax schemes is important because of the size of the capital market in Europe.

To the best of my knowledge, there is no previous legal research that looks at DWT schemes and their application of intervention models from European and Finnish international tax law (EU tax law, tax treaty law, and Finnish national tax legislation) in cases of dividend withholding tax schemes. Furthermore, this thesis discusses the new European Union's so-called FASTER directive proposal (COM (2023) 324 final) and attempts to assess its potential future impacts.

However, it is worth noting that the study has some limitations. First, the analysis is based on the assumption that the trading behaviour is abnormal when there are cum-cum and cum-ex schemes, which may not always be the case in practice. In addition, the study only examines the impact of the TRACE policy on trading activities and does not consider other factors that may influence market behaviour. Despite these limitations, this thesis provides valuable insights into the working of cum-cum and cum-ex schemes and the effectiveness of the TRACE policy in combating these schemes. The findings of the study have implications for policymakers, regulators, banks, and other financial institutions to come up with and implement effective measures to prevent tax evasion and money laundering activities in the capital market.

1.4 Research question and hypothesis

The research question examined in this thesis is:

"Does the implementation of the TRACE policy in Finland influence trading volumes around the ex-dividend date, and is there evidence of abnormal trading activity before and after its introduction?"

Two hypotheses are formulated to explore this question:

1. $H0A$**:** Share trading volumes near the ex-dividend date remain consistent with typical trading volumes.

2. $\boldsymbol{H0B}$**:** The implementation of the TRACE policy does not impact trading volumes near the ex-dividend date, nor does it affect patterns associated with DWT schemes.

The primary focus of the thesis lies in testing the second hypothesis, as the core objective is to evaluate how the TRACE policy influences DWT schemes. Nonetheless, addressing $H0A$ is necessary for achieving this goal.

To examine these hypotheses, the thesis conducts a comparison event study, focusing on two key events:

1. A company's stock going ex-dividend.
2. The implementation of the TRACE policy.

This study takes as its empirical setting the daily share trading volume of up to one hundred of the most actively traded dividend-paying companies in Finland. It also looks at the change in the volume of trading and the difference in the abnormal volumes before and after the policy change.

Based on previous research, the thesis anticipates identifying abnormal trading volumes in Finland before TRACE, leading to the rejection of hypothesis $H0A$. Furthermore, it is expected that the findings will show the same results as previous research, which observed a decline in abnormal trading after the reforms in Germany and Denmark. If similar patterns are observed, hypothesis $H0B$ will also be rejected.

However, this thesis distinguishes itself by utilizing trading volume data instead of share lending data or single stock futures, as employed in studies like Casi et al. (2022). Moreover, the analysis focuses on the period from 2020 to 2023, a timeframe that has not been extensively explored in previous research. As a result, the findings of this thesis may present some new ideas and may lead to some contrasting conclusions.

Therefore, based on the identified research problem, the quantitative empirical analysis with the event study method is considered appropriate. This is because an event study is a technique particularly suited for analyzing changes in the volume of trading activity, such as those that occur on and after ex-dividend dates or on and after the implementation of the TRACE policy. Daily trading volume data enables this approach to identify, with high accuracy, periods of abnormally high or low trading activity—i.e., the kind of activity that may be associated with DWT schemes.

In addition, statistical analysis techniques, including t-tests, assist in examining the significance of the differences in trading volume between the periods before and after the policy change. This method was chosen because it best fits the study's objective of presenting empirical data on how effectively TRACE works in preventing DWT strategies, with results that can be generalized and replicated. In addition, the study focuses on trading volume data, which is not commonly used in existing literature, and has mainly concentrated on share lending or derivatives data, thus providing a new perspective to the analysis.

Furthermore, the thesis uses a legal dogmatic approach as the secondary method. The legal dogmatic method, in particular, is significant for addressing the intricate legal structures and principles underlying DWT schemes. This approach provides a systematic examination, interpretation, and critical analysis of legal provisions, principles, and concepts about statutes, regulations, and court decisions. It focuses on organizing and categorizing these norms into a coherent framework, evaluating their consistency, effectiveness, and fairness in their practical application.

With the legal dogmatic approach, the thesis analyzes the effectiveness of existing legal instruments in combating DWT schemes such as cum-ex and cum-cum. It criticizes whether current legislation is adequate to prevent such schemes and recommends how they can be improved. This is also a foundation upon which the thesis presents legal reform proposals to make withholding tax regimes more effective and fairer. Through

empirical analysis and legal dogmatic approach, the thesis fills the gap between the theoretical and practical perspectives and the economic and legal dimensions of DWT schemes.

1.5 Structure of the Study

This chapter will present the structure of this thesis. First, this study introduces the topic, research, and hypothesis in the first chapter. The second chapter will go through important concepts and definitions, laying the foundation for the third chapter.

The third chapter introduces the concept of DWT schemes, and everything related to it, including different types of schemes. Chapter 3 discusses the existing research on dividend withholding tax schemes, primarily in Germany, focusing on identifying dividend arbitrage collusion and assessing the effectiveness of legislative interventions. Chapter 4 explains and goes through the statistical methods used in the thesis. Chapter 4 lays down the context for the results and analysis, wherein the outcome of the t-tests and share turnover tests will be provided and explained.

The fifth chapter shows the analysis of share turnover data, focusing on trading patterns before and after the TRACE policy. It also shows the findings from the t-tests conducted to assess differences in share turnover across event and non-event windows, as well as between pre-policy and post-policy periods. The t-tests serve to statistically validate the observations regarding trading activity and the impact of the TRACE policy on abnormal trading volumes.

The fifth chapter also provides different legislative measures to combat dividend withholding schemes. The fifth chapter goes through what has already been done and how various regulations have worked on combating DWT schemes. This chapter focuses on different legislation in Europe, especially in Finland. The fourth chapter also discusses whether the legislation could support access to information even better than at present.

The final chapter, conclusions, summarizes the key findings of the thesis, addressing the research questions introduced at the beginning of the thesis. The current regulatory and legislative measures are examined, and possible solutions to the threats posed by such schemes are presented. The significance of the results in a larger context is examined for policymakers, tax administrations, and legislators, with recommendations for making the regulatory environment better in dealing with DWT schemes in the future. Suggestions for future research are also made in the final chapter.

2 Theoretical framework

This chapter provides the theoretical introduction to the rest of the thesis. First, it addresses some basic notions of different types of tax avoidance and what is legal and illegal tax avoidance. Second, it provides an overview of how dividends are generally taxed in Europe, with a particular emphasis on withholding taxes, which are both a component of dividend taxation and the DWT schemes and are discussed in detail. Thirdly, it briefly discusses two key concepts that are needed to comprehend the cum-ex scheme: share settlement and dividend entitlement.

2.1 The differences between tax planning and tax evasion

Since the thesis deals with withholding tax schemes on dividends and the interface of these schemes between tax planning and tax evasion, it is justified to first examine some important concepts related to the subject area, to clarify on a general level what type of activity has been addressed by the general tax evasion regulations.

Understanding the distinction between tax planning and tax evasion is key to formulating the research question in this thesis. Tax planning is the legal steps taken to minimize tax burdens within the bounds of legal provision, whereas tax evasion comprises illegal activities that actively avoid tax payment. This is significant in identifying the machinery of how DWT schemes operate because they tend to exploit the gray area between aggressive planning and tax evasion. Some schemes, like cum-cum and cum-ex, exploit tax loopholes as well as tactics in timing their claims for exorbitant tax rebates or benefits. By going through these differences, this section offers the context to comprehend how DWT schemes function and why TRACE policies need to be implemented to counter such exploitative activities. This theoretical foundation directly supports the research hypothesis, which seeks to evaluate the impact of TRACE on abnormal trading volumes linked to these schemes.

The terms “tax planning”, “tax avoidance” and “tax evasion” are not defined and applied uniformly across all countries and are therefore interpreted in a different way. In Finland these concepts are divided into three levels (Knuutinen, 2012). Complying with the legislator’s intent, tax planning is the use of lawful ways to minimize tax liability; for example, using tax incentives to encourage development of science, technology, and specific activities like R&D. Tax avoidance, which is within the law but amounts to adopting artificial arrangements to secure unintended tax benefits which are not in the spirit of the tax laws, is in contrast to tax evasion which involves illegal activities like fraud or legal closure of the eyes to tax default. The Finnish criminal law has a strict definition of tax evasion (Juusela, 2008).

In general, tax planning is accepted as long as it does not go against the laws of the country, both in Finnish domestic tax law and EU regulations (Ossa, 2020). For instance, businesses are permitted to organize their affairs so as to minimize their tax liabilities so long as the methods employed are consistent with the provisions of the tax laws. However, this is where the distinction between what is permissible tax planning and what amounts to tax avoidance can be rather foggy. Aggressive tax planning, which is often complex and involves things like tax havens or exploiting weaknesses in international tax rules, only serves to muddy the waters further (Knuutinen, 2014). While not illegal, aggressive tax planning is morally questionable and is, therefore, a focus of the OECD and EU (Dourado, 2015).

To prevent tax avoidance and aggressive tax planning, regulatory tools like GAARs (General Anti Abuse Rule) have been put in place. GAARs allow tax authorities to disregard arrangements designed primarily to obtain tax benefits contrary to the intent of tax legislation (Knuutinen, 2009). In the EU, the Anti-Tax Avoidance Directive (ATAD) strengthens this approach by codifying anti-abuse provisions to protect member states’ tax bases. However, GAARs also raise concerns about legal certainty and the balance between enforcement and the protection of taxpayers’ rights (COM 136, 2015).

In Finland, measures to prevent tax evasion are set forth in Section 28 of the Taxation Procedure Act (VML). This provision allows the tax authorities to ignore the legal form of a transaction when the transaction does not reflect the real economic substance of the transaction, especially in the case of artificial arrangements (Knuutinen, 2006). The application of Section 28 to both domestic and cross-border arrangements guarantees that the taxes are properly levied, even when the benefits of a treaty are being misused (Veikkola, 2020a). This application is also supported by Finnish legal literature as relevant to the elaboration of the issues arising from DWT schemes (Ryynänen, 2003; Helminen, 2016).

While tax planning is an important and lawful activity for individuals and businesses, their intention is often the factor that most clearly distinguishes between tax planning and tax avoidance. Effective anti-avoidance rules must address the challenges posed by aggressive tax planning without undermining the principles of legality and fairness. In the context of DWT schemes, Finland's regulatory framework, supported by EU directives, aims to strike this balance by countering artificial arrangements and ensuring compliance with tax laws. This thesis examines how these legal measures can be most properly used to stop DWT schemes without producing either relative legal uncertainty or tax injustice.

2.2 Dividend taxation

The mechanics of dividend taxation play an important role in understanding the exploitation of withholding tax systems. Withholding taxes are designed to ensure that governments collect tax revenue on dividend income before it reaches investors. However, as seen in various European countries, these systems have been manipulated to enable tax refunds on payments that were never made, often through complex schemes. This section explains the purpose of withholding taxes and their role in preventing tax avoidance while highlighting how the refund and relief processes can be exploited. Understanding these mechanisms is critical to framing the research problem, as the TRACE policy directly targets these loopholes. By linking the principles of dividend taxation to

the research question, this section provides the theoretical context for analyzing the trading behaviours around ex-dividend dates and the effectiveness of policy interventions.

Dividends can be taxed in two ways: through income taxes or withholding taxes. Generally, when companies pay dividends to individual shareholders, the shareholders must pay income tax on those dividends (Schreiber, 2013). Similarly, dividend income can be treated as part of a business's taxable income and subject to corporate taxation. There is, however, a tendency for dividends between corporations to escape taxation.

Only this type of taxation applies to shareholders residing in the country where the dividends are generated. Instead, according to Schreiber, a withholding tax may be imposed on non-resident individuals and businesses, which cannot be taxed directly by the country distributing the dividends. The distributing company deducts the tax before distributing the net amount to shareholders. As an alternative, financial institutions, such as depositary banks or account operators, can carry out this process on behalf of a company (Buettner et al., 2018). At the end of the day, shareholders are responsible for meeting their tax obligations.

2.2.1 Using withholding taxes to combat tax avoidance

Withholding taxes also promote tax compliance. Suppose taxpayers are subjected to the withholding tax but report the income to the relevant tax authorities; they may receive a refund for the difference between this high withholding tax rate and the (usually lower) national tax rate. As a result, the elevated withholding tax encourages tax compliance by acting as a deterrent for evaders while providing a financial benefit to those who truthfully declare their earnings. This mechanism effectively penalizes non-compliance while rewarding transparency (European Commission, 2014).

Johansson et al. (2016) found that withholding taxes also serve to curtail international tax planning. By imposing withholding taxes on interest payments, Johansson et al.

believe that patents, trademarks, and other intangible assets are less likely to be transferred to low-tax jurisdictions. Profits are commonly transferred from high-tax countries to low-tax countries using these tactics (Schreiber, 2013). Profits can be effectively taxed in high-tax countries by subjecting interest and intangible asset payments to withholding taxes, removing the incentive to shift profits. Likewise, withholding taxes on dividends discourages investors and MNEs from structuring their ownership to receive dividends in jurisdictions that treat dividends favourably. In essence, withholding taxes is seen as a vital tool in combating tax avoidance.

The withholding tax on dividends is also affected by whether the share is registered as a trustee. A trustee-registered share means security in the value share system, which is owned by a foreigner or a foreign entity or foundation and which is managed by a Finnish custodian entity, i.e. a custodian bank (Nykänen, 2015). Based on a publicly listed share registered as a trustee, the dividend to be paid is subject to special regulation. In this case, also taking into account the applicable tax treaty regulations, the amount of the dividend to be collected can vary between 0% and 35%, regardless of whether the taxable person is a natural person or an entity.

As said by Buettner et al., through tax withholding systems, taxpayers can claim refunds, but this can lead to the potential for fraudulent refund claims. Therefore, government revenue may be at risk of loss in the form of refunds of taxes that were never actually withheld, or from accidental double refunds for a single tax through schemes like cum-ex trades.

2.2.2 Withholding tax refunds and relief at source

Refunding withholding taxes plays a major role in correcting situations in which excessive amounts of tax have been withheld due to a variety of factors, including differential treatment based on shareholder status or different tax rates for different investors. In some countries, for example, dividends distributed to foreign shareholders are subject to withholding taxes, while certain types of investors are exempt from withholding taxes.

This applies especially to inter-corporate dividends within the European Economic Area governed by the Parent-Subsidiary Directive (Schreiber, 2013). In addition, many countries have entered into bilateral tax treaties with the objective of eliminating or reducing the withholding tax on dividends paid to other countries, and, as such, different tax rates are incurred based on the shareholder's country of residence (Schreiber, 2013).

These complexities require countries to implement systems to ensure shareholders receive accurate tax rates. When individuals or businesses earn income in multiple countries and are subject to taxation in each, they may be eligible for reduced tax obligations to avoid double taxation. One of the ways this burden can be eased is through the relief from withholding tax on sources, which reduces the net burden of taxation. The amount of such relief depends on several factors, including the nature and location of the income-generating activity and any relevant international tax agreements (IMSG, 2010).

Taxpayers must provide proof that they have already paid tax on their income in the host country for such relief to apply (IMSG, 2010). This may involve the production of documents such as tax receipts, bank transfer documents, or other official documentation of tax payment. In some cases, additional documentation, for example, a certificate from the foreign tax authority, may be required to establish entitlement to withholding tax relief. Once all requisite documents are lodged and cleared with the concerned authorities, taxpayers stand to benefit by paying a lowered rate of taxation on their income in the second country. Such relief is tremendous in some cases, bringing the withholding tax rate down to nil, thus practically abolishing double taxation (IMSG, 2010).

Briefly, withholding tax refund is an essential adjustment mechanism for over-withholding because of differential treatment and varying tax rates among shareholders. Cross-border investment arrangements are endowed with this provision to offer fairness and compliance, particularly by addressing the challenges that may be encountered by foreign investors in recovering excessive taxes withheld.

2.3 Exploitation of tax treaties

A notable feature of Finnish withholding tax is section 1 subsection 3 of the Withholding Tax Act, which subordinates withholding tax to tax agreements that Finland has made with different countries. In other words, the withholding tax law applies only to the extent that tax treaties do not apply. This leads to the fact that international tax treaties limit Finland's right to tax at the points specified in the tax treaties. In addition, the mere existence of a tax treaty can affect the taxation of national legislation, regardless of its content (Peltomäki, 2020).

Situations where the taxpayer seeks benefits based on a tax treaty are called tax treaty abuse. In connection with tax treaties, it is natural to talk about abuse, because the object of abuse is specifically the benefits based on the tax treaty. As said by Veikkola (2022), this is because by abusing tax treaty benefits, the taxpayer evades the tax based on national tax legislation.

One form of tax treaty abuse can be considered treaty shopping, although it is a broader concept than abuse. Treaty shopping is not a legal concept and can be understood as an attempt to obtain benefits that persons living in another country receive based on a tax treaty concluded by this country. The concept differs from the misuse of tax treaties in that treaty shopping can also involve bona fide business arrangements (Veikkola, 2022).

Tax treaty abuse and treaty shopping are strategies employed by global corporations to reduce their global tax obligations, providing them with an unfair advantage over domestic companies that lack the scale or resources to participate in international tax avoidance. Essentially, these tactics allow global corporations to move income from higher-tax regions to lower-tax ones, thereby decreasing their overall tax burden.

For illustration purposes, imagine a scenario where Country X and Country Y have a tax treaty that reduces withholding taxes on dividends. Company A, based in Country Z, wants to benefit from this reduced tax rate in Country X. To do so, Company A establishes

a shell company in Country Y, which has a favourable treaty with Country X. This setup enables Company A to route its income through the entity in Country Y, thereby qualifying for the lower withholding tax rate in Country X under the treaty between Country X and Country Y. In this way, Company A is engaging in “treaty shopping,” structuring its operations to exploit the most advantageous tax treaty, despite lacking substantial business activities in either Country X or Country Y. This manipulation undermines the treaty’s intent, allowing the company to cherry-pick favourable provisions without a genuine economic presence in the involved countries.

2.4 Trade settlement process

To understand how a cum-ex scheme works and why this study uses the “5 days before and after the ex-date” in its analysis, it is first necessary to understand what the settlement process means. Cum-ex trading capitalizes on the delayed settlement of share trades, exploiting the period between the trade date and the settlement date when ownership of shares is transferred. This settlement cycle, typically spanning a few trading days, is generally called a settlement rule or settlement period (Yadav, 2017). For a security to move from a seller to a buyer, it must go through a settlement process, which creates a delay between the time of trade (T) and its settlement.

For instance, a trade that settles two days after the trade date is said to follow a T+2 cycle; in like manner, a settlement after three days is referred to as a T+3 cycle (Yadav, 2017). It is important to understand the settlement process to understand the timing manipulations that occur in cum-ex transactions.

While the settlement period is typically standardized within regulated markets of a country (Clearstream, 2014), international standardization has been lacking until recently. However, there has been a shift towards shorter settlement cycles internationally. According to Clearstream (2014), the EU adopted T+2 as the standard settlement cycle in 2014. Meanwhile, both the U.S. and Canada transitioned from T+3 to T+2 in 2017 (Clearstream, 2017; U.S. Securities and Exchange Commission, 2017). Prior to the change to

T+3, the markets operated on a T+5 settlement cycle (U.S. Securities and Exchange Commission, 2024).

Since May 28, 2024, with the advances in technology and electronic trading, most stock trades settle in just one business day (T+1) (U.S. Securities and Exchange Commission, 2024). The U.S., Canada, Mexico, and Argentina have switched to the T+1 settlement cycle. The European Commission is proposing 11 October 2027 as the appropriate date for the move to the T+1 settlement (European Commission, 2025).

To make sure cum-ex schemes are captured for the whole period in the analysis, T+5 is used near the ex-date. Therefore, cum-ex schemes will fully be captured if they are present during the settlement cycle and near ex-date together. In the next chapter, ex-date and record date are explained, so the basis for this thesis' analysis (and for cum-ex schemes) can be fully grasped.

2.5 Ex-date and record date

One significant aspect of dividend payments is specific dates, and the ex-date is of major significance. An ex-dividend date is a date on which stock is sold without the benefit of the next following dividend payment. Instead, the dividend accrues to the previous owner. In other words, if an investor has the objective to purchase shares bearing dividend entitlement, or "cum-dividend," they will need to make a purchase before the ex-date. The day before the ex-date is commonly known as the cum-date.

Additionally, the record date is important in dividend processes. A company's board of directors decides the record date, and this is when a company compiles a list of the shareholders of the stock on which a company has announced a dividend. The list serves to determine the shareholders who are entitled to receive the dividend (Zoutman, 2019). Since the shareholder register on a settlement of transactions basis, only transactions settled on or earlier than this date qualify for dividend payment. But the entitlement to the dividend depends on when the transaction is done. Since transactions tend to settle

a few days post-execution, there is a time lag between shareholder registration and dividend entitlement. This inconsistency has the potential to lead to complications, such as when favored investors are not recorded as shareholders. As will be examined in more detail below, this imbalance is a central pillar of the cum-ex scheme, with room for dividends to flow to the incorrect investors.

As of May 2024, the ex-date and record date are the same in the U.S., Canada, Mexico, and Argentina (U.S. Securities and Exchange Commission, 2024). This change in the regulations will curb the challenges of preventing cum-ex and cum-cum schemes. As the European Commission has proposed to change the settlement cycle for EU securities from two days to one, the ex-date and record date would, therefore, also be the same day in the EU.

2.6 Trading spikes near the ex-dividend date

The thesis will attempt to determine the patterns of cum-cum and cum-ex trading by analyzing the trading volume around the ex-dividend date. As expected, there should be spikes in trading around the ex-dividend date, particularly in the pre-TRACE implementation era. However, as noted in the literature review, there are trading spikes around ex-dividend dates, which can also occur in the absence of DWT schemes. Therefore, it is necessary that the thesis also examines other potential reasons for this increased trading volume.

In a Walrasian ideal capital market with the absence of transaction costs and taxes, the stock price is expected to decrease precisely by the value of the dividend distributed per share (Miller and Modigliani, 1961). However, as empirical evidence shows by Frank and Jagannathan (1998), stock prices typically fall short and do not decrease by the value of the dividend distributed, a phenomenon primarily attributed to tax implications. When investors face varying effective tax rates on dividend income, arbitrage opportunities arise. Elton and Gruber (1970) were the first to justify the ex-dividend phenomenon and introduced the tax-driven clientele effect. They pointed out that the price drop ratio is

highly affected by specific tax clientele who receive dividends. Previous research by Wagner and Wei (2022) also insists that trading spikes near ex-dividend dates are largely driven by tax heterogeneity among investors.

Lakonishok and Vermaelen in 1986 in their study “Tax-induced trading around ex-dividend days” investigated trading volume around the ex-dividend dates for US companies from 1970 to 1980. Lakonishok and Vermaelen found increased trading activity both before and after the ex-dividend date. Similar findings were reported by Michaely and Vila (1995) and Henry and Koski (2017), with the latter highlighting that skilled institutional investors use dividend capture strategies to capitalize on their lower transaction costs.

Rantapuska (2008) investigates the Finnish market and discovers that different tax benefits on dividends attract investors to trade around the ex-dividend day, but he finds no evidence that the tax-induced clientele effect is reflected in stock prices. While Chen et al. (2013) show evidence from the Taiwanese market that ownership structure has a significant effect on price and trading around the ex-dividend day, they also find evidence that contradicts the dynamic dividend clientele hypothesis.

It should also be acknowledged that tax heterogeneity is not the only factor causing spikes in trading around ex-dividend dates. In their paper from 2001 “The ex-dividend day stock price behavior in the Athens Stock Exchange” Milanos and Travlos investigated trading spikes near ex-dividend dates on the Athens Stock Exchange. They found a significant increase in trading, even in 2001 when Greece had no taxation on dividends or capital gains. They attributed this to price discrepancies, with cum-dividend transactions being executed at the bid price and the ex-dividend transactions at the asking price. This price differential gives investors reasons to purchase stocks on the ex-dividend day and sell on the cum-dividend day, while market makers exploit these dynamics to increase trading volumes. These findings align with Dasilas (2007) and Al-Yahyaee, Pham, and Walter (2011), who observed similar trends in markets such as Oman.

The analysis of the thesis is also based on these factors for DWT schemes. However, by comparing trading patterns before and after the legislative changes, the analysis assumes that most of these factors are time-invariant, and hence, the effects of DWT schemes on trading activity are isolated.

3 Different dividend withholding tax schemes

Many factors are involved in dividend withholding tax schemes, making it difficult to summarize them. This chapter examines three examples of schemes that differ from one another. It should be noted that similar schemes may operate differently depending on the local laws and regulations.

The focus turns to tax-motivated trading after laying the foundational knowledge in the previous chapter, beginning with a concise description of the mechanism and objectives of cum-cum trading. Afterward, the thesis turns to its biggest scheme - cum-ex trading. To provide a detailed examination of cum-ex transactions, an in-depth assessment of the cum-ex scandal in Germany is presented, followed by an overview of known details concerning cum-ex activities in other countries.

3.1 Cum-cum

According to Buettner et al., cum-cum is a form of arbitrage that takes advantage of variations among tax burdens on investors. Cum-cum is designed to take advantage of different tax rates and tax treaties applicable to different types of investors. In contrast to cum-ex, the trading is much simpler and straightforwardly near the ex-date. This scheme requires trading securities and transferring securities, both with dividend entitlements, to another party with a lower tax liability on dividends than the original owner, thus reducing the investor's tax burden. It is possible to minimize or avoid dividend withholding taxes through cum-cum trading; however, unlike cum-ex, it does not allow for the reimbursement of multiple taxes at once during cum-cum trading. Due to legal complexity, curbing cum-cum schemes can be a challenge, since legislation targeting such schemes is often difficult to enforce (ESMA, 2020).

As quoted by Wigan (2019), cum-cum trades have a broadly similar structure in most countries. Such trades involve a transfer of shares' ownership before and after the share ex-dividend date, with either share lending or outright purchase being the method to

achieve this. Transaction volume data are employed throughout this thesis, so cum-cum transactions executed with the use of share lending will be excluded. Whereas cum-ex schemes are time-based and thus may be vaguer to distinguish at times, cum-cum schemes both demand an issue prior to the ex-dividend date and a subsequent buy-back. Thus, cum-cum schemes will always manifest in the data as two discernible events: initially, the sale, followed by the buy-back of the shares.

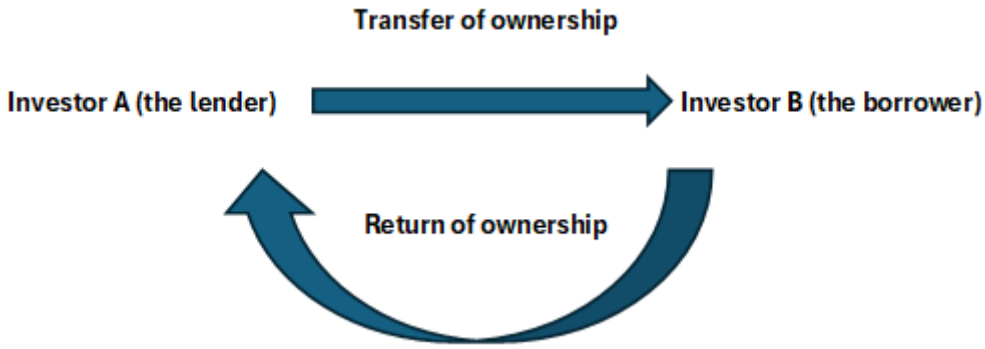

Figure 1. Stock lending (Based on Veikkola, 2022).

According to Knuutinen (2009), a situation in a share lending arrangement can arise where the ownership in the financial sense remains, but in the legal and formal sense, it changes. That is, the formal ownership of the share can be transferred to the borrower (B), but its financial ownership remains with the lender (A). Taxation has had challenges in adapting to these situations where there is tension between legal and financial ownership.

Share lending often has a connection point to financial institutions' cash flow financing means, in which case the loan is part of a secured debt arrangement. In the loan agreement, the lender (A) transfers the shares to the borrower (B), who has the obligation to return the shares at the end of the loan period. In a simple arrangement, the borrower (B) receives the dividend produced by the stock, while the lender (A) can receive

payment in the form of a manufactured dividend. In the arrangement, the lender (A) basically has no risk of the share falling in value, because the borrower (B) is responsible for this (Pankakoski, 2020). Share lending arrangements are made, for example, for securities trading. There is also typically an agreement in which the borrower (B) pays monetary compensation for the shares (i.e. pays, as it were, rent) and can pledge the shares as security at the market value of the shares (Collin, 2020).

Table 1. Cum-cum trading (Based on Schreiber, 2013).

Step	Description
1. Transfer of Sales	Investor A with higher taxes transfers ownership of shares worth €1,000,000 to Investor B with lower taxes.
2. Dividend Payment	The company pays a €75,000 dividend to investor B and withholds the dividend withholding tax of €25,000 for the tax authorities.
3. Return of Sales and Dividend	Investor B returns shares (now worth €900,000) and the €75,000 dividend to Investor A. Tax authorities issue a €25,000 tax certificate.
4. Profit and Tax Impact	Investor A avoids a higher tax liability (e.g., €34,000) and shares the €9,000 tax savings with Investor B. Tax authorities and society bear the loss.

In Table 1, two investors are involved in a cum-cum trade. When investors have different dividend withholding tax rates, cum-cum trades are generally profitable. The disparity allows cum-cum trades to occur even with domestic investors or those who qualify for a more favourable reimbursement. Without considering transaction costs, investor A and investor B achieve a profit compared to the passive alternative of non-collusion. Without collusion, investor A would have to pay more taxes, such as €34,000. When colliding with investor B, they made a €9,000 profit (€34,000 - €25,000). Using cum-cum trades, the tax authority (and society) incurs the same loss as the investor gains. The cum-cum scheme uses treaty shopping to its advantage.

With a total return swap (TRS), it is possible to transfer the financial risk of the agreed target asset to a party that does not actually own the target asset. The use of TRS agreements in the withholding tax planning of dividends is based on the exploitation of asymmetries in the tax system, i.e. so-called tax arbitrage: either on the fact that dividends and payments based on derivatives are treated differently in international tax law (dividends are subject to withholding tax more widely than income from derivatives) or on the fact that the recipient of the dividend is "switched" to a recipient residing in a country that is exempt from dividend withholding tax based on a tax treaty. Practically getting perfect results often requires the existence of arbitrage opportunities when looking at the taxation of the source country of both the dividend and the derivative income.

The example above was a simplified version of cum-cum scheme. Next, this thesis shows another version of how tax treaties and derivatives are used in cum-cum schemes. Consider the following scenario: a company based in Germany (Company A) holds shares in a Finnish company (Company X), where a valid tax treaty exists between Finland and Germany (SopS 85–86/2017138). This tax treaty, modeled after the OECD framework, allows Finland, the source country of the dividends, to impose a 15% withholding tax on portfolio dividends. It is important to clarify that the German company (A) does not maintain a permanent establishment in Finland, and the investment qualifies as a portfolio investment, meaning that it does not grant controlling power over the Finnish company (X). Consequently, under the provisions of the tax treaty, Finland is entitled to impose a 15% withholding tax on the dividends paid by Company X to Company A.

However, Company A may engage in a strategic arrangement with a British company (Company B), by utilizing share or derivative agreements to circumvent Finland's withholding tax obligations. In this arrangement, Finland effectively forfeits its right to levy the withholding tax, as the dividend recipient is nominally recognized as Company B under established tax practices. Due to the tax treaty between Finland and Great Britain, dividends paid to British residents are subject to a 0% withholding tax. Moreover, Finland

is unable to tax the derivative (or substitute dividend) payments made between the companies, as these payments lack a sufficient nexus to Finland under § 10 of the Finnish Income Tax Act. Compounding this issue, Great Britain's domestic tax legislation broadly exempts dividends from taxation (HMRC, 2016; Veikkola, 2022).

This situation is however, exacerbated by the fact that Great Britain does not impose withholding taxes on substitute dividends paid to Germany. According to Veikkola (2022), the OECD model tax treaty prevents the taxation of substitute dividends based on share lending agreements in the residence country of the payer (in this case Great Britain) as for instance such income is considered as “other income” under Article 21. Therefore, this arrangement raises significant concerns, particularly given the disproportionate allocation of dividend flows to jurisdictions with low or zero tax regimes as illustrated in the next Figure 2. As highlighted, the practice of using such arrangements to avoid withholding tax on dividends remains a relevant issue, and tax authorities are well aware of the methods used in these cases.

This scenario shows a present and sophisticated problem in the field of international taxation, which highlights the difficulties that tax authorities have in their governments. From the point of view of international withholding tax planning, activities directed to Great Britain, in particular, should be critically examined, as the second largest number of dividends from Finland are paid there, but Finland does not have the right to withhold tax on them (Tokola, 2019).

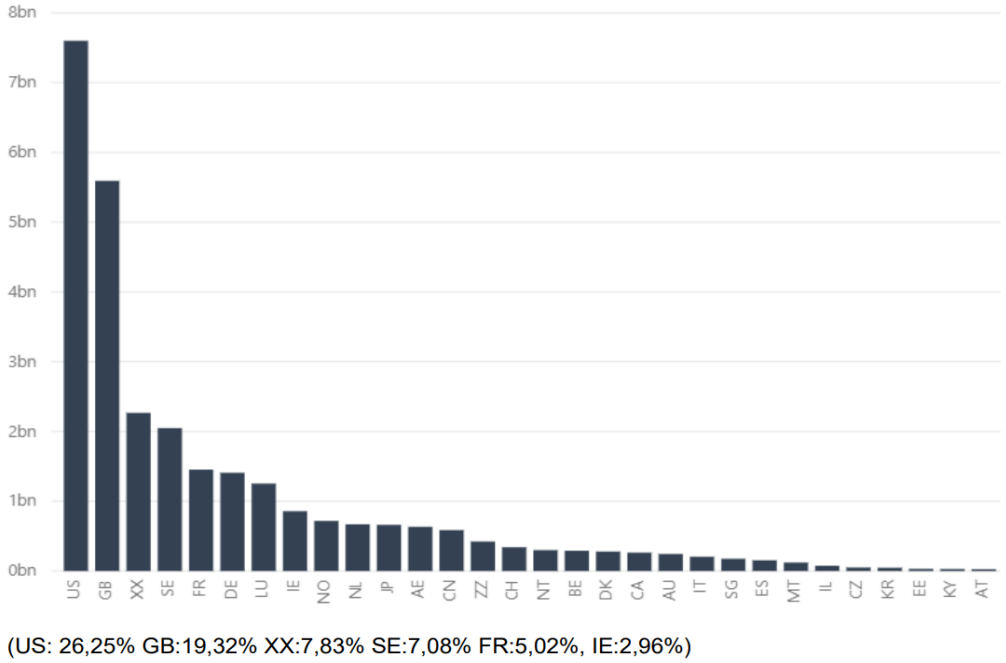

Figure 2. Dividend payments paid abroad from Finland by country 2010-2018 (Tokola/ Verohallinto, Harmaan talouden selvitysyksikkö, 2019).

Annually, significant amounts of dividends are paid abroad from Finland, and the Finnish Tax Administration's point of view is to try to protect Finland's right to tax as a source country as much as possible. When looking at the statistics, however, a worrying phenomenon can be observed that a significant part of the dividend flows paid from Finland are directed to countries with which Finland has a tax treaty with which either all or some groups of recipients apply a zero-tax rate. Today, those zero-tax treaties are still in force between Great Britain, Ireland, Mexico, and France.

3.2 Cum-ex

According to Spengel (2016), the purpose of cum-ex trading is not to avoid taxes, but rather to obtain multiple refunds for withholding taxes only paid once. Since cum-ex literature is very limited and largely based on the German cum-ex scandal, this explanation of cum-ex is derived from the method utilized there. Nevertheless, cum-ex has been detected in other countries, and similar schemes have likely been implemented or with similar characteristics. It is therefore deemed necessary to describe in detail everything

behind cum-ex trading in Germany, as well as the weaknesses in the German withholding tax system that led to the development of this scheme. In Germany, the scheme involved a series of complex trades executed within a brief timeframe near dividend distributions. As said by Buettner et al. (2018), these trades were structured to benefit from the way dividends and withholding taxes were processed.

3.2.1 Cum-ex in Germany

These frauds take advantage of weaknesses in how dividend withholding tax refunds are handled. The following example illustrates how cum-ex was used in Germany. In Latin terminology, "cum" refers to securities with dividend entitlements, while "ex" refers to securities settled without dividend entitlements. An important feature of cum-ex is that it involves the trading of securities first with dividend entitlements, and then without them. The scheme is designed to appear sophisticated and complex, creating the impression of legitimate claims, allowing multiple refunds on taxes withheld only once. This section outlines a variety of cum-ex approaches, some of which perhaps could be unidentified. Table 2 is based on the Cum-Ex Files method that Correctiv (2018) revealed on the German market.

Table 2. Cum-ex scheme (Based on Correctiv, 2018).

Step	Description
1. Share transaction before ex-date	Investor A sells shares to Investor B just before the ex-dividend date. Both parties claim dividend entitlements.
2. Dividend payment	The company pays a dividend to Investor A, withholding tax. Investor B does not directly receive a dividend but still claims a refund.
3. Tax reclaim	Both Investor A and Investor B file for refunds on the dividend withholding tax, despite the tax being withheld only once.
4. Tax reimbursement	Tax authorities reimburse both parties, effectively refunding the tax twice for a single dividend payment.
5. Profit sharing	The refunded taxes are shared between the colluding parties, generating a profit based on exploiting the system.

Table 2 outlines the cum-ex scheme steps as depicted in the investigation by Correctiv (2018). Investor A in this scheme sells the shares to Investor B just before the ex-dividend date, that is, the day on which rights to the dividends are determined. Though the sale is made, Investor A and Investor B both believe that they will be entitled to the dividend. Even though Investor B is not receiving the dividend itself, both investors file refund claims on withholding tax. This results in both Investor A and Investor B getting a refund of the same payment of tax.

But because of weaknesses in the system, tax authorities inadvertently refund the tax to both parties, refunding more tax than was withheld. The two investors then split the proceeds of these duplicate refunds between them, profiting from the fraud. The tax authority, and therefore society, loses out financially, with more tax being refunded than was initially paid. Such abuse of the system demonstrates the impact of the cum-ex scheme on public revenue.

There are typically multiple parties involved in cum-ex trading. As stated by Correctiv (2018), this process involves the original shareholder, financial institutions or brokers who engage in borrowing and short selling of the shares, and a secondary investor who acquires the shares shortly before the ex-dividend date, frequently relying on bank loans to leverage their investment position. Generally, security transactions are settled within two or three business days, otherwise known as T+2 or T+3. On the settlement day, payment is required, and the shares must be handed over to the buyer. When a transaction is made, for instance, two business days before the ex-dividend day, the settlement may coincide with the ex-dividend day, resulting in the purchase of shares cum dividend but delivery of shares ex-dividend.

The typical clearing process ensures that the buyer receives the stock at its ex-dividend price, a dividend compensation from the seller, and a tax certificate from their custodian bank. In the case of cum-ex trading, although the seller does not actually possess the stocks; instead, they engage in short selling. Short selling of this form is allowed if the seller has made arrangements to borrow the securities or has a contract with a third party securing the availability of the securities at the time of settlement. Since the depository bank does not recognize the transactions as short selling, it issues a tax certificate, leading to a double tax refund. Ultimately, the buyer resells the shares to the original owner, who redistributes the additional tax refunds to the parties involved.

Most cum-ex transactions can be easily recognizable through their pattern of stock transfer around the ex-dividend date and thus as trading strategies. In the case of cum-ex trading, the short sale occurs one or two days before the ex-dividend date, leading to a noticeable increase in trading activity. This type of short sale is characterized by the fact that it is executed before the ex-dividend date, but the actual delivery of the shares is made on or after the ex-dividend date.

3.2.2 Evidence of cum-ex in the rest of Europe

So far, most of the research has been on methods used in Germany. It is important to note that the cum-ex strategies that may be in use in other nations are not exactly similar to the German model. Since there are likely differences in how dividends and dividend withholding taxes are handled across different countries, it is reasonable to conclude that cum-ex operators, when operating across borders, have had to change their methods. The Danish cum-ex case is a good example of such adaptation.

However, it has been noted that Denmark is one of the countries most affected by cum-ex activities. This is also supported by media coverage, as can be seen in the CumEx-Files. Denmark is one of the few European nations, along with Germany, where cum-ex has been mentioned as a problem by several reliable sources. During a hearing in the EU Parliament in 2018, it was explicitly acknowledged that the occurrence of cum-ex trades in Denmark (Spengel & Schick, 2018). Additionally, as previously mentioned, Buettner et al. (2018) asserted that Denmark has been affected by cum-ex activities.

Danish tax authorities uncovered in 2015 extensive dividend arbitrage transactions that exploited loopholes in the DWT reimbursement system, which were estimated to yield revenues of approximately $1.3 billion annually. In response, the authorities imposed stricter documentation requirements to discourage nonqualified parties from claiming DWT refunds. Casi et al. (2022) report that this policy change led to a 130% increase in annual DWT revenue.

Casi et al. in their 2022 work examine the effect of tax reform on DWT arbitrage, tax collection by Denmark, and investors' and Danish companies' behavior. From their study, they are in a position to establish that the reform was highly effective in preventing arbitrage, particularly in cum-cum and cum-ex transactions, with a remarkable increase in revenue for DWT. Additionally, the reform only briefly negatively affected Danish companies.

Finland introduced significant changes in 2021, the TRACE policy, to the withholding tax policies. The Finnish regulatory framework was not very restrictive before these changes regarding the imposition of cum-ex schemes, and such tax arbitrage techniques could be implemented with few problems. Through January 1, 2021, Finland had a simplified framework for the withholding taxes on dividends distributed to nominee shareholders. According to Joiniemi (2021), this system resulted in dividends being taxed at the rate of 15% by the relevant tax treaty without the need for detailed information on the final beneficiary of the dividend. If a higher tax rate was available under the treaty, then that was used, and in the event of dividends paid to jurisdictions with no tax treaty, the standard withholding tax rate was used.

The simplified system required the dividend payer to provide evidence that the recipient was entitled to tax treaty benefits. Typically, an agreement between the domestic account manager and a foreign asset manager was deemed sufficient, provided they ensured compliance with the tax treaty and reported any relevant changes in the recipient's tax status (Nykänen, 2015). However, the process did not demand detailed information about the final recipient of the dividend, leading to gaps in oversight.

To enhance Finland's position in international capital markets, a simplified procedure has been introduced to ensure competitiveness by clarifying the withholding tax process and liability. However, this has also raised issues, particularly for the Finnish Tax Administration, which has had difficulty in verifying whether beneficiaries were properly entitled to tax treaty protections. Limited access to information on foreign recipients and the potential for providing inaccurate data hampered effective monitoring of the system, making it easier for cum-ex schemes.

In January 2013, the OECD published a model called Treaty Relief and Compliance Enhancement- Implementation (TRACE) package for the adoption of the Authorized intermediary system, the purpose of which is to facilitate the submission of information required for withholding tax and to enable the application of tax treaty benefits in the

correct amounts already during the tax year. The TRACE implementation package was a very detailed and independent entity that contained several standardized applications, contracts, forms and descriptions, with the help of which the TRACE model was supposed to be introduced in as many countries as possible with as little modification as possible (OECD, 2013).

In the spring of 2019, with the approval of the legislative amendment package in parliament, Finland adopted the OECD's TRACE model in connection with the imposition of withholding tax on nominee-registered shares according to the 2018 proposal of the government (Joiniemi, 2021). The law change entered into force on 01.01.2021 and covered dividends paid out after the above date. The TRACE model was adopted in an unrevised manner.

Registered custodians are banks or institutions that hold securities (such as stocks or bonds) on behalf of investors, including nominee-registered shares. Registered custodians are intermediaries in asset management in that they hold securities securely and settle trades, for instance, receive interest or dividend payments and address the corresponding tax liabilities.

The major role of registered custodians is, in terms of the TRACE model, to investigate and decide the final residence state of the recipient of the dividend received on the shares subject to custody, with the aid of which the custodian ensures the validity of any advantages of tax treaty. The Finnish Tax Administration explains how sufficient due diligence can be evidenced, in terms of the recipient country of residence and accuracy of tax treaty benefits, by a withholding tax card of the Finnish Tax Administration, a certificate issued by the tax authority in the recipient country of residence, and self-declaration of the recipient by the TRACE model. The tax authority emphasizes that the independent declaration by the recipient of the dividend must be trustworthy and encompassing enough for the declaration to be accepted.

A notable aspect of the 2019 legal amendment was the introduction of the actual and primary tax liability for a registered custodian under the TRACE model in cases where insufficient withholding tax was collected. As per Section 10c(2) of the Withholding Tax Act, a registered custodian is liable for unpaid taxes due to an incorrect annual report “as if it were their own”. This liability only applies to the custodian's own incorrect reporting, and not to incorrect information received through the custody chain (Verohallinto, 2020). However, under Section 10b(3) of the Withholding Tax Act, the burden of proof regarding the involvement of other parties in the custody chain in the incorrect annual report lies with the registered custodian. If the custodian can demonstrate that the error was caused by another registered custodian in the chain and that they acted with due diligence, the tax liability shifts to the previously registered custodian. Thus, the registered custodian closest to the dividend recipient is always responsible for the tax. The liability also only applies in situations where the custodians themselves caused the under-withholding (Verohallinto, 2020).

The simple procedure, which was in use before 2021, did not offer the Tax Administration tools to find out the final beneficiary of nominee-registered shares. Thus, it was relatively easy for generally taxable and limitedly taxable dividend recipients to evade taxes by declaring the home country of the final recipient of the dividend as a country with which Finland has a valid tax treaty, which, when applied, reduces the amount of withholding tax levied by Finland. The information obtained with the help of the TRACE policy about the chain of custody and the final beneficiary contributes to the Tax Administration's ability to monitor and find entities that evade withholding tax using trustee-registered shares.

According to the new TRACE policy, the primary tax liability of the registered custodian for uncollected withholding tax also increases the custodian's risk of withholding tax evasion being discovered. This, in turn, may reduce the willingness to withhold the tax. The procedure seems to have produced results, since after the introduction of the TRACE

policy, several companies have been caught in Finland engaging in withholding tax evasion or trading services that include withholding tax evasion (Verohallinto, 2022c).

Although the amount of dividends paid to non-resident taxpayers has remained relatively stable, the increase in withholding tax revenue collected by the tax administration has been a trend in Finland over time. This is because the Finnish Tax Administration has moved to improve the monitoring of withholding tax, which has contributed to the growth in revenue. In the Tax Administration's statistics on withholding tax, there is a significant, nearly twofold increase between 2020 and 2021, coinciding with the implementation of the TRACE policy, as noted by the Tax Administration.

The clear increase in withholding tax revenue can be attributed at least in part to the implementation of the TRACE policy. The stricter oversight introduced with the TRACE policy may have ensured the rightful application of tax treaty benefits, thereby reducing the improper use of these benefits (Verohallinto, 2022d).

4 Research approach

This chapter outlines the approach taken to investigate trading volumes around the ex-dividend date, focusing on identifying patterns indicative of dividend withholding tax schemes. The analysis is intended for identifying, especially abnormal trading volume and evaluating the impact of TRACE on such activity. The methodology is structured around the following key steps: data collection, event definition, trading volume computation, and statistical analysis.

4.1 The data collection

The dataset includes the daily trading volumes of dividend-paying stocks listed on the Nasdaq Helsinki exchange. The analysis focuses on the 100 most active dividend-paying companies on Finland's biggest market, the Nasdaq Helsinki exchange, in the period from January 1, 2013 to December 31, 2023 to investigate: (1) whether there are abnormal trading volumes at the ex-dividend date; (2) whether there are changes in abnormal trading volume after the implementation of TRACE.

Other information includes dividend-related information such as the ex-dividend and record dates. The data was obtained from the Thomson Reuters database to ensure that the information received is accurate and comprehensive from the market. The ex-dividend date serves as the main point for the analysis. An event window is established to capture trading activity immediately before and after the ex-dividend date, typically spanning several days. For this thesis, the event window is defined as [T−5, T+5], where T represents the ex-dividend date. This 11-day window allows for the detection of trading volume patterns that may arise due to DWT schemes.

4.1.1 The data samples

The data is carefully selected for analysis with two primary objectives: to ensure that the data is suitable for statistical analysis and to focus on securities likely to be affected by

potential DWT schemes. The sample is restricted in three ways to ensure it is comparable across different contexts.

The first limitation involves limiting transaction data to trades only conducted on the main stock exchange, Nasdaq Helsinki. This decision addresses the lack of detailed information about smaller and specialized exchanges, which often consist of volatile or newly listed companies with different regulatory environments. It is unlikely for these companies to distribute consistent dividends, and they are less appealing for DWT schemes due to their unpredictability. Furthermore, data from these exchanges is often incomplete and unsuitable for statistical analysis. Restricting the data to Nasdaq Helsinki also minimizes the risk of duplicating securities listed on multiple trading platforms.

The second limitation targets firms that issued cash dividends at least once before and once after the implementation of TRACE, requiring a minimum of two payments for inclusion. This approach allows for within-firm comparisons of trading volumes before and after the policy changes. Non-dividend-paying companies are excluded, as they do not provide relevant information, and the analysis is limited to cash dividends, as other forms of dividends are not known to be associated with DWT schemes. While analyzing all dividends in the pre-policy period could offer insights into the extent of DWT schemes, the main objective of this thesis is to assess the impact of the TRACE. Therefore, pre- and post-policy dividend data from the same companies are prioritized to enable meaningful comparisons.

The third limitation reduces the dataset to the 100 most traded dividend-paying companies to manage computational challenges. A baseline average trading volume is calculated using trading volume data from a pre-event period, excluding the event window. This baseline serves as a reference point to identify deviations. The formula for average trading volume is:

$$Avarage\ Trading\ Volume = \frac{\sum_{t=T_{pre}}^{T_{post}} Trading\ Volume_t}{N}, \quad (1)$$

Where T_{pre} and T_{post} define the baseline period, and N is the number of days in that period.

Investors participating in DWT schemes are likely to seek minimal attention. Larger companies with consistent dividend payments are considered the most plausible choices for such schemes, as recurring dividends enable repeated transactions with minimal planning, and substantial trades can blend into the overall market activity without raising suspicion. In contrast, similar trades in smaller companies might attract attention due to their infrequent nature. Therefore, this limitation is unlikely to compromise the validity of the analysis significantly.

It is important to acknowledge that these limitations may introduce survivorship bias into the samples, making them purposive and non-random. However, given the rationale for these limitations, this bias is deemed acceptable. Since the focus of the thesis is on evaluating the TRACE policy change, these effects will only be observable where DWT schemes have been present. Consequently, the sample is designed to prioritize identifying instances where such schemes are likely to occur if they exist.

In cases where companies have more than one share class, each class is treated as its own entity, comparable to individual companies. This approach reflects the fact that different share classes are associated with varying rights and are traded at different prices and conditions. Putting the share classes together is avoided to ensure the accuracy of the analysis, even though they represent ownership in the same company.

After applying these restrictions, the final dataset consists of daily transaction data for the 100 most traded companies listed on Nasdaq Helsinki during the period from January 1, 2013, to December 31, 2023.

4.2 Statistical analysis

The primary variable used in the analysis is share turnover, which measures the relative trading activity of a stock. Share turnover is defined as the daily trading volume of shares traded divided by the total shares outstanding for a given company:

$$Share\ Turnover_{i,t} = \frac{Shares\ Traded_{i,t}}{Shares\ Outstanding_{i,t}}, \quad (2)$$

Where i represents the company, and t represents the specific trading day. Share turnover is an effective measure of market activity as it normalizes trading volumes across companies of different sizes and adjusts for events such as stock splits or reverse stock splits. By expressing trading activity as a percentage of total shares outstanding, share turnover provides a consistent and comparable metric for analyzing trading patterns.

This is particularly useful when trying to identify the cum-ex and cum-cum schemes, which are characterized by unusual trading activity on the ex-dividend date. An increase in the turnover of the shares around this event window may be a sign of increased trading activity related to cum-ex or cum-cum trading. The focus on share turnover ensures that market activity is examined in a way that accounts for differences in company size and stock liquidity.

First, the share turnover for all companies in the dataset is calculated. Event windows and non-event windows are also divided into trading volumes before and after the implementation of the TRACE policy. The means of the groups are compared using t-tests, and the results are used in identifying the existence of abnormal trading activity as well as the efficacy of the TRACE policy.

T-tests are statistical tools used to determine whether two groups have significantly different means; this thesis employs t-tests to evaluate the presence of abnormal trading

volumes and the effectiveness of the TRACE policy. Two primary applications of t-tests are implemented:

1. Event window analysis: pre-policy trading patterns
    - The objective is to examine whether there are abnormal trading volumes during the event window (5 days before and 5 days after the ex-dividend date) or not, compared to non-event periods.

    - The t-test is used to compare the mean share turnover in the event window to the mean share turnover outside the event window. A significant difference supports the presence of abnormal trading activity, potentially linked to DWT schemes.

2. Pre- and post-TRACE policy analysis
    - The objective is to examine whether the implementation of the TRACE policy has reduced abnormal trading volumes during the event window.

    - The t-test is used to compare the mean share turnover in the event window before TRACE to the mean share turnover after TRACE. This analysis identifies whether or not TRACE has been effective in preventing DWT schemes.

Share turnover and t-tests allow for a systematic method of analyzing trading patterns and measuring policy efficacy. The analysis is therefore focused on share turnover to identify instances of unusual trading activity, which are more likely to be associated with DWT schemes. This allows measurement of abnormal trading volumes around the ex-dividend date. The t-tests help to compare trading patterns across time periods (pre- and post-TRACE) and trading windows (event and non-event windows). Comparisons are necessary for identifying anomalies as well as evaluating policy changes. The t-tests are

employed in order to establish that the differences observed in the trading volumes are statistically significant, which helps in eliminating random shifts in the data.

5 Results

This chapter presents the results obtained from applying the statistical equations to the data sample. It then examines the impact of the TRACE policy, supported by visual representations that highlight patterns in share turnover around the ex-dividend date. Finally, the chapter provides a comprehensive analysis of various legislative measures aimed at addressing dividend withholding tax (DWT) schemes.

5.1 Key findings

This section presents the results from the statistical analysis, focusing on the abnormal trading volumes around ex-dividend dates and the impact of the TRACE policy on reducing DWT schemes. The findings are derived based on the statistical analysis explained in Chapter 4.2.

Table 3. Results on share turnover.

Data sample	Companies	Observations	Dividend payouts		Mean share turnover in the event window		Mean share turnover outside the event window	
			Pre-policy	Post-policy	Pre-policy	Post-policy	Pre-policy	Post-policy
Finland 2013-2023	100	252 384	718	380	1.759	1.395	1.431	1.203

The mean share turnover in the event window (5 days before to 5 days after the ex-dividend date) is as follows:

- Pre-policy period: 1.759%
- Post-policy period: 1.395%

The decrease in mean share turnover in the event window post-TRACE shows that there is decreased trading activity near ex-dividend dates. These findings refute the $H0\mathrm{B}$ hypothesis because the findings show that the TRACE policy effectively reduced the DWT schemes, as these schemes often involve heightened trading activity during the event window.

The mean share turnover outside the event window, representing normal trading activity, as shown in Table 3:

- Pre-policy period: 1.431 %
- Post-policy period: 1.203 %

A similar decline is observed in non-event trading volumes post-TRACE, indicating that overall trading activity decreased after the policy implementation. While this reduction could reflect broader market trends, it also suggests a normalization of trading behaviour in the absence of DWT-driven transactions.

The mean share turnover during the event window (1.759%) is higher than outside the event window (1.431%), indicating abnormal trading activity that can be linked to DWT schemes. The mean share turnover during the event window (1.395%) and outside the event window (1.203%) has a smaller difference, indicating that trading activity around ex-dividend dates has become more aligned with normal trading activity. The narrowing of the gap between non-event and event trading volumes post-TRACE reflects the policy's likely effectiveness in discouraging abnormal trading. The findings are in line with rejecting the $H0$B hypothesis because the findings show that TRACE successfully removed the incentives and mechanisms underlying DWT schemes. This also supports the fact that certain trading behaviours around ex-dividend dates may be linked to DWT schemes, such as cum-cum and cum-ex transactions.

The results of the t-tests provide statistical validation for the observed differences in share turnover across event and non-event windows, as well as between pre-policy and post-policy periods. These tests were to see whether the implementation of the TRACE policy had an impact on trading patterns associated with DWT schemes. Four t-tests were done: the first compared share turnover within and outside the event window before the implementation of TRACE, while the second examined the same comparison after TRACE. The third t-test assessed the differences in share turnover during the event

window before and after TRACE, and the fourth compared share turnover outside the event window across the two periods.

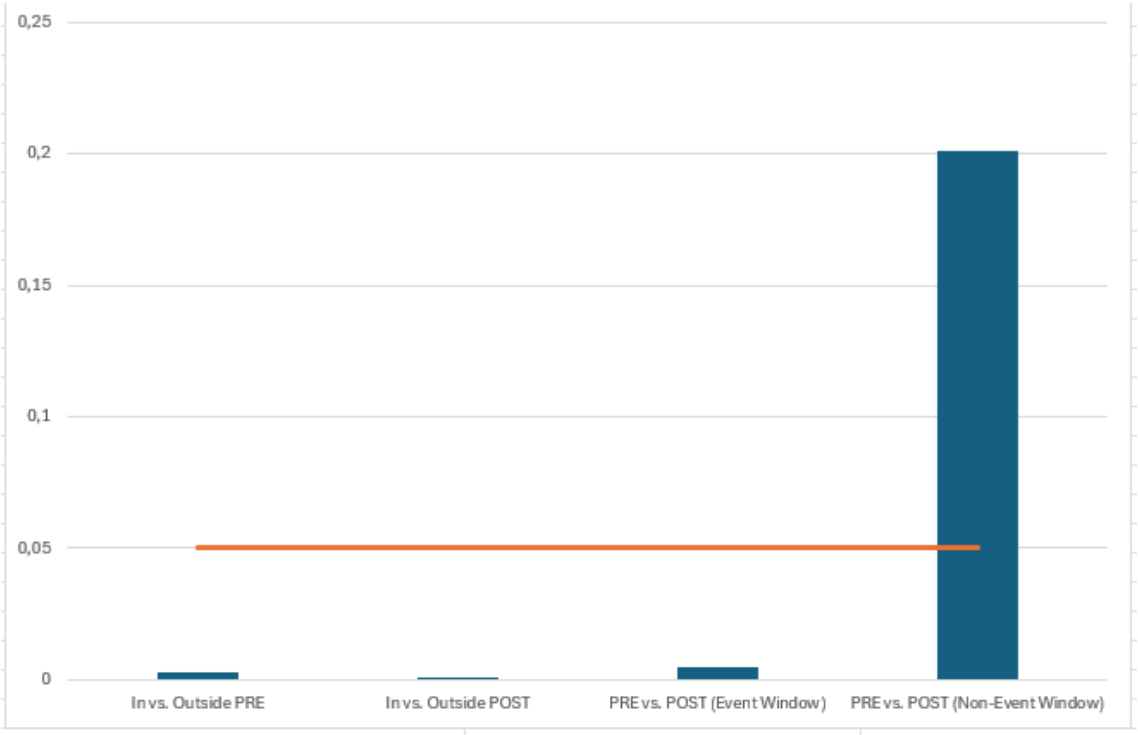

Figure 3. T-test results as p-values.

P-value is a statistical value which is contrasted with the null hypothesis ($H0$). It is the chance of getting results as extreme as or more extreme than the observed data, given that the null hypothesis is true. A smaller p-value implies greater evidence against the null hypothesis, i.e., the results observed are not likely to occur by chance. For example, $p < 0.05$ is usually considered to be statistically significant; if p-value > 0.05, then there is no sufficient evidence to reject the null hypothesis, and results obtained may be due to chance. The p-value does not provide the probability of the null hypothesis or the magnitude of effect but estimates the compatibility of data with the null hypothesis. In this thesis, the p-values are employed in order to determine the significance of the differences between the trading volumes to identify abnormal activity and determine the effect of the TRACE policy.

The t-test for share turnover in and out of the event window before TRACE was statistically significant ($p = 0.0026$) and demonstrated that there existed abnormal trading around ex-dividend dates. This is in line with the hypothesis that DWT schemes explained higher trading in the event window of the pre-policy period. The post-TRACE t-test also exhibited a significant difference ($p = 0.0009$) between event and non-event trade volume, with even the decline in mean share turnover reflecting lower levels of abnormal trading after TRACE implementation.

The before-after policy comparison of event-window trading volumes produced a large effect ($p = 0.0049$) that favored a reduction in abnormal activity on ex-dividend days following TRACE. This finding is consistent with the hypothesis that the policy was effective in deterring DWT schemes and removing incentives to engage in such activity. But the t-test for non-event window share turnover before and after TRACE was not significant ($p = 0.2000$), meaning normal tracking patterns were stable. Stability of non-event turnover volume means the policy was targeted and did not influence normal market activity.

Overall, the t-tests' results emphasize the effectiveness of TRACE in dampening abnormal event-window trading for DWT schemes. The dramatic reduction in event-window trading after TRACE attests to the policy's effectiveness in alleviating the problem. In addition, the fact that there were no significant changes in the volume of trading outside the event window implies that the policy did not exert other undesirable effects on the market. However, the fact that differences in event-window versus trading volumes outside of the event-window remain after TRACE implies that abnormal trading activity might still be present and may call for further regulation. These findings suggest that the TRACE policy targeted efficiently the DWT scheme mechanisms and was aligned with its intended outcome. Reduction of anomalous trading volumes is best observable for the biggest and most widely traded dividend stocks, commonly being the most immediate

concern of such schemes. The same fact is supported also by Table 3, representing a clear volume reduction after implementing the policy.

The results of this thesis are very similar to previous studies on DWT schemes and their impact on trading volumes. Thus, helps in validating the theoretical model of abnormal trading patterns around ex-dividend dates. As expected, this thesis found similar results of high trading activity in the event window in the pre-policy period as in the studies of Buettner et al. (2020) and Casi et al. (2022). These spikes in trading activity are a sign that cum-cum and cum-ex transactions based on tax system loopholes are widespread, representing DWT schemes. Similarly, the findings in Finland are similar to those in Germany and Denmark, which experienced legislative reforms that effectively reduced these patterns. Hence, the presence of such schemes calls for targeted intervention, as well as the need to build on previous efforts.

The significant reduction in abnormal trading volumes during the event window post-TRACE implementation mirrors the outcomes of Germany's 2012 and 2016 reforms, as well as Denmark's 2016 measures. TRACE, like these earlier reforms, appears to have effectively curbed the abnormal trading activity associated with DWT schemes. This aligns with the conclusions of Laturnus et al. (2022) and Wagner and Wei (2022), who emphasized the effectiveness of legislative measures in reducing abusive trading practices.

Furthermore, the fact that there were no significant changes in trading volumes outside of the event window in Finland further supports the targeted success of TRACE in addressing DWT schemes without affecting normal market behaviour. This stability supports the argument by Casi et al. (2022) that meaningful reforms can reduce DWT scheme activity without compromising the overall financial market. This thesis contributes to the growing evidence base on the effectiveness of legislative measures in combating tax avoidance schemes across Europe by identifying these patterns.

5.2 Legislative measures to combat DWT schemes

The legality of dividend withholding tax schemes is difficult to determine due to the complexity of the issue and similar problems in many countries. There is a need to clarify which institutions should be liable for the loss caused by these schemes in many countries. The issue blurs the line between financial market concerns and taxation legislation, involving both financial and tax authorities. An inability to assign responsibility and communication gaps further complicate efforts to define legality and prosecute such schemes. Following the recognition of dividend withholding tax schemes as a genuine threat to market integrity in Denmark (ESMA, 2020), there was enhanced communication between tax and financial authorities. Similarly, until 2016, cum-cum schemes in Germany were deemed legal unless they could prove their non-tax nature definitively (Büettner et al., 2020; Podkul, 2016).

DWT schemes have been restricted or outlawed by various legislative measures, some enacted by the EU (European Banking Authority, 2020) and others by individual member states (ESMA, 2020). The legal status of DWT schemes remains complex due to differences between national legislative systems. Further complicating matters is collusion among colluders from different jurisdictions. For example, Germany, Denmark, Austria, Belgium, France, Switzerland, and Norway have amended their legislation to address DWT schemes. Additionally, increased surveillance and market monitoring have been deployed to curb these schemes (ESMA, 2020).

Although Denmark has not aimed directly at the DWT schemes, it has, nonetheless, enhanced its examination of dividend refunds greatly (ESMA, 2020). As outlined by Casi et al. (2022), these reforms are generally divided into two categories. The first set of measures seeks to tighten the documentation requirements to address the loopholes employed by cum-ex schemes. The second set of measures seeks to establish a minimum holding period for the purpose of obtaining a tax reimbursement certificate so as to prevent short-term transactions that are intended to capture tax benefits from periods around ex-dividend dates, such as cum-ex and cum-cum schemes.

In 2021, Finland was the first country to adopt the OECD's TRACE model (Isomaa and Viitala, 2023). The TRACE model is a procedure for the withholding tax of dividends according to tax treaties, i.e., how tax treaty benefits can be granted at the time of payment. The process, according to the TRACE model, was implemented at the beginning of 2021, and its main objective was to transfer the risk of wrongful collection of withholding tax from the dividend payers to the shareholders. TRACE seeks to streamline processes by eliminating administrative hurdles, reducing costs for all parties, and protecting data privacy by minimizing the number of parties involved in the dividend withholding tax reclaim process.

In the early years, the application of the TRACE policy has led to a sharp increase in the gross withholding tax collection, as registered custodians have not desired to assume the tax risk incurred while claiming tax treaty benefits in doubtful situations (Isomaa and Viitala, 2023). Accordingly, there has been an increase in refund applications for withholding taxes (Isomaa and Viitala, 2023). As can be seen from the result of the statistical analysis, the TRACE has declined significantly DWT schemes.

TRACE also helps to stop the abuse of dividend withholding tax (Isomaa and Viitala, 2023). With the help of TRACE, the Finnish Tax Administration has more information about companies' share ownership, so the information available to the dividend receiver is greater (Verohallinto, 2022a). This increase in transparency is supposed to make it more difficult to evade taxes for the dividend beneficiary.

Dividend withholding tax schemes exhibit cross-border variations, and legislative amendments in one jurisdiction may influence changes in another. Although these adjustments have been made, it's likely that adapted schemes are still in place or have shifted to other markets. In Germany, for instance, schemes circulated for a considerable period before being exposed to the public. A change in German legislation led colluders to shift their operations to the Danish market. (Wigan, 2019). Thus, it would be

imprudent to presume that colluders cannot adjust to legislative shifts or relocate to alternative markets in the event of legislative changes.

Most tax authorities were aware of the existence of cum-ex and cum-cum schemes before the publication of the CumEx-files, so Germany reacted with legislative reforms in 2012 to combat cum-ex schemes and in 2016 to combat cum-cum schemes. In the last ten years, other nations have followed the example of Germany by enacting reforms to fight these schemes. Nonetheless, even after all these efforts, authorities seem to have been too low in their assessment of both the extent and the severity of the problem. Christoph Spengel, a professor of economics and long-time researcher of tax-led transactions, characterized the ignorance of governments as "incomprehensible", considering that most countries have been considerably hit by cum-ex and cum-cum schemes, mainly driven by international actors (Correctiv, 2021). According to Correctiv, more has not yet been done to stem the tide of DWT schemes since the 2018 revelations.

They further state that "European authorities are still failing to tackle systematic tax fraud," citing continued failure to combat these methods. The European Union has itself criticized for inaction as well. In September 2020, the EU's financial markets regulator, ESMA, concluded that DWT schemes are not market abuse and are thus beyond its remit, leaving national authorities to address the issue. Decentralization is a problem, as is apparent from Laturnus et al. (2022), who concluded that German reforms had other countries seeing more DWT scheme activity. Their findings suggest that operators of such schemes relocate to less regulated markets when more stringent regulations are implemented.

In addition to the regulatory challenges, there have been several high-profile legal cases involving participants in DWT schemes. According to Correctiv (2021), two stock traders were placed on probation due to their participation in cum-ex transactions, with one of them ordered to repay 14 million euros in outstanding tax obligations in 2020. Similarly, M.M. Warburg Bank was ordered to return 176 million euros linked to cum-ex

transactions, and one of its former employees was sentenced to five years and six months in prison. Notably, a prominent tax lawyer, Hanno Berger, a central figure in the cum-ex scandal, was sentenced to eight years in prison in December 2022. The far-reaching implications of the scandal are evident, with even Germany's Chancellor Olaf Scholz being investigated for his alleged involvement. These cases underscore the ongoing legal consequences for those implicated in DWT schemes, with more convictions likely to follow.

In response to a ruling by the Austrian Supreme Administrative Court regarding short-term cum-ex transactions, Austria has recently introduced new criteria for shareholders seeking a dividend withholding tax refund (Mitterlehner, 2022). According to these updated regulations, shareholders must purchase the stock before the Annual General Meeting, when the dividend distribution is determined, to be eligible for a refund on dividend taxes.

There is still more to be done to prevent DWT schemes. For instance, in order to eliminate tax evasion and avoidance through treaty shopping and improper claims, it is necessary to review and amend bilateral tax treaties to close loopholes. Treaties should also clarify which eligibility criteria warrant lowering the withholding tax rates and how it is to be ensured that such benefits are available only to the actual owners of income. A key measure would be the harmonization of withholding tax laws in the EU. There are differences in withholding tax rates, reclaim procedures, and exemptions across the member states, which provide tax avoidance opportunities. The EU could avoid tax arbitrage and treaty shopping by introducing harmonized rates and standardized procedures for claiming tax relief. This would also help enhance the capability of tax authorities to enforce the laws and reduce the scope of evasion and abuse of tax laws and regulations in several jurisdictions.

Another essential step is strengthening the procedures for claiming a tax refund, since many schemes are based on weak reclaim processes that permit several fraudulent

claims for the dividend. To counter this, tax authorities can implement stricter verification mechanisms that require more detailed documentation, including real-time data sharing between financial institutions and tax authorities, as well as centralized registries of securities ownership. Another measure that would be quite effective in curbing abusive practices is to require proof of genuine economic ownership as a condition for getting any tax refund. The OECD's TRACE model is an approach to simplifying and streamlining withholding tax collections and operations while preventing fraud. This model could help standardize processes and prevent abuses of treaty benefits by ensuring that treaty benefits are properly controlled, if this model were to be adopted worldwide. As proven by this thesis, TRACE has prevented DWT schemes in Finland. The EU is planning on implementing the FASTER directive, which is an adaptation of the TRACE model. The FASTER directive will be discussed in greater detail later in Chapter 5.3.

Implementing sophisticated data analysis and AI solutions that have the capability of supporting tax administrations in detecting unusual trade or anomaly patterns can be one solution to deterring DWT schemes. Sales on the same stock appear to belong to several parties successively, one feature of cum-cum and cum-ex schemes, which can be traced by such technology.

To reduce the abuse of tax treaties, which are often exploited in DWT schemes, anti-abuse clauses in tax treaties need to be strengthened. Only organizations that are truly engaging in economic activity in each country can benefit from tax relief on account of the Principal Purpose Test (PPT) or Limitations of Benefits (LOB) regulations. This would prevent corporations and investors from manipulating their structures solely to claim tax advantages.

The Principal Purpose Test (PPT) provision is a general anti-abuse rule of tax treaty law, according to which the contracting state must not confer a benefit under a tax treaty when the threshold conditions for the application of the provision are met (Veikkola, 2022). The directive follows the multilateral convention effective in Finland from June 1,

2019, and which introduces tax treaty-related measures to counteraction against the erosion of the base of taxation and profit shifting. The subject convention enables the coordination of bilateral tax treaties through one multilateral agreement.

The PPT regulation can be characterized as a kind of tax treaty application condition that determines the right to a tax treaty benefit (Veikkola, 2020b). Thus, a benefit based on a tax treaty is not granted, even if the other conditions for receiving it are met, if one of the main purposes of the arrangement was to receive a tax treaty benefit. The PPT regulation acts as a kind of superordinate concept for tax treaty abuse, in which case the concept of the beneficial owner is a special regulation (lex specialis) compared to the PPT regulation (Veikkola, 2020b).

Limitation of Benefits (LOB) provisions help prevent DWT schemes by ensuring that only genuine residents of a country, with substantial economic activities, can benefit from reduced withholding tax rates under tax treaties. LOB clauses contain ownership tests and active business requirements that block the treatment of an entity as engaging in "treaty shopping" for the purposes of obtaining favourable tax treatments. Thus, LOB provisions that limit treaty benefits to companies having real operations in the treaty country aim at preventing artificial structures and transactions with the sole intention of exploiting low DWT rates and similar tax avoidance schemes like cum-ex and cum-cum.

Another critical measure is enhancing oversight and auditing of financial transactions. Tax authorities often lack visibility into the complex trades used to manipulate DWT refunds. Legislators could enforce stricter oversight by requiring detailed disclosures of tax planning schemes, similar to the EU's DAC6 directive, which mandates reporting of potentially aggressive cross-border tax arrangements. This could be coupled with stronger audit powers for tax authorities to investigate suspicious dividend-related transactions.

Additionally, stricter penalties and sanctions for the use of DWT fraud could also help to prevent these schemes. Current penalties are often not severe enough to prevent large-

scale tax fraud. Therefore, authorities could be seen as sending a strong message that there is no tolerance for tax abuse by implementing severe fines and imprisonment for those who conceive or mastermind such schemes. The first EU rulings on DWT fraud have already resulted in stricter enforcement; these include the landmark convictions in the German cum-ex cases, which have set the trend for stricter legal measures on dividend tax abuse across Europe.

To prevent schemes like cum-ex and cum-cum where shares are bought and sold around the dividend distribution date merely to claim tax rebates or DWT refunds, legislating a minimum holding period before shareholders are entitled to DWT refunds or tax benefits can help address the problem. This has already been done in countries like Germany, France, and Denmark. There has been evidence that it has been successful in preventing DWT schemes.

In international investment operations, custody chains are often considerably long. Practical problems can arise, for example, from how the parties get information about who is the recipient of the dividend the nearest registered custodian, or how the payer and the custodians know if another party has already taken responsibility for settlement.

Despite growing awareness and legal actions, DWT schemes continue to pose challenges across the European Union. Olaya Argueso Perez, an editor at Correctiv, has voiced concerns that despite legislative changes, the schemes persist in countries like France, Italy, Norway, and Spain, which remain susceptible. Perez suggests that although the schemes are officially prohibited, perpetrators have developed new methods to continue their fraudulent activities (Nicol, 2021).

5.3 FASTER directive

There is a noteworthy new directive proposal from the European Union regarding the withholding tax procedure for dividend and interest income. On June 19, 2023, the European Commission issued a proposal for a Council directive on a faster and safer

reduction of additional withholding taxes (COM(2023) 324). After this, the Council of the European Union reached on 14 May 2024 to consensus regarding the proposal in such a way that the original proposal has been changed. The proposal calls for reform of the FASTER system, in which case the term FASTER can be used as an abbreviation of the directive.

The purpose of the FASTER directive is to introduce a uniform procedure in the EU for obtaining tax treaty benefits for dividend and interest income from cross-border investments faster and more efficiently than before. The proposal states that the current situation does not encourage cross-border investments in the EU, as a significant number of investors do not actually manage to take advantage of the withholding tax rate to which they would be entitled in terms of tax treaty provisions.

The proposal for the FASTER directive is based, among other things, on the OECD's Treaty Relief and Compliance Enhancement (TRACE) model, in the application of which Finland has been a pioneer. The proposal aims to tackle cum-cum and cum-ex arrangements, where share lending is used to exploit the withholding tax refund application system. The use of arrangements should be limited by legislation. It is worth noting that the cum-cum and cum-ex schemes have only been available to institutional investors. Consequently, they have been able to receive an unjustified tax benefit in a way that especially weakens the trust of private investors in the functioning of the capital market and the equal treatment of market participants. The current situation contradicts the goals of the capital market union.

The FASTER directive is based on the following three key elements (European Commission, 2024):

1. Implementing a digital EU residence certificate (eTRC) for individuals and businesses, automatically issued by the resident member state within 14 calendar days of application.

2. Establishing two expedited procedures for reducing withholding tax, either through direct relief or a refund mechanism. Member states are generally required to adopt one or both procedures alongside any existing methods.

3. Introducing a uniform reporting requirement for financial intermediaries, with centralized recording in national registers. Intermediaries from non-EU countries and smaller EU intermediaries may opt to register voluntarily. A centralized European portal will be developed to simplify the registration, enabling smoother information sharing between member states.

The EU's FASTER directive specifically targets flaws in the system that enabled dividend withholding tax schemes like cum-ex and cum-cum to flourish by exploiting inefficiencies in the withholding tax reclaim process. One way the FASTER directive approaches these schemes is by promoting a simple "relief at source" system (European Commission, 2024). This enables investors to receive the correct tax relief at the time of the dividend payment, thus eliminating the need for post-payment reclaims. Many such claims were fraudulent, and cum-ex scandal is a good example where multiple refund claims were made for a single dividend. Therefore, addressing the issue upfront with a relief-at-source mechanism minimizes the chance of such abuse.

In addition, the FASTER system establishes a standard digital solution for the DWT schemes across the EU, which enhances transparency and cooperation between tax administrations. This digitalization measures the dividend payments and makes the process less complex and less divisible thus enabling fraudsters to exploit the system. This is because, with a unified approach, tax authorities can better work together to identify and stop illegitimate claims.

Lastly, the directive enhances information exchange and disclosure between tax authorities and financial intermediaries, including custodians and brokers (European

Commission, 2204). This increased transparency enables identification of who is entitled to tax relief, as well as assists the authorities in identifying suspicious cases of tax evasion. By enhancing the tracking of who is entitled to tax relief and facilitating real-time data exchange, the FASTER directive significantly reduces the opportunities for DWT schemes to succeed.

Based on the FASTER directive proposal, it can be observed that it may allow a taxpayer to explicitly claim the right to a tax benefit due to the regulations provided by the directive. If the calling of the directive – the actions of the taxpayer within the framework of the directive's process – is considered as an abuse of the directive, then it would be considered an abuse of EU law.

Therefore, it can be stated that the FASTER directive will probably extend the application of the principle of the prohibition of the abuse of EU law as an approach to the problem of DWT schemes with respect to the withholding tax on dividends. If the directive proposal is accepted and in the future would require member states to implement the measures that the directive outlines, this would be a significant reform in the harmonization of the withholding tax on dividends and the prevention of their abuse in the European Union.

The results of this thesis highlight how important the FASTER and TRACE policies are in lowering the frequency of DWT schemes. The study shows how successful TRACE is at tackling the mechanisms underlying these schemes by showing a notable decrease in irregular trading volumes around ex-dividend dates after TRACE was implemented. In light of these findings, this thesis firmly advocates for the FASTER directive's wider implementation in additional European nations. A more robust and transparent tax system might be created with the FASTER directive, which is based on the TRACE model and has the potential to improve and harmonize the continental fight against DWT schemes. Implementing the FASTER directive can help protect European tax systems and increase market trust by utilizing TRACE's demonstrated efficacy, as demonstrated in Finland.

5.4 Possible ways to combat DWT schemes in Finland

DWT schemes and other abuses related to withholding tax are typically based on the abuse of benefits based on tax treaties and directives. The incentive for the arrangements arises from the fact that dividends paid to different countries are treated differently in terms of withholding tax: for example, the tax treaties between Finland and Great Britain, Finland and Ireland, and Finland and the United Arab Emirates exempt dividends paid to the tax treaty partner country completely from withholding tax. This creates an incentive to artificially circulate dividends received from Finland through the countries in question in situations where the actual beneficiary of the dividend lives elsewhere, and withholding tax would be charged on the dividends when paid to the country in question.

Establishing a holding company in a nation with a zero-tax treaty that has no real business operations and channels dividends to the ultimate beneficiary is one way to take advantage of tax treaty benefits. Cum-cum and cum-ex agreements, often known as dividend washing, have also increased in popularity during the 2000s. In cum-cum arrangements, the share is sold or loaned to a party who, if it were the real owner of the security, would be eligible for withholding tax exemption under a tax treaty or its unique status (such as equalization with a tax-exempt operator) at the time of the dividend release. The operators who took part in the arrangement split the tax benefit that was obtained in this manner (OECD, 2023). Based on back-and-forth transactions around the time of dividend payment in Finland, the Finnish Tax Administration estimates that approximately 700 million shares have been the target of dividend laundering, and the actions of businesses assisting in the avoidance of withholding taxes have resulted in annual tax losses for Finland of 80 million euros (Verohallinto, 2022b).

Dividend washing arrangements are only possible in the case of trustee-registered shares, as in the case of direct holdings, the information about back-and-forth

transactions would be revealed in the value share system. In the case of trustee-registered shares, however, instead of the real owner of the shares, only the information about the administrator of the trustee registration is entered into the book-entry system (Verohallinto, 2022a). Because of this, information about back-and-forth trades or other artificial arrangements remains hidden.

In Finland, the tax administration's access to information about custody chains of nominee-registered shares and dividend recipients has been improved by the new OECD-oriented withholding tax procedure introduced in 2021. In the so-called TRACE policy, receiving the tax treaty benefits granted at the time of payment requires that the custodian of nominee-registered shares provide the tax administration with information about the dividend recipients and bear responsibility for any underpayment of withholding tax.

Unifying withholding tax procedures and improving access to information for tax administrations in the EU region would strengthen the ability of tax authorities in different countries to combat and detect withholding tax fraud. However, other means are also needed. The number of withholding tax frauds would presumably decrease radically if the possibilities of receiving dividends from Finland with a zero tax rate were limited. In practice, this would primarily mean changing the tax treatment of entities exempted from dividend tax, such as funds and insurance companies, and renegotiating tax treaties with zero tax rates. In addition, strengthening the publicity of trustee-registered shares would promote access to information about the owners of trustee-registered shares.

The prevention of abuses would also be greatly facilitated if the legislation clearly defined who is considered the owner of a nominee-registered share and in which situations the shareholder can be considered the de facto beneficiary of the dividend benefit as a recipient and thus entitled to the lower withholding tax rates specified in tax agreements. Currently, there is no such definition in the national legislation, which in practice enables cum-cum schemes: the entity participating in back-and-forth transactions, whose shares

are in possession at the time of the so-called release of the dividend, can be considered a dividend recipient (entitled to tax treaty benefits).

According to the Finnish Tax Administration (Verohallinto, 2019), this is not only harmful from the point of view of preventing tax fraud but also contradicts the OECD model tax agreement and leads to situations where, based on national legislation, a different entity than according to the OECD model tax agreement can be considered the actual beneficiary. In many other countries, the definition of the beneficial owner is written into the law.

Results could also be achieved by intervening in tax evasion assistance. Currently, entities that assist in arrangements aimed at tax fraud and other abuses are not held liable for the arrangements, as assisting in tax evasion is not prohibited in legislation. However, the use of various assistants in the planning and implementation of abuses is very common. For example, the Finnish Tax Administration has said that it found dozens of companies whose purpose of operation was to help investors in tax evasion during inspections related to withholding tax fraud (Verohallinto, 2022b).

Such activities could be tackled more effectively if assisting in tax evasion were prohibited by law and sufficient sanctions were imposed for violators of the prohibition. On a practical level, sanctions could be set to be imposed on the entity that planned, participated in the implementation of the tax arrangement that led to tax evasion, or approved the arrangement when the customer is guilty of tax evasion in a court of law. For example, the OECD has recommended prohibiting tax evasion assistance in legislation and sanctioning the activity (OECD, 2021). In addition to withholding tax fraud, sanctioning would also raise the threshold for assisting in other types of tax fraud.

In the regulation of Total Return Swap (TRS) agreements, provisions relating to share sale and repurchase arrangements, as well as share lending arrangements, can theoretically

be applied, particularly with respect to the treatment of substitute dividends in the taxation of non-resident taxpayers.

The definition of a substitute dividend in Section 31.5 of the Finnish Income Tax Act is broad, encompassing not only share repurchase agreements and loan agreements but potentially other types of revenue exchange agreements. Under certain circumstances, revenue exchange agreements may fall within the scope of "other such agreements" or "a set of agreements formed by two or more related agreements" as outlined in the statute. This interpretation applies, for example, in cases where the original owner of shares sells them at the initiation of an agreement and subsequently repurchases them at a predetermined price after the yield swap agreement.

Equating a substitute dividend with a dividend for withholding tax purposes implies that arrangements referred to in Section 31.5 of the Finnish Income Tax Act should, in principle, not be used to avoid withholding tax on cross-border dividend payments. However, in practice, the situation can be more complex. First, the equivalence of a substitute dividend to a dividend only applies within the framework of Finland's withholding tax laws.

In legal literature, it has been argued that, generally, a substitute dividend cannot be treated as a dividend under the provisions of tax treaties, which can, in practice, hinder source country taxation. Additionally, if the payer of the substitute dividend is a resident of another country, the income cannot be considered to have been derived from Finland under Section 10(6) of the Income Tax Act, even if the underlying dividend stems from a Finnish company. According to the legal wording, the dividend or income comparable to it must be derived from a Finnish limited liability company or other Finnish entity. Thus, under domestic legislation, Finland does not have the right to tax a substitute dividend when the payer is a foreign entity.

The majority of income swap withholding tax planning is carried out through international financial institutions. Tax treaties, especially the one between Finland and the UK

that exempts portfolio dividends from withholding tax, are a major facilitator of this kind of planning. The reciprocity principle, which underpins the UK-Finland treaty, states that profits paid from the UK to Finland are exempt from withholding tax. However, as the UK has already largely exempted dividends earned from overseas from taxation, his exemption is essentially no longer relevant. Nevertheless, the treaty has, in the past, enabled withholding tax planning, and it is highly unlikely that domestic legislative measures alone can shut this loophole. It remains to be seen how evolving interpretations of the beneficial ownership concept in the OECD Model Tax Commentary will impact the application of treaty benefits.

Paradoxically, due to developments in EU tax law, fewer entities may need to use the arrangements described in this discussion to avoid Finnish withholding tax in the future. Historically, withholding tax planning has been of particular importance for tax-exempt entities such as investment and pension funds, as these entities would typically be unable to credit Finnish withholding taxes against their domestic tax liabilities. But under EU legislation, withholding tax in Finland may be avoided more often without the need for complicated derivative arrangements, as the growing ability to classify international tax-exempt corporations similarly to domestic tax-exempt entities allows. As so, the additional reduction of withholding tax on dividends seems to be unavoidable.

6 Conclusions

Weaknesses in tax systems and the overall reluctance of lawmakers in European nations have facilitated a scenario in which investors, banks, and law firms can secure refunds of withholding tax on dividends that were never actually disbursed. Filling gaps in the tax base and developing tax legislation, in general, is hampered by the fact that information on the existence of gaps in the tax base and the tax effects caused by them is not systematically available. Part of the lack of information is because the shortcomings of the domestic tax system have not been comprehensively studied: in Finland, academic research on taxation has largely focused on jurisprudence, where, as a rule, the application and interpretation of current tax legislation is systematized and described (Finer, 2020).

In addition to the fact that strengthening the transparency of financial information would support research and create better conditions for evaluating different policy choices, it would also prevent many negative phenomena. Lack of transparency facilitates corruption, money laundering, evasion of financial sanctions, and tax evasion, and thus serves a wide range of illegal and criminal activities. Increasing the transparency of financial information, on the other hand, strengthens trust between different actors and promotes knowledge-based conversation.

The purpose of this thesis was to explore the impact of the TRACE policy implementation in Finland on trading volumes around ex-dividend dates and to investigate the presence of abnormal trading activity before and after its introduction. This thesis examined the trading volumes of up to one hundred of the most actively traded and dividend-paying companies in Finland between 2013 and 2023 to see the extent of DWT schemes and how effective the TRACE policy is at preventing them.

From the analysis, it was possible to identify abnormal trading volumes around the ex-dividend date in the pre-policy period, which led to the rejection of the null hypothesis $H0\mathrm{A}$, which stated that there should be no change in the trading volume during the event window. This finding is consistent with expectations based on prior research,

which has found similar patterns of high trading activity associated with DWT schemes in other countries, such as Germany and Denmark.

The share turnover and the t-tests both demonstrated a significant drop in trading volume during the event window following the deployment of TRACE, according to the research. This decrease implies that the TRACE policy effectively stopped the DWT schemes by upsetting the processes, causing aberrant trading activity around ex-dividend dates. The results offer compelling evidence against the second hypothesis, $H0B$, which proposed that TRACE would not affect trade volumes. The findings are also consistent with research by Buettner et al. (2020) and Casi et al. (2022), which found comparable drops in abnormal trading volumes after legal changes in Denmark and Germany.

Importantly, the analysis found no significant changes in trading volumes outside the event window pre- and post-TRACE. This implies that the policy did not in any way affect the normal course of trading in the market. The stability of the non-event trading volumes is a clear-cut indication of the targeted nature of the TRACE policy in addressing the DWT schemes while at the same time leaving other parts of the market unaffected.

Across Europe, several countries have faced significant challenges in addressing DWT schemes, leading to both regulatory reforms and high-profile legal cases. The notorious cum-ex scam in Germany, which took advantage of legal loopholes that permitted repeated tax refund claims on a single dividend, cost the country billions of euros in lost revenue and resulted in the conviction of multiple bankers. Cum-ex and cum-cum schemes also caused huge losses in Denmark, which led to legal action and stricter beneficial ownership regulations. Finland's regulatory shortcomings, particularly concerning short-term share transfers, were exposed. This led to discussions regarding more accurate definitions of beneficial ownership and stronger enforcement tactics.

Minimum holding periods for shares have been implemented by nations like Belgium and France in an effort to counteract DWT systems, which have been successful in

reducing these abuses. While the UK-Finland tax treaty has sparked debates about strengthening its provisions due to worries about withholding tax avoidance, Italy has taken the initiative to enact anti-abuse regulations. These case studies show how common DWT schemes are in Europe and how different legislative and judicial approaches have had differing degrees of success in tackling them.

The thesis's main finding is that complex dividend withholding tax schemes, especially cum-ex and cum-cum schemes, provide considerable difficulties for European nations, including Finland. By taking advantage of tax system flaws, these arrangements allow investors to receive several refunds on a single dividend payment. Despite significant advancements in the detection and prosecution of these scams, enforcement is complicated by the cross-border nature of many transactions. This emphasizes the necessity of more robust international collaboration and uniform regulatory structures throughout the European Union.

The general anti-tax evasion rule (VML § 28) and changing interpretations of the beneficial ownership concept are two examples of the measures available in Finland's current legislative framework to counteract DWT schemes. This thesis identified gaps in the Finnish legislation regarding the clarity of the beneficial ownership definition, particularly in the context of complex share lending or repurchase agreements. The lack of legal certainty creates a possibility of abusing certain schemes. It is recommended that Finland further define the concept of beneficial ownership in line with the OECD guidelines, as well as strengthen the national regulations on the transfer of shares related to dividends.

Additionally, it was discovered that whereas some schemes—especially those that involve fraudulent misrepresentations of ownership or income—may be directly categorized as tax evasion, others operate in a gray area where it can be challenging to tell the difference between tax avoidance and legal tax planning. This stresses the importance of both legislative clarity and the role of the judiciary in setting precedents that can guide future enforcement efforts.

In addition, this thesis would like to note that recent European initiatives, such as the FASTER directive, offer potential solutions to the problem of withholding tax abuse. The directive's attempts at simplifying tax relief at source and improving cross-border transparency may well reduce the opportunities for dividend arbitrage. However, this will only be possible if all the member states that are part of the EU implement it effectively. Nevertheless, policymakers are caught between two extremes: increasing the burden of providing documents to foreign investors and, on the other hand, providing them with incentives to invest in local enterprises.

In conclusion, despite tremendous advancements in the fight against DWT schemes, especially because to European collaboration and changing national legislation, difficulties still exist. To better combat both current and new tax evasion tactics, Finland must keep improving its legal system, especially with regard to the beneficial ownership idea and the way it adheres to international norms. As a result, tax authorities cannot afford to relax. As the future unfolds, new channels will emerge through which investors will attempt to avoid the DWT's costs. As capital is highly mobile, enforcing dividend taxes properly is a complex undertaking.

Further research could be conducted on the economic and behavioural impacts of new European initiatives, such as the FASTER directive, to assess whether simplifying the withholding tax reclaim process has the intended effects of reducing tax avoidance while supporting cross-border investments. Policymakers and regulators may find these research areas useful in improving tax legislation and enforcement strategies. The research in this thesis on the Finnish TRACE model and its effects on combating DWT schemes has proven the TRACE model successful. Therefore, it would be useful to see if the same happens in other European countries when implementing the FASTER directive.

The research in this thesis primarily focuses on European tax systems, especially Finland, which may limit the generalizability of the findings to other regions with different legal

and regulatory environments. The DWT schemes and their enforcement may vary significantly outside Europe, such as in the U.S. or Asia, and the study may not fully capture those differences. Nevertheless, further research could be done on Asian markets to see if DWT schemes are being or have been used there as well.

In conclusion, the TRACE policy has proven to be an effective tool in reducing abnormal trading volumes linked to DWT schemes in Finland. By reducing the incentives and mechanisms that underlie these schemes, TRACE helps create a more equitable and transparent financial system. The findings, however, also emphasize the importance of continuous monitoring and enforcement to address any remaining vulnerabilities. This thesis emphasizes the value of targeted policy interventions and provides a framework for future research and policymaking in the fight against DWT schemes.

Lastly, this thesis used OpenAI's ChatGPT 4 artificial intelligence. It was used as a tool to support and enhance the thesis process. The author of this thesis has taken into account the university's guidelines and rules for the use of artificial intelligence and has also assessed the need for artificial intelligence in different stages of the process. The material produced by artificial intelligence has been critically examined.

In this thesis, artificial intelligence has primarily been used in generating different ideas for research questions and statistical analysis, and in strengthening the argumentation. Artificial intelligence has also been used in translating and summarizing the Finnish legal text to keep the original wording of the legal text as close as possible to its original language and meaning.

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