Bangor University

DOCTOR OF PHILOSOPHY

Essays on tax haven use, ownership structure, and earnings management
An analysis of UK public and private firms

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Award date:
2023

Awarding institution:
Bangor University

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Bangor Business School

Essays on tax haven use, ownership structure, and earnings management

An analysis of UK public and private firms

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A thesis submitted in candidature for the degree of Doctor of Philosophy at Bangor University

Supervisors

Professor Aziz Jaafar

Dr Danial Hemmings

Declaration and consent

Yr wyf drwy hyn yn datgan mai canlyniad fy ymchwil fy hun yw'r thesis hwn, ac eithrio lle nodir yn wahanol. Caiff ffynonellau eraill eu cydnabod gan droednodiadau yn rhoi cyfeiriadau eglur. Nid yw sylwedd y gwaith hwn wedi cael ei dderbyn o'r blaen ar gyfer unrhyw radd, ac nid yw'n cael ei gyflwyno ar yr un pryd mewn ymgeisiaeth am unrhyw radd oni bai ei fod, fel y cytunwyd gan y Brifysgol, am gymwysterau deuol cymeradwy.

I hereby declare that this thesis is the results of my own investigations, except where otherwise stated. All other sources are acknowledged by bibliographic references. This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree unless, as agreed by the University, for approved dual awards.

I confirm that I am submitting the work with the agreement of my Supervisors.

Abstract

This thesis aims to extend prior research by examining how using tax havens relates to UK public and private firms' engagement in AEM, REM, and classification shifting. Several widely used proxies of AEM (Dechow et al., 1995; Dechow and Dichev, 2002; Kothari et al., 2005), REM (Roychowdhury, 2006; Haga et al., 2018), and classification shifting (McVay, 2006; Zalata and Roberts, 2017) are adopted for robustness and comparability with previous studies. The broad findings of the thesis are that overall, UK firms' use of tax havens associates with less AEM but more REM and classification shifting. The association is more pronounced for public firms than private firms in the cases of AEM and classification shifting. The association between tax haven usage and AEM and REM is also affected by ownership structure.

This thesis consists of three empirical chapters. The first empirical chapter (Chapter 2) documents that the use of tax havens is linked with reduced AEM but increased REM since the latter is less regulated and harder to detect. This supports the argument that tax haven usage attracts greater scrutiny. In addition, public firms demonstrate reduced AEM and sales manipulation when utilising tax havens than private firms, which is consistent with public firms being subject to greater scrutiny and market demand for higher-quality accounting information. Key findings in the second empirical chapter (Chapter 3) are that managerial ownership and ownership concentration associate with more AEM and sales manipulation in tax haven firms relative to non-tax haven firms, whereas ownership concentration associates with less discretionary expenses and production levels manipulation by tax haven firms relative to non-tax haven firms. In addition, institutional investors are more likely to constrain AEM and sales manipulation of tax haven firms than non-tax haven firms. The third empirical chapter (Chapter 4) shows that firms using tax havens engage in more classification shifting relative to those that do not. Results also show that public firms rely more on classification shifting when using tax havens than when they do not. In contrast, private firms' use of classification shifting appears unaffected by tax haven use. This is consistent with classification shifting being a less costly alternative for public firms compared to AEM and REM. The findings of this study suggest that classification shifting and the value-destroying REM require higher levels of regulation by UK policymakers. The findings also indicate that the high institutional environment quality of the home country (i.e., the UK) may have a more substantial impact on earnings management behaviour than tax havens.

Dedication

I dedicate this thesis to my parents, brothers, wife, and son for their endless love, support, and encouragement throughout this journey.

Acknowledgements

All praise is due to Allah almighty, I thank Him for providing me with the opportunity to start this work and the strength to complete it. Success comes from Him, and any shortcomings or errors are mine.

I am grateful to my supervisors, Professor Aziz Jaafar and Dr Danial Hemmings, for their kindness, patience, and guidance. They dedicated considerable time and effort to providing me with constructive feedback, which helped me improve the quality of this thesis and develop research and teaching skills. Without their continuous support, I would not have been able to complete this thesis. I consider myself the most fortunate student to have them as my PhD supervisors.

In particular, I am forever grateful to Professor Aziz Jaafar, whom I consider not only my supervisor but also my father and mentor. I learned much from his vast knowledge and expertise during my Masters and PhD studies. He guided me whenever I needed guidance, believed in me, opened my eyes to several research opportunities, increased my passion for research and teaching, and always motivated me during difficult times. I am also deeply grateful to Dr Danial Hemmings, who was also my mentor and guide throughout my Masters and PhD studies; his immense research and teaching skills greatly benefitted me, and he never stopped supporting and encouraging me.

I also want to express my heartfelt gratitude to Professor Khaled Hussainey (the external examiner) and Dr Helen Rogers (the internal examiner) for all their constructive feedback and support, which helped me improve this thesis's quality.

I am grateful to Bangor Business School for providing me with an esteemed PhD scholarship. I am very grateful to Professor Owain ap Gwilym for his kindness, support, and belief in me, and for providing me with several opportunities that significantly boosted my skills and confidence. Thanks also to Professor Doris Merkl-Davies and Ms Wendy Ashurst for all their kind-heartedness and help. I thank all the staff at Bangor University for always being caring and helpful. I also thank my friends, PhD colleagues, and housemates at Bangor for all their support and the beautiful moments we had together, making completing this thesis possible.

My deepest gratitude and love go to my father, mother, brothers, wife, and son. Without their endless support, love, and encouragement, I would not have been able to complete this thesis.

Table of contents

List of tables

List of figures

List of equations

Chapter (1) Introduction

1.1 Background information

1.1.1 Tax havens

The use of tax havens – also known as Offshore Financial Centres (OFCs) – has recently gained increasing worldwide attention from researchers, regulators, and the media due to the significant impact tax havens have on the global economy. Additional scrutiny mainly follows a series of leaks – i.e., the Luxembourg leaks, the Panama papers, the Paradise papers, and the Pandora papers – which reveal prolific use of tax havens for tax avoidance and money laundering by large multinational companies as well as world leaders and celebrities (Dharmapala, 2008; Jaafar and Thornton, 2015; Bennedsen and Zeume, 2018; Fitzgibbon, 2019; Starkman et al., 2021). The negative impacts of tax havens on the global economy are well-documented in prior research. For instance, a loss of about $1.3 trillion is estimated annually across European Union states due to the use of tax havens (Jaafar and Thornton, 2015), and in the US alone, estimated annual losses are around $150 billion and $34 billion in federal and state income taxes, respectively (Atwood and Lewellen, 2019). Mounting efforts to constrain their negative impact on the global economy are led by the Organization for Economic Co-operation and Development (OECD) and the G-20 industrialised nations (Gravelle, 2015; Atwood and Lewellen, 2019).

There is no agreed-upon definition of a tax haven; regulators and academics propose several definitions based on various criteria (Gravelle, 2015; Jaafar and Thornton, 2015; Remeur, 2019). For instance, Desai et al. (2006, p.514) simply define tax havens as "*low-tax jurisdictions that provide investors opportunities for tax avoidance*". More detailed definitions are adopted by international organizations and regulators such as the OECD, the International Monetary Fund (IMF), and the European Parliament (EP). For instance, in the report on harmful tax competition in 1998, the OECD provides some key factors to identify a jurisdiction as a tax haven; these include (1) no or only nominal taxation on the relevant income; (2) lack of effective exchange of information due to strict secrecy rules that protect businesses and individuals against scrutiny by tax authorities; (3) lack of transparency in the operation of the legislative, legal or administrative provisions; and (4) the absence of a requirement that the activity be substantial, which suggests that a jurisdiction may be attempting to attract investment or transactions that are purely tax-driven (OECD, 1998, p. 23).

The International Monetary Fund (IMF, 2000, Section II, A) defines OFCs as *(1) Jurisdictions that have relatively large numbers of financial institutions engaged primarily in business with non-*

residents; (2) Financial systems with external assets and liabilities out of proportion to domestic financial intermediation designed to finance domestic economies; and (3) More popularly, centres which provide some or all of the following services: low or zero taxation; moderate or light financial regulation; banking secrecy and anonymity. Finally, According to the European Parliament, "*The terms tax haven, offshore financial centre, and secrecy jurisdiction describe jurisdictions that feature distinctive characteristics such as low or zero taxation, fictitious residences (with no bearing on reality) and tax secrecy.*" Remeur (2019, p.3).

There is also no generally accepted or static list of tax havens. Several lists are issued by several international organizations and academics, and these lists change over time.[1] Political factors may also influence official lists; for instance, the EU list omitted at least 35 Non-EU countries and 4 EU member states (Ireland, Luxembourg, Netherlands and Malta) which would qualify under its own criteria (OXFAM, 2017). Similarly, the OECD does not include any of its members on its lists, such as Ireland and Switzerland, which are considered tax havens even by its own definition and tax haven criteria. However, studies such as Hines and Rice (1994), Dharmapala and Hines (2009), and Dyreng and Lindsey (2009), and organizations such as the Government Accountability Office (GAO, 2008), and the congressional research of Gravelle (2015) do include these countries on their lists of tax havens.

In addition to tax avoidance concerns of using tax havens, there are also growing concerns by researchers and regulators that the use of tax havens increases the opacity and complexity of financial statements, provides managers with opportunities for diversion and earnings manipulation, and weakens shareholder protection (Dyreng et al., 2012; Durnev et al., 2017; Bennedsen and Zeume, 2018; Atwood and Lewellen, 2019; Balakrishnan et al., 2019). While prior research, regulators, and the media focus primarily on the tax consequences of using tax havens, as discussed above, the impact of using tax havens on financial reporting quality and earnings manipulation has not received much attention. However, earnings management greatly concerns many stakeholders – such as investors, creditors, and the government – since they rely on financial statements to make crucial decisions. If the financial statements are manipulated and do not reflect the firm's underlying circumstances, this can mislead stakeholders and leads to sub-optimal investment, financing, and tax decisions.

Several anecdotal examples serve to highlight the potential use of tax havens to manipulate earnings and mislead stakeholders. One is the well-known corporate scandal of Enron, a large US energy company that collapsed in 2000. The company created hundreds of entities in tax havens to overstate its earnings at low or no tax costs (Dyreng et al., 2012; Bennedsen and Zeume, 2018), and

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[1] For a review and detailed discussion of different lists and different criteria of listing or delisting, please see for instance Masciandaro, (2008), Gravelle (2015), and Remeur (2019).

due to the secrecy policies of tax havens, this also allowed the CEO of Enron and his collaborators to transfer funds to their accounts at the expense of other investors (Bennedsen and Zeume, 2018). Another case is that of Parmalat – an Italian food firm that created many subsidiaries in tax havens to avoid taxes, allowing its founder to extract funds to his own account and expropriate other investors in the company (Bennedsen and Zeume, 2018). The corporate failures of Enron and WorldCom in the US led to the passage of the Sarbanes-Oxley Act (SOX) in 2002 to improve corporate governance mechanisms, improve the integrity of accounting information, and regain investor confidence (Cohen et al., 2008).

1.1.2 Earnings management

There are several definitions of earnings management in prior research. For instance, Schipper (1989, p. 92) defines earnings management as "*a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain (as opposed to, say, merely facilitating the neutral operation of the process) ...*". According to Healy and Wahlen, (1999, p. 368) "*Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.*". In addition, Walker, (2013, p. 446) defines earnings management as "*The use of managerial discretion over (within GAAP) accounting choices, earnings reporting choices, and real economic decisions to influence how underlying economic events are reflected*".

These definitions imply that earnings management can be legal, i.e., if it complies with the generally accepted accounting principles (GAAP), or illegal (fraud), i.e., if it violates GAAP (Dechow and Skinner, 2000). In terms of the incentives to engage in earnings management, prior research documents several incentives that managers may have to manipulate reported earnings; for example to meet or beat certain earnings benchmarks such as to avoid reporting a loss or earnings decline, to report earnings increases, and to meet or beat analysts' earnings forecasts (Burgstahler and Dichev, 1997; Degeorge et al., 1999; McVay, 2006; Roychowdhury, 2006; Walker, 2013). In addition, according to the positive accounting theory (PAT) by Watts and Zimmerman (1986), managers also may have incentives to manipulate earnings upwards to take advantage of a bonus linked to earnings targets (Healy, 1985), to avoid violating debt covenants (DeFond and Jiambalvo, 1994; Sweeney, 1994), or they may have incentives to manipulate earnings downwards to avoid political costs (Cahan, 1992; Han and Wang, 1998) or to avoid taxes (Scholes et al., 1992; Guenther, 1994).

Prior research documents three main strategies for earnings management, which are investigated in this study: accrual earnings management (AEM), real earnings management (REM), and classification shifting (CS). Firstly, in terms of accrual-based earnings management (AEM),

according to Dechow (1994), Zang (2012) and Walker (2013), managers can engage in opportunistic AEM by exploiting their discretion over accrual accounting policies and estimates to bias reported earnings in a desired direction.[2] For instance, managers can engage in AEM by changing depreciation rates or methods for fixed assets, inventory valuation assumptions, estimates for provisions for bad debts, and timing the recognition of revenues or expenses, such as delaying asset write-offs (Dechow, 1994; Roychowdhury, 2006; Zang, 2012; Walker, 2013).

Secondly, real earnings management (REM), which is also called real activities manipulation, is defined by Zang (2012, p. 676) as "*a purposeful action to alter reported earnings in a particular direction, which is achieved by changing the timing or structuring of an operation, investment, or financing transaction, and which has suboptimal business consequences.*" Some examples of real activities manipulation to overstate earnings include cutting discretionary expenses such as research and development expenses (R&D) and selling, general and administrative expenses (SG&A), postponing investments in new projects, accelerating sales by offering price discounts and lenient credit terms, over-production to spread fixed costs over a larger number of units which reduces the unit cost and cost of goods sold (COGS) (Graham et al., 2005; Roychowdhury, 2006; Zang, 2012). Real activities manipulation can be very costly to the firm and negatively impact the real firm's performance and value in the long run as it involves altering the normal activities of the firm away from optimal levels to achieve short-term objectives. For instance, cutting necessary R&D expenditures or postponing or cancelling successful investments to meet short-term earnings targets can significantly compromise the firm performance and value in the long-run (Bushee, 1998; Roychowdhury, 2006; Cohen et al., 2008).

Survey evidence by Graham et al. (2005) shows that respondent managers prefer engaging in real activities manipulation to accrual earnings manipulation, especially following the passage of SOX in the US in 2002. This is because, under SOX, certification requirements and litigation risks imposed on managers due to their accrual accounting choices are increased, in addition to greater scrutiny on accrual earnings manipulation by auditors and regulators (Cohen et al., 2008). This indicates that while real activities manipulation is more costly to shareholders, it is harder to detect and be proven in courts by auditors and regulators, compared with AEM, as it is less regulated and involves no GAAP violation (Cohen et al., 2008; Francis et al., 2016; Zalata and Roberts, 2016). Therefore, prior research documents a trade-off between AEM and REM based on the relative costliness of the two alternatives (e.g., Cohen et al., 2008; Zang, 2012; Francis et al., 2016).

Thirdly, regarding classification shifting, it is defined by McVay (2006, p. 501) as "*the deliberate misclassification of items within the income statement*". For instance, managers wishing to

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[2] Accruals allow the recognition of a revenue or expense regardless of actual cash receipt or payment (e.g., Dechow and Skinner, 2000)

overstate core earnings can do so by misclassifying core expenses as non-core (special items), or by misclassifying non-core revenues as core (McVay, 2006; Zalata and Roberts, 2017; Malikov et al., 2018). Managers may have incentives to engage in classification shifting due to the growing focus by investors and analysts on core earnings rather than only on bottom-line earnings. Core earnings are perceived by some to be more sustainable, persistent, and value relevant compared to bottom-line net income (Bradshaw and Sloan, 2002; McVay, 2006; Zalata and Roberts, 2017).

Prior research on classification shifting documents that it is employed by managers to achieve certain reporting objectives such as meeting or beating analysts' core earnings forecasts, to report core earnings increases or positive core earnings, and that it is particularly used before issuing new debt, or to avoid taxes (McVay, 2006; Fan et al., 2010; Zalata and Roberts, 2017; Chung et al., 2019, 2021a). Classification shifting can be less costly compared to AEM because it does not influence bottom-line earnings, it is less regulated by accounting standards and therefore less scrutinised by auditors and regulators, and it is less costly than REM because it does not involve altering real activities of the company or sacrificing investment opportunities (McVay, 2006; Haw et al., 2011; Zalata and Roberts, 2016).[3] In addition, classification shifting generally has no tax implications since it does not influence taxable income (Abernathy et al., 2014). Therefore, it can be used as a tax-free earnings management tool.[4]

1.1.3 Public and private firms

Although private firms are predominant in the economy, they are relatively under-investigated in prior research compared to public firms (Ball and Shivakumar, 2005; Hope et al., 2013; Haga et al., 2018).[5] Public firms are firms whose shares are listed and publicly traded on stock exchanges, they have unrestricted access to stock markets, and their financial statements are widely distributed and closely monitored by several market participants and stakeholders. In contrast, private firms are not listed on stock exchanges, have no access to stock markets, and their financial statements are not publicly scrutinised (Ball and Shivakumar, 2005; Givoly et al., 2010; Chen et al., 2011).[6] Public firms also have greater ownership dispersion, greater separation of ownership and management, less

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[3] However, classification shifting is still relatively under-investigated in prior research compared to AEM and REM.

[4] There can be exceptions such as the case when a special tax is imposed on core earnings in Korea in 2012 (Chung et al., 2021a)

[5] Over 90% of UK firms are private (Ball and Shivakumar, 2005), and over 99% of US firms are private, generating around half of the GDP (Minnis, 2011; Hope et al., 2013). In most countries, more than 99% of limited liability firms are private (Chen et al., 2011). In addition, around 99% of European companies are small and medium-sized companies (SMEs) and are considered the backbone of the European economy (Vanstraelen and Schelleman, 2017). Private firms have in aggregate three times higher revenues and four times the number of employees compared to listed firms (Chen et al., 2011).

[6] Private equity firms are classified as private firms in this study, they are firms with publicly traded debt but private equity (Katz, 2009; Givoly et al., 2010).

managerial ownership, and higher agency costs; whereas private firms are closely held, having greater ownership concentration and managerial ownership, and major capital providers of private firms have access to insider information and therefore rely less on public financial statements (Ball and Shivakumar, 2005; Hope et al., 2013).

Since the financial statements of public firms are the primary source of information to external stakeholders such as investors, financial analysts, and regulators, compared to private firms; public firms are subject to higher market pressure and scrutiny to report high-quality financial information. In other words, public firms face higher demand for high-quality financial information than private firms, which is referred to as the *demand hypothesis*. This scrutiny and market pressure is expected to improve public firms' financial reporting quality and reduce their engagement in earnings management relative to private firms (Ball and Shivakumar, 2005; Burgstahler et al., 2006; Givoly et al., 2010; Chen et al., 2011; Hope et al., 2013). This can be especially the case in the UK since the UK is a common law country characterised by a strong legal system and investor protection (e.g., Ball et al., 2000; Leuz et al., 2003; Ball and Shivakumar, 2005). However, public firms' managers – relative to their private firms' counterparts – may have higher incentives to opportunistically manipulate earnings to meet market expectations or to achieve specific outcomes – such as to meet analysts' earnings forecasts, to avoid reporting losses or earnings declines, or to exploit stock-based compensation – which is referred to as the *opportunistic hypothesis* (e.g., Givoly et al., 2010; Hope et al., 2013).

On the other hand, private firms' managers may also have several incentives to engage in earnings manipulation, such as to exploit earnings-based bonuses, to avoid debt-covenant violations, or for tax avoidance considerations (Ball and Shivakumar, 2005; Givoly et al., 2010). It is also worth highlighting that the demand and opportunistic effects on earnings quality are not mutually exclusive; therefore, their net effect is empirically determined (Givoly et al., 2010). Prior research reports mixed evidence on earnings management by public versus private firms, which is discussed in detail in the empirical chapters. This study is motivated by the growing debate around the use of tax havens and its financial reporting implications. While prior research on the impact of using tax havens on earnings management focuses on the behaviour of public firms (e.g., Dyreng et al., 2012; Durnev et al., 2017), this thesis aims to examine whether this impact is different between public and private firms. This is a particular focus point in the first empirical chapter (Chapter 2).

1.1.4 Ownership structure

Prior research documents that a firm's ownership structure significantly influences its financial reporting and earnings management behaviour (Dhaliwal et al., 1982; Klassen, 1997; Bushee, 1998; Badertscher et al., 2013; Khan et al., 2017). However, to the best of my knowledge,

prior research has not examined whether the impact of using tax havens on earnings management is influenced by a firm's ownership structure. This is the focus of the second empirical chapter of this study (Chapter 3). This study focuses on three aspects of ownership structure: managerial ownership, ownership concentration, and institutional ownership. This thesis focuses on these three aspects as they are the most commonly examined in prior research, and therefore, focusing on these variables improves the comparability of this research with previous studies. In addition, these three aspects are important corporate governance mechanisms that significantly influence managerial behaviour and firm performance, and examining these three aspects can be informative to the UK regulators and policymakers aiming to mitigate the (potentially) negative consequences of using tax havens on financial reporting. The following paragraphs briefly discuss these three aspects and the competing arguments associated with each of them.

Firstly, regarding managerial ownership, agency theory argues that the separation between ownership and control (management) of the firm leads to agency conflicts between owners (principals) and managers (agents) and that agent-managers will act opportunistically for their own benefit at the expense of shareholders and the objective of firm value maximisation (Jensen and Meckling, 1976). Managers' incentives are more likely to align with those of shareholders towards value maximisation as their ownership stake increases. This is referred to as the incentive alignment or convergence of interests hypothesis (Jensen and Meckling, 1976; Warfield et al., 1995). Another argument is that, at higher levels of managerial ownership, managers may be opportunistic and seek their own benefit at the expense of other investors, which is referred to as the entrenchment hypothesis (Morck et al., 1988; Claessens et al., 2002; Jung and Kwon, 2002).

Secondly, the degree of ownership concentration influences the extent and nature of agency conflicts and the financial reporting and earnings management behaviour within a firm (Shleifer and Vishny, 1997; Fan and Wong, 2002; Kim and Yi, 2006). When ownership of a firm is dispersed, agency conflicts arise mainly between managers and shareholders (Jensen and Meckling, 1976; Fan and Wong, 2002), but when ownership of the firm is concentrated, agency conflicts can also arise between controlling shareholders (block-holders) and minority investors (Shleifer and Vishny, 1997; Fan and Wong, 2002; Kim and Yi, 2006).

Thirdly, institutional investors are large investors that invest or manage significant funds, and therefore they have incentives to monitor managerial performance closely and constrain earnings management – referred to as the active monitoring hypothesis (Bushee, 1998; Chung et al., 2002). Another argument is that institutional investors can be opportunistic and seek short-term gain at the expense of the long-term value of the firm, which is referred to as the private benefits or myopic behaviour and can lead to more earnings manipulation by managers to meet their expectations (Shleifer and Vishny, 1997; Bushee, 1998; Velury and Jenkins, 2006). Overall, prior research reports

mixed evidence regarding the impact of these three aspects of ownership structure on earnings management behaviour, which can be broadly explained by the competing hypotheses discussed earlier.

1.1.5 The UK setting

This study focuses on the UK setting for the following reasons: (1) The demand for high-quality financial information and the degree of regulatory scrutiny increased in the UK after the introduction of FRS 3 and the Cadbury report in the early 1990s, which increased the cost of using AEM to meet or beat earnings targets (Peasnell et al., 2000; Athanasakou et al., 2011). Therefore, it is crucial to examine whether UK firms substitute AEM with other forms of earnings management, such as REM and Classification Shifting, especially following the mandatory adoption of the International Financial Reporting Standards (IFRS) in 2005, and how using tax havens might influence this behaviour.[7] (2) The UK, as discussed earlier, is classified as a common law country characterised by a strong legal system and investor protection (although to a lesser extent compared to the US), which is expected to increase the cost of earnings management (especially using AEM) and increase the demand for higher-quality financial reporting (e.g., Ball et al., 2000; Leuz et al., 2003; Ball and Shivakumar, 2005); therefore, it is also important to examine how the use of tax havens might change the earnings management behaviour using a large sample of UK public and private firms, which can be useful to UK policymakers. (3) UK public and private firms face the same tax laws and filing and auditing requirements, which increases the comparability between public and private UK firms (Ball and Shivakumar, 2005; Haga et al., 2018).[8] In addition, data are available for a larger number of public and private firms in the UK, and private firms' data are of higher quality compared to other countries, which allows for the investigation of a larger sample (Haga et al., 2018). Moreover, focusing on a single country gives a natural control for the institutional differences across countries (Haga et al., 2018).

1.2 Research motivations

There are several motivations for conducting this research, which include the following: Firstly, as discussed above in detail, there are growing concerns regarding the negative consequences of tax haven use on the global economy, especially following the recent series of leaks revealing the

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[7] While the use of accruals is highly regulated under both UK GAAP and IFRS, the disclosure and classification of income statement items is lightly regulated and leaves managers with great discretion, which increases the opportunities for classification shifting (Zalata and Roberts, 2016; Malikov et al., 2018)

[8] However, as discussed earlier, public firms are still subject to substantially higher scrutiny and demand for higher quality financial information by regulators and several market participants than private firms (Ball and Shivakumar, 2005; Haga et al., 2018).

use of these jurisdictions by multinational companies and celebrities for tax avoidance and money laundering. However, the main focus of the media and regulators is on the tax consequences, mainly ignoring the financial reporting implications of using tax havens. Recent academic research, as discussed above, started to examine this issue and documents that using tax havens can also exacerbate managerial incentives to engage in opportunistic earnings management for private gain at the expense of other stakeholders (Dyreng et al., 2012; Durnev et al., 2017; Bennedsen and Zeume, 2018). Therefore, the use of tax havens can compromise the transparency of financial reporting, mislead market participants, and lead to suboptimal investing and financing decisions, which require intervention by regulators and policymakers to maintain the well-functioning of the financial markets rather than focusing only on tax issues. This motivates this thesis to examine the impact of using tax havens on different types of earnings management (AEM, REM, and Classification Shifting) by focusing only on the UK context to inform UK policymakers. This thesis focuses on earnings management as a dimension of financial reporting quality as it reflects the managerial incentives and discretion over financial reporting (Burgstahler et al., 2006), and also because earnings management significantly influences the firm's performance and even existence in the long run, as discussed earlier in the cases of Enron, WorldCom, and Parmalat. Furthermore, the impact of using tax havens on how firms engage in classification shifting has not been examined in prior research to the best of my knowledge, which is another motivation for this thesis.

Secondly, previous studies on the use of tax havens did not examine the UK setting exclusively; they either focused on the US setting (e.g., Dyreng et al., 2012) or an international sample where the UK is under-represented (e.g., Durnev et al., 2017). Therefore, the findings of these studies may not be generalisable to the UK and may not be informative to UK policymakers.[9]

Thirdly, previous studies within the context of using tax havens and earnings management focus on the behaviour of public firms (Dyreng et al., 2012; Durnev et al., 2017), which also motivates this study to examine both public and private UK firms, and whether their earnings management behaviour is influenced differently by the use of tax havens. Examining the behaviour of private firms is as important as public firms and can be informative to UK policymakers because, as discussed earlier, the vast majority of firms in the UK and the rest of the world are private, and they are important to the economy. In addition, as discussed earlier, prior research within the context of using tax havens and earnings management also ignored the important role of ownership structure.

Fourthly, Prior research within the context of using tax havens did not examine the important role of ownership structure. Ownership structure can be an important corporate governance mechanism that influences how the use of tax havens affects firms' reliance on different forms of

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[9] The UK setting and the motivation to focus on the UK is discussed in detail above (Section 1.1.5)

earnings management; therefore, examining the role of ownership structure within this context can be of great importance to UK policymakers.

1.3 Objectives and research questions

The main objective of this study is to investigate the impact of using tax havens on how firms engage in the different forms of earnings management discussed above (i.e., AEM, REM, and classification shifting), and whether this behaviour is influenced by firms' listing status and ownership structure. More specifically, this thesis explores three interrelated research questions, with each research question the focus of a separate empirical chapter. The research question of the first empirical chapter (Chapter 2) is as follows: "*Is AEM/REM sensitive to the use of tax havens by UK firms, and does the sensitivity of AEM/REM to using tax havens differ between public and private firms?*". The second empirical chapter examines the following research question: "*How does ownership structure influence the relationship between the use of tax havens and AEM and REM, and is this impact different between public and private firms?*". Finally, the third empirical chapter focuses on classification shifting and investigates the following research question: "*Is classification shifting sensitive to using tax havens, and does the sensitivity of classification shifting to using tax havens differ between public and private firms?*".

1.4 Research methodology and main empirical findings

1.4.1 Data

Data used in this study for the empirical analyses are collected from the Amadeus database provided by Bureau van Dijk (BvD). Amadeus provides firm financial and non-financial data, covering many public and private firms domiciled in Europe,[10] with the most recent ten years of historical data for each firm.[11] The initial sample adopted in this study consists of all UK public and private non-financial firms with subsidiaries in tax haven jurisdictions. Following prior research (e.g., Burgstahler et al., 2006; Hanlon et al., 2014; Haga et al., 2018), this study excludes financial firms (SIC codes 6000-6900) such as banks and insurance companies, highly regulated industries (SIC codes 4400-5000), and public administrative institutions (SIC code 4311 and SIC codes above 9000) because these firms have different incentives and regulatory requirements and earnings management proxies used in this study do not apply to these types of firms. In addition, following Burgstahler et

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[10] Financial data include balance sheet items, income statement items, and financial ratios. Non-financial data include for example details about subsidiaries of the company such as their locations; details about shareholders of the company such as their ownership percentages and their type (e.g., whether they are managers, institutional investors, etc); information about the accounting practice adopted by the firm, auditor information, etc.

[11] Amadeus database can be accessed online, but it is also available offline on CD-ROMs.

al. (2006), small private firms are also excluded according to the fourth EU directive that distinguishes between small, medium, and large companies. They require that private firms meet at least two of the following three criteria every year to be included in their final sample: (1) total assets greater than EUR 2.5 million, (2) sales greater than EUR 5 million and (3) number of employees greater than 50.[12] In addition, firms with no subsidiaries or missing data for subsidiaries and with missing data required to calculate earnings management proxies or control variables are also excluded.[13]

1.4.2 Tax havens and AEM/REM by public and private UK firms

The first empirical chapter (Chapter 2) investigates the impact of using tax havens on earnings management (AEM and REM) in the UK, and whether this impact is different between public and private firms. The chapter adopts several proxies of AEM and REM that are widely used in prior research to aid comparability with previous studies. Three proxies of AEM are adopted in this chapter: discretionary accruals using two versions of the Jones model as modified by Dechow et al. (1995) and Kothari et al. (2005), in addition to a proxy for the accrual estimation error, which takes into account the relationship between current accruals and past, present, and future cash flows (Dechow and Dichev, 2002; Hope et al., 2013).

In terms of REM proxies, three forms of real activities manipulation are investigated in this study following Roychowdhury (2006) and Haga et al. (2018). These manipulation activities are sales manipulation, manipulation of discretionary expenses, and manipulation of production levels. In addition, an aggregate proxy of real activities manipulation is also adopted, which is a composite measure of the three individual REM proxies (e.g., Cohen et al., 2008; Haga et al., 2018). Finally, a proxy for total earnings management is also adopted following Haga et al. (2018), which is a composite measure of the discretionary accruals by Kothari et al. (2005) and the aggregate proxy for real activities manipulation. Absolute values of earnings management measures are used following prior research (Hope et al., 2013; Haga et al., 2018). Regarding the use of tax havens, a tax haven firm is defined in this study as a firm that has a subsidiary in a tax haven jurisdiction (Jaafar and Thornton, 2015; Durnev et al., 2017). This chapter adopts the list Durnev et al. (2017) used as they employ similar AEM and REM proxies. In addition, several firm-specific factors documented in prior research to be associated with earnings management are controlled for (Hope et al., 2013; Haga et al., 2018). Finally, industry and year fixed effects are also included in the empirical models.

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[12] Burgstahler et al., (2006) followed Articles 11 and 27 of the fourth EU council directive 78/660/EEC as amended by the council directive 94/8/EC. This directive distinguishes between small, medium, and large companies based on three criteria: balance sheet total, net turnover, average number of employees. Small and medium-sized companies are exempted from certain reporting requirements.

[13] Please see the data section and sample selection procedure in each empirical chapter for the final sample used in the analyses. The final sample adopted for the first and second empirical chapters is the same.

The main findings of the first empirical chapter (Chapter 2) show the following. Firstly, UK firms' use of tax havens is associated with less AEM but more REM. This finding is consistent with the argument that the use of tax havens attracts more scrutiny, especially given the strong legal system in the home country (the UK) as discussed earlier. Under heavy scrutiny, firms are likely to rely more on REM, and less on AEM, since REM is harder to detect (Cohen et al., 2008; Francis et al., 2016).[14] In addition, tax haven firms are larger firms that are politically sensitive, which is another reason why these firms are likely to rely more on REM and less on AEM. Overall, this finding is consistent with the argument that the institutional environment quality of both the home country and countries in which a firm has subsidiaries significantly influences the firms' earnings management behaviour (Leuz et al., 2003; Francis et al., 2016; Durnev et al., 2017).[15] This indicates that the higher institutional environment quality in the UK may have a stronger impact on earnings management practices than the low institutional environment quality in tax havens.

Secondly, and most related to the objective of this chapter, public firms appear to engage in less AEM and sales manipulation when they use tax havens compared to private firms. This is expected given that public firms are subject to higher scrutiny and market demand for higher quality accounting information (e.g., Hope et al., 2013), which constrains AEM for public firms compared to private firms. Again, this may be especially so given the strong legal system in the UK, as discussed earlier, and due to the increased scrutiny towards the use of tax havens. Regarding the remaining REM variables, the sensitivity of REM to using tax havens appears not to be different between public and private firms. These findings are robust to using a propensity score matched sample (PSM) to investigate the concern that results may be driven by firm-specific characteristics rather than the status of using tax havens *per se*.

1.4.3 Tax havens, ownership structure, and AEM/REM by public and private UK firms

The second empirical chapter (Chapter 3), as mentioned above, investigates whether the relationship between the use of tax havens and earnings management (AEM and REM) is influenced by firms' ownership structure. The chapter employs the same sample as in Chapter 2 and the same proxies for earnings management, the use of tax havens, and control variables. In addition, the chapter employs proxies for managerial ownership, ownership concentration, and institutional ownership. Managerial ownership is measured as the percentage of shares held by managers; ownership

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[14] This finding is contrary to previous studies suggesting that the use of tax havens is associated with more AEM (Dyreng et al., 2012; Durnev et al., 2017), however, these studies focus only on the behaviour of public firms and on different samples (i.e., the US and using cross-country sample).

[15] However, this finding contradicts with Durnev et al. (2017) where they find that tax haven firms engage in more AEM suggesting that the institutional environment quality of tax havens have a stronger impact on earnings management behaviour. This may be because they focus on a different sample of many countries and on public firms only.

concentration is measured as the percentage of shares held by the largest shareholder; and institutional ownership is measured as the percentage of shares held by institutional investors.

The main findings of the second empirical chapter (Chapter 3) show that; firstly, while results show that the use of tax havens is overall associated with less AEM and more REM, higher managerial ownership in tax haven firms seems to change this behaviour. Under high managerial ownership, tax haven firms rely more on AEM and sales manipulation, suggesting that managers may exploit the low institutional environment quality in tax havens to engage in more AEM and sales manipulation, which is consistent with the negative consequences of managerial entrenchment (Morck et al., 1988; Claessens et al., 2002; Di Meo et al., 2017). In addition, the impact of managerial ownership on how the use of tax havens influences AEM and REM does not appear to be different between public and private firms.

Secondly, regarding ownership concentration, results show that ownership concentration is positively associated with AEM and sales manipulation, but negatively associated with manipulation using discretionary expenses and production levels by tax haven firms relative to non-tax haven firms, suggesting that large shareholders may exploit the use of tax havens to engage in more AEM and sales manipulation while constraining manipulation of discretionary expenses and production levels since the latter can be more value destroying. In this regard, findings are overall consistent with the incentive alignment effect of ownership concentration (Jung and Kwon, 2002; Wang, 2006). Furthermore, this impact is more pronounced for public firms relative to private firms only in the cases of discretionary expenses and production levels manipulation. However, this impact is not different between public and private firms in the cases of AEM and sales manipulation.

Thirdly, results show that institutional investors in tax haven firms are more likely to constrain AEM and sales manipulation, but they do not impact other REM variables. This is overall consistent with the active monitoring role of sophisticated institutional investors in constraining earnings manipulation (Bushee, 1998; Chung et al., 2002; Hadani et al., 2011). In addition, findings indicate that the impact of institutional ownership on the relationship between the use of tax havens and AEM and REM is not significantly different between public and private firms.

Overall, the previous findings suggest that a firm's ownership structure can have a stronger impact on its earnings management and financial reporting behaviour than listing status, and that the institutional environment quality of both the UK (the home country) and tax havens (foreign jurisdictions) have mixed impacts on the effectiveness of ownership structure variables as corporate governance mechanisms.

1.4.4 Tax havens and classification shifting by public and private firms

Finally, the third empirical chapter (Chapter 4) investigates the impact of using tax havens on classification shifting by public and private UK firms. The chapter adopts the classification shifting model developed by McVay, (2006), and it also adopts a version modified by Fan et al. (2010) as employed in Zalata and Roberts (2017) for robustness checks. This chapter adopts the list used by Jaafar and Thornton (2015), which is broadly similar to the one developed by Dyreng and Lindsey (2009) and is widely used in prior research (e.g., Atwood and Lewellen, 2019).[16] The chapter adopts a set of control variables similar to those employed in previous studies, such as Barua et al. (2010) and Zalata and Roberts (2017). The chapter also investigates the incentives of firms to manage earnings using classification shifting, such as to meet or beat the positive core earnings benchmark (PCE) and the core earnings increase benchmark (CEI) or before seeking new debt (DFIN).

The main findings of the third empirical chapter (Chapter 4) are threefold. Firstly, both firms with and without tax haven subsidiaries engage in classification shifting; however, there is tentative evidence that firms using tax havens overall engage in more classification shifting relative to firms without tax haven subsidiaries. This is consistent with prior research findings that the use of tax havens exacerbates other forms of earnings management, such as AEM and REM, due to lower tax costs of earnings manipulation, secrecy policies, and the low institutional environment quality (Dyreng et al., 2012; Durnev et al., 2017). An alternative explanation is that due to the lower cost of classification shifting compared to other earnings management strategies (i.e., AEM and REM), as discussed earlier, tax haven firms rely more on classification shifting since they are larger and politically sensitive, especially given the strong legal system in the UK.

Secondly, by decomposing the sample into public and private firms (unconditional on the use of tax havens), findings show that both public and private firms engage in classification shifting, suggesting that both public and private firms have incentives to overstate core earnings to achieve their financial reporting or tax planning objectives (Chung et al., 2021a). However, private firms rely more heavily on classification shifting than public firms, potentially due to tax planning and debt financing incentives since classification shifting overstates core earnings without influencing taxable income (Abernathy et al., 2014). This is also consistent with prior research suggesting that the financial reporting behaviour of private firms is mainly influenced by tax saving and obtaining new debt since debt is the primary source of financing for private firms, and core earnings is an important benchmark used by creditors to assess the credit worthiness of firms (Ball and Shivakumar, 2005; Jaafar and Thornton, 2015; Demerjian and Owens, 2016; Chung et al., 2021a; b).

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[16] This chapter also adopts the list used in Durnev et al. (2017) for rubustness checks, and the results are qualitatively similar.

Thirdly and more importantly, results show that public firms rely more heavily on classification shifting when they use tax havens compared to when they do not, whereas in the case of private firms, classification shifting is not sensitive to using tax havens. This is consistent with the argument that the use of tax havens increases the incentives of public firms to rely more on classification shifting due to its lower cost compared to AEM and REM, as discussed earlier (McVay, 2006; Abernathy et al., 2014; Zalata and Roberts, 2016). This is especially true for public firms since they are subject to higher scrutiny and pressure to report higher core earnings to meet market expectations. In the case of private firms, classification shifting is not sensitive to using tax havens since they are generally subject to less scrutiny and may rely on other forms of earnings management. An alternative interpretation of the previous finding that is also consistent with prior research documenting that using tax havens exacerbates other forms of earnings management (by public firms) due to their low institutional environment quality (Dyreng et al., 2012; Durnev et al., 2017).

Fourthly, regarding classification shifting incentives, public firms appear to classification shift to report positive core earnings and prior to obtaining new debt. In contrast, private firms appear to classification shift to report increases in core earnings. In addition, there is no evidence that the use of tax havens influences classification shifting to meet or beat core earnings benchmarks by public and private firms. However, using tax havens appears to reduce public firms' reliance on classification shifting before seeking new debt. Finally, using a propensity score matched sample; there is some evidence that the previous findings may be explained by firm characteristics that influence their choice to use tax havens rather than the status of using tax havens *per se*.

1.5 Contributions

This study contributes to the literature in several ways. Firstly, it adds to the existing literature by providing evidence on how the use of tax havens differently influences UK public and private firms' reliance on AEM and REM. Prior research in this area has focused on the behaviour of public firms only (e.g., Dyreng et al., 2012; Durnev et al., 2017), but as private firms are also important to the economy, it is crucial to examine how the use of tax havens influences the financial reporting behaviour of both public and private firms. Findings in this regard are important as they indicate that private firms engage in more AEM and REM overall when they use tax havens, while public firms engage in less AEM when they use tax havens relative to private firms. The findings thus lend further support to the argument that tax haven use increases scrutiny towards AEM practices of public firms to a substantively greater extent than private firms. On the other hand, the sensitivity of REM to using tax havens appears not to be different between public and private firms. To the best of my knowledge, this is the first study to examine how the use of tax havens influences AEM and REM behaviour by

both public and private firms. The findings are useful to UK regulators and policymakers and suggest that the financial reporting by private firms requires further regulatory intervention.

Secondly, prior research on the relationship between the use of tax havens and earnings management has not examined the role of firms' ownership structure, which is an essential determinant of financial reporting behaviour. Therefore, this study contributes by providing evidence that the impact of using tax havens on AEM and REM is significantly influenced by several aspects of a firm's ownership structure (i.e., managerial ownership, ownership concentration, and institutional ownership), as discussed earlier, and that this impact is overall not significantly different between public and private firms, suggesting that ownership structure is generally more important than listing status in explaining earnings management behaviour.

Thirdly, arguably the most significant contribution of the thesis is investigating and providing evidence on the impact of using tax havens on classification shifting by public and private firms, which has not been examined in prior research. Classification shifting is relatively under-investigated in prior research compared to AEM and REM. However, as documented in this study and previous studies, firms use classification shifting more heavily because it can be a less costly alternative to AEM and REM. The findings of this study provide evidence that classification shifting is used heavily by firms with and without tax haven subsidiaries and that tax haven firms are likely to engage more in classification shifting. In addition, evidence also shows that both public and private firms adopt classification shifting, and private firms generally rely more heavily on classification shifting than public firms. Finally, results also provide some evidence of a positive association between the use of tax havens and classification shifting in the case of public firms but not private firms. Overall, these findings present an important contribution to the earnings management literature, and they are of particular importance to policymakers and standard setters, suggesting that they should focus more on the classification and presentation issues rather than focusing only on the measurement and recognition issues (Haw et al., 2011; Zalata and Roberts, 2016).

1.6 Thesis structure

This thesis consists of five chapters; the introduction chapter (Chapter 1), three empirical chapters (Chapters 2, 3, and 4) investigating the three research questions of this thesis as discussed earlier, and the conclusion chapter (Chapter 5). The first empirical chapter (Chapter 2) examines the impact of using tax havens on how UK firms engage in accrual (AEM) and real (REM) earnings manipulation and whether this impact is different between public and private firms. The second empirical chapter (Chapter 3) examines whether the impact of using tax havens on AEM and REM by UK firms is moderated by the different aspects of the firm's ownership structure discussed above (i.e., managerial ownership, ownership concentration, and institutional ownership). The third

empirical chapter (Chapter 4) examines the impact of using tax havens on how UK firms engage in classification shifting and whether this impact is different between public and private firms. Figure 1.1 below provides a graphical representation of the structure of this thesis.

Figure 1.1 – Thesis structure

Chapter 1 – Introduction

Chapter 2 – The use of tax havens and AEM / REM by public and private UK firms.	Chapter 3 – The use of tax havens, ownership structure, and AEM / REM by public and private UK firms.	Chapter 4 – The use of tax havens and classification shifting by public and private UK firms.

Chapter 5 – Summary and conclusions
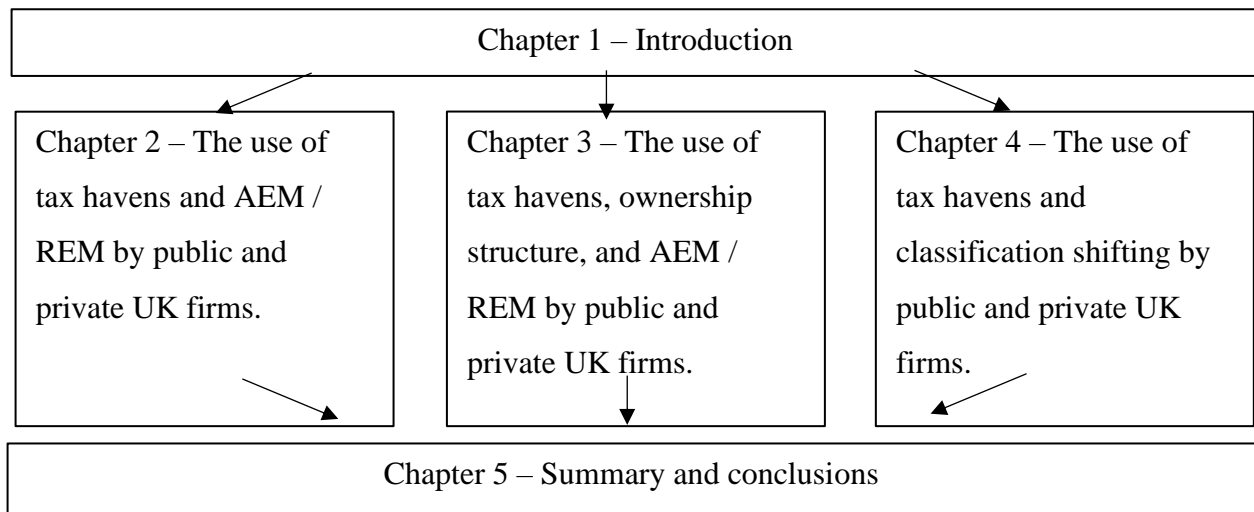
Chapter (2) Tax havens and earnings management by public and private firms

2.1 Introduction

This chapter investigates the impact of using tax havens on accrual earnings management (AEM) and real earnings management (REM) for a large sample of public and private UK firms. Motivation comes from the ongoing debate around the use of tax havens, as well as the lack of evidence on how the use of tax havens affects AEM and REM differently between public and private firms, given the innate differences between public and private firms' regulatory environments and their systematically different incentives to engage in earnings management (Hope et al., 2013; Haga et al., 2018).

Prior research documents that characteristics of the home country in which a firm's headquarters are registered (hereafter, home country's institutional environment quality) – such as the strength of its legal system, the strength of investor protection, and intensity of regulatory scrutiny – influence the levels of and choice of techniques for earnings management (Leuz et al., 2003; Burgstahler et al., 2006; Francis and Wang, 2008; Francis et al., 2016). Firms in countries with high institutional environment quality are typically associated with less AEM and more REM. This is because when AEM is highly regulated by accounting standards and can be more easily detected, the relative costs of AEM compared with REM are higher (e.g., Francis et al., 2016). On the other hand, some studies suggest that firms' earnings management behaviour is influenced not only by the home country's institutional environment quality but also that of foreign jurisdictions in which the firm has operations through subsidiaries or affiliates and that foreign operations in countries with secrecy policies and comparatively weak institutions, such as tax havens, might associate with exacerbated earnings management practices (Erickson et al., 2004; Dyreng et al., 2012; Durnev et al., 2017; Beuselinck et al., 2019).

Generally, as the UK is characterized by high institutional environment quality that constrains AEM, UK firms tend to rely more on REM as it is harder to detect (Francis et al., 2016). This substitution effect is likely more pronounced for public firms than private firms since public firms are subject to higher regulatory scrutiny and market demand for high quality financial reporting (Hope et al., 2013). In contrast, tax havens are characterized by low institutional environment quality and secrecy policies, which reduce the costs and visibility of AEM by firms with tax haven subsidiaries (hereafter, tax haven firms) relative to REM (Dyreng et al., 2012; Durnev et al., 2017). However, tax haven firms can be more politically sensitive and subject to higher scrutiny, which may increase the costs of AEM and constrain it relative to REM. Therefore, the overall impact of tax haven use on

AEM/REM by UK public and private firms is an empirical question. Based on the above, the research question of this study can be stated as follows: "*Is AEM/REM sensitive to the use of tax havens by UK firms, and does the sensitivity of AEM/REM to using tax havens differ between public and private firms?*"

To investigate this research question, this study employs several widely-used proxies of AEM and REM for a large sample of public and private firms domiciled in the UK over the period 2010-2018. Data are collected from Amadeus database published by Bureau van Dijk (BvD). The final sample consists of 4,799 public firm-year observations and 94,642 private firm-year observations. The list of tax havens adopted in this study is the one used in Durnev et al. (2017) since they employ similar proxies of AEM and REM. Based on this list, the sample includes 6,409 tax haven firm-years, consisting of 1,892 public (4,517 private) firm-years; and 93,032 non-tax haven firm-years, consisting of 2,907 public (90,125 private) firm-years. The main tests are based on the magnitudes of AEM and REM proxies.

Results reveal the following. Firstly, the use of tax havens is, on the whole, associated with less AEM but more REM, showing that tax haven firms rely more heavily on REM to manipulate earnings relative to AEM, since REM is harder to detect. This finding can be attributed to the strong legal system in the home country (i.e., the UK), and the higher scrutiny over the use of tax havens, which indicates that the home country institutional environment quality has a significant impact on earnings management and on the choice of techniques adopted (Francis et al., 2016). At first glimpse, this result may seem surprising due to the low institutional environment quality and secrecy policies in tax havens which could exacerbate AEM relative to REM (e.g., Durnev et al., 2017); however, this result can be expected given that firms that use tax havens are usually larger firms that are politically sensitive.

Secondly, as expected, results show that public firms engage in less AEM but more REM relative to private firms (unconditional on using tax havens), which can be explained by innate differences between public and private firms' financial reporting environments. This finding supports the AEM-REM trade-off argument that as public firms are subject to higher political scrutiny and market pressures for high quality earnings compared to private firms, they are more likely to substitute AEM for REM; an effect that is also evidenced in prior research (Francis et al., 2016; Haga et al., 2018; Yang et al., 2022).

Thirdly, and most pertinent to the research question, tests of whether tax havens influence AEM and REM differently between public and private firms show that public firms overall engage in less AEM and sales manipulation when they use tax havens relative to private firms. As discussed earlier, UK public firms are subject to higher scrutiny and demand for high quality earnings relative to private firms, especially as tax havens attract higher scrutiny, which constrains public firms'

reliance on AEM relative to private firms. In addition, the use of tax havens by private firms appears to increase their reliance on REM, which might be due to tax or debt financing incentives since their financial reporting is mainly influenced by these factors (Jaafar and Thornton, 2015; Chung et al., 2021a). However, public and private firms' reliance on REM appears not to be different when they use tax havens. Additional analysis based on a propensity score matched sample overall supports the main finding that public firms are less reliant on AEM and sales manipulation when using tax havens than private firms.

Finally, using the subsample of firms with tax haven subsidiaries only and signed AEM and REM proxies, results show that overall, as the intensity of using tax havens increases, public firms are more likely to rely on income-increasing REM relative to private firms. This finding is also consistent with the above findings that public firms using tax havens are more politically sensitive. Facing higher demand for high quality earnings and at the same time facing higher pressures to meet market expectations, public firms that use tax havens rely more on REM to achieve their financial reporting objectives. However, they either reduce or do not change their reliance on AEM to do so.

This chapter incrementally contributes to the literature in several ways. Firstly, it contributes by providing evidence on how the use of tax havens influences public and private firms' reliance on AEM and REM. New evidence is provided that the institutional environment quality of both the home country and the foreign country(ies) in which firms have operations influence earnings management incentives and the techniques adopted. Secondly, this chapter provides new evidence on public versus private firms' financial reporting behaviour. Results are consistent with prior research in that public firms, compared to private firms, are subject to higher scrutiny and market demand for high quality earnings; therefore, they engage in less AEM and more REM since AEM is more visible and can be more costly (Hope et al., 2013; Francis et al., 2016; Haga et al., 2018; Yang et al., 2022). The latter finding overall holds even given the use of tax havens.

The remainder of this chapter is organized as follows: section 2 discusses prior literature and hypotheses development; Section 3 discusses the data and research methodology; Section 4 discusses the results of empirical analyses; and Section 5 concludes.

2.2 Prior literature and hypotheses development

2.2.1 Prior empirical evidence

The impact of using tax havens on AEM/REM

Prior research on whether operating in tax havens impacts earnings management focuses only on the behaviour of public firms. For instance, using the US setting, Dyreng et al. (2012) investigate the locations where US multinational companies (MNCs) engage in more earnings management. They find that MNCs with extensive foreign operations located in weak enforcement countries and tax havens engage in more earnings management through discretionary accruals than other MNCs. The study suggests that using tax havens facilitates earnings management, especially for large and profitable firms with greater incentives to use tax havens to manipulate earnings for tax avoidance because there is no or little tax cost of managing earnings in the context of tax havens. Durnev et al. (2017) investigate a large sample of public firms from 15 countries with the strictest legal systems; they find that firms with tax haven subsidiaries show more income-increasing earnings management using AEM – and, to a lesser extent, using REM – compared to non-tax haven firms. However, as the intensity of using tax havens increases, the study shows evidence of heavy reliance on both AEM and REM. These studies suggest that secrecy policies and the low institutional environment quality of tax havens facilitate earnings management and that a firm's institutional environment quality should be evaluated not only based on the home country, but also based on countries in which a firm has subsidiaries. The current study's findings may differ from the previous two studies because they focus only on public firms or investigate a different setting (i.e., the US and cross-country analysis).

Although tax havens are characterized by secrecy policies and low institutional environment quality, which is expected to facilitate AEM relative to REM by tax haven firms (Durnev et al., 2017), the high institutional environment quality in the UK and the high scrutiny towards the use of tax havens may constrain AEM (Francis et al., 2016).[17] Therefore, the impact of using tax havens on AEM and REM is an empirical question.

Earnings management by public and private firms

As discussed earlier in Chapter (1), public and private firms systematically differ in many aspects, such as their ownership structure, regulatory environment, and market expectations, significantly influencing their financial reporting behaviour and their incentives to engage in earnings management. The financial statements of public firms are closely monitored by external stakeholders,

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[17] The direction of EM is not hypothesized because of contradicting incentives and the trade-off between tax planning and financial reporting incentives to manipulate earnings, for instance, managers might manipulate earnings downwards for tax considerations, or upwards for financial reporting considerations (Balakrishnan et al., 2012). Therefore, this study focuses on the magnitude of earnings management due to the use of tax havens rather than the direction.

such as market participants and regulators, compared to private firms since they are the primary source of information for decision-making. Therefore, public firms are subject to higher scrutiny and demand for high quality financial information than private firms. This is referred to as the *demand hypothesis* (Ball and Shivakumar, 2005; Burgstahler et al., 2006; Givoly et al., 2010; Chen et al., 2011; Hope et al., 2013). Public firms are also generally subject to higher litigation risk and cost of equity consequences of earnings manipulation compared to private firms, which might reduce public firms' reliance on earnings management compared to private firms (Givoly et al., 2010). However, public firms are also subject to market pressures to manipulate earnings, such as to meet analysts' expectations or to avoid reporting negative earnings or earnings declines, which is referred to as the *opportunistic hypothesis* (e.g., Givoly et al., 2010; Hope et al., 2013). On the other hand, private firms' managers also have incentives to manage earnings, such as to take advantage of a bonus plan, to avoid violation of debt contracts, or to avoid taxes (Ball and Shivakumar, 2005; Givoly et al., 2010). Therefore, the net effect of a firm's listing status on earnings management is empirically determined (Givoly et al., 2010).

Consistent with the above, prior empirical evidence regarding the differences in earnings management behaviour between public and private firms is mixed. Some studies find that earnings management is lower (earnings quality is higher) for public firms compared to private firms, supporting the demand hypothesis (e.g., Ball and Shivakumar, 2005; Burgstahler et al., 2006; Hope et al., 2013), while other studies find the opposite, supporting the opportunistic hypothesis (e.g., Kim and Yi, 2006; Givoly et al., 2010). For instance, Ball and Shivakumar (2005) predict and find that earnings quality – proxied by conditional conservatism – of UK private firms is lower compared to that of public firms, a finding that is explained by the demand hypothesis, indicating the demand for higher quality financial reporting in the case of public firms relative to private firms. Burgstahler et al. (2006) employ a large sample of firms from 15 European countries and focus on several proxies for earnings management as a dimension of accounting quality that is associated with firms' reporting incentives. They find that private firms show higher earnings management and that strong legal systems are associated with less earnings management, which also supports the demand hypothesis and pressure for less earnings management and higher quality financial reporting by public firms and in strong legal systems. Hope et al. (2013) also find similar results using a large sample of US firms. Focusing on several proxies of earnings management, they find that earnings management is generally lower for public firms than private firms, supporting the demand hypothesis. However, they also report that public firms engage in more earnings management in settings when they have greater incentives to do so and when they face reduced demand for their financial information.

Other studies find results that contradict the demand hypothesis, supporting the opportunistic hypothesis; for instance, Givoly et al. (2010) use the US setting and employ a large sample of public

equity firms and private equity firms with publicly traded debt over 24 years from 1978 to 2003. They find that public equity firms have lower earnings quality, but report more conservatively compared to private firms. Their results support the opportunistic hypothesis. They argue that this might be due to public firms' managers' opportunistic behaviour and stronger incentives to manipulate earnings to achieve market expectations. Kim and Yi (2006) use the South Korean setting and find that public firms engage in more earnings management than private firms, supporting the opportunistic argument. Haga et al. (2018) focus on real activities manipulation using the UK setting, they find that public firms engage in more REM (but less AEM) compared to private firms, especially when a clear incentive to manage earnings in a specific direction is present (i.e., to beat zero or negative earnings benchmark). Their results also support the opportunistic hypothesis by public firms and their incentives to manipulate earnings due to capital market incentives.

Since public firms – relative to private firms – are subject to higher market pressures and political scrutiny to report high quality earnings while at the same time having incentives to opportunistically manage earnings to meet market expectations or to achieve certain outcome, and given the strong legal system in the UK, this study expects that public firms are likely to rely more heavily on REM but less on AEM to achieve their financial reporting objectives compared to private firms since REM is lightly regulated by accounting standards compared to AEM and cannot be easily detected or proved by auditors and regulators (Francis et al., 2016; Haga et al., 2018).[18]

2.2.2 Theoretical framework and hypotheses development

Theory of institutional environment and the trade-off between AEM/REM

According to the theory of institutional environment, the institutional environment quality of a firm influences its earnings management behaviour and financial reporting quality (Leuz et al., 2003; Burgstahler et al., 2006; Francis et al., 2016; Durnev et al., 2017). As discussed earlier, prior research extensively investigates the relationship between earnings management and institutional factors. These studies document that earnings management is generally lower for firms from countries where institutional environment quality is higher, i.e., where equity markets are developed, ownership is dispersed, legal enforcement is strong, and investor protection is high (Leuz et al., 2003; Burgstahler et al., 2006; Dyreng et al., 2012). This indicates that higher institutional environment quality settings are associated with higher costs of earnings management and, consequently, lower incentives for insiders to manipulate earnings. However, it is difficult to determine the institutional environment quality of a firm because it entails both the home country and foreign countries in which

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[18] Although REM is less likely to be detected, it can be costly to firms as it involves altering the real activities of the firm, such as cutting necessary expenditures such as research and development (R&D), which might negatively influence the real firm performance in the long-run (e.g., Bushee, 1998; Roychowdhury, 2006; Zang, 2012).

a firm has operations; therefore, the institutional environment quality of a firm is empirically determined (e.g., Durnev et al., 2017).

Regarding the techniques adopted, prior research also documents a trade-off between AEM and REM techniques depending on the institutional environment quality and the costliness of the two alternatives (Cohen et al., 2008; Zang, 2012; Francis et al., 2016). For instance, Francis et al. (2016) report that strong legal systems are associated with more REM but less AEM since REM is harder to detect or prove in court and, consequently, is less costly to managers in these settings. Consistent with the trade-off argument, Cohen et al. (2008) find that firms depart from AEM towards REM after the Sarbanes-Oxley Act in 2002 due to the increased scrutiny following the large corporate governance failures that led to the passage of this act; they state that although REM is more costly to shareholders, it is harder to detect, and therefore less costly to managers. Similarly, Haga et al. (2018) find that public firms engage in more REM compared to private firms due to higher political scrutiny and market pressure faced by public firms.

The UK setting and the impact of using tax havens on earnings management by public and private firms

The UK is a common law country characterized by strong legal system, strong investor protection, dispersed ownership structure, and developed financial markets (Ball et al., 2000; La Porta et al., 2000; Leuz et al., 2003). In line with the theory of institutional environment, UK firms are generally expected to engage in less AEM but more REM due to the strong legal system in the UK which constrains AEM comparatively more than REM. In addition, the use of tax havens may attract greater scrutiny, leading to reliance on REM more than AEM. However, since tax havens are characterized by low institutional environment quality, which might facilitate different forms of earnings management (Dyreng et al., 2012; Durnev et al., 2017), the above prediction might not hold for firms with subsidiaries in tax havens.

Prior research investigating the impact of using tax havens on earnings management focused only on the behaviour of public firms or on different settings as discussed earlier; therefore, their findings may not generalise to private firms and may not hold using the UK setting. The natural differences between public and private firms may lead to differential impact of using tax havens on earnings management between public and private firms, which is this study's primary focus and contribution. As discussed earlier, public firms have incentives to engage in earnings management to meet market expectations and, at the same time to meet market demand for high quality earnings (e.g., Hope et al., 2013). An optimal strategy to achieve this objective is to rely more on REM but less on AEM since AEM is subject to higher scrutiny by auditors and regulators, especially in high institutional quality settings (Francis et al., 2016; Haga et al., 2018). The use of tax havens, therefore, might exacerbate AEM (relative to REM) for public firms (Dyreng et al., 2012; Durnev et al., 2017)

to achieve their objectives as the intensity of scrutiny and cost of AEM declines. However, this may not be the case since public firms can be subject to higher scrutiny when they use tax havens, which may reduce their reliance on AEM. On the other hand, since private firms are subject to lower scrutiny, they are more aggressive tax planners, and their financial reporting is more likely to be driven by tax and debt financing considerations (Ball and Shivakumar, 2005; Jaafar and Thornton, 2015; Chung et al., 2021b; a), private firms may rely more heavily on AEM (and to a lesser extent on REM) when they use tax havens. Overall, this study expects that UK private firms are likely to rely more aggressively on AEM (and less on REM) when they use tax havens compared to public firms. Therefore, the following hypothesis can be developed.

H1: The sensitivity of AEM (REM) to using tax havens is lower (higher) for public firms relative to private firms.

2.3 Research methodology

This study investigates both AEM and REM earnings management techniques and uses several proxies most commonly used in prior research for several reasons. Firstly, so that results are more comparable with prior research and more generalisable (Hope et al., 2013); secondly, focusing only on one technique at a time cannot explain the overall effect of earnings management activities, which may lead to incomplete conclusions (Zang, 2012). Finally, earnings management by private firms is relatively under-investigated, and therefore it is useful to report empirical evidence based on several measures (Hope et al., 2013).

2.3.1 Accrual-based measures of earnings management (AEM)

According to Dechow (1994), the primary role of accruals is to allocate the recognition of cash flows over time to measure firm performance better and to overcome the problems associated with the cash basis of accounting.[19] To estimate discretionary accruals – the proxy for accruals earnings management adopted in this study, which represents the proportion of total accruals that is subject to manipulation by managers – first, following prior research (e.g., Healy, 1985; Jones, 1991; Dechow et al., 1995), total accruals are calculated as in Equation (2.1) below.

$$TA_{i,t} = \left(\Delta CA_{i,t} - \Delta Cash_{i,t}\right) - \left(\Delta CL_{i,t} - \Delta STDebt_{i,t}\right) - DEPR_{i,t} \qquad (2.1)$$

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[19]Accrual accounting recognizes revenues and expenses when earned or incurred, regardless of the actual cash receipt or payment, whereas the "noisy" cash flows are unable to overcome the issues of matching and timing of revenues and expenses, which makes accrual earnings more efficient measures of firm's performance (Dechow, 1994). However, the use of accruals raises new issues because they offer managers a great discretion over their timing and recognition, and accounting standards also offer managers discretion over accounting estimates and the choice between accounting methods, by which managers can influence the earnings figures towards the desired direction, which can be used by managers for good reasons to signal private information about firm's performance to outsiders, or to opportunistically manipulate earnings (Dechow, 1994; Zang, 2012; Walker, 2013).

Where: $TA_{i,t}$ represents total accruals for firm i in year t, $\Delta CA_{i,t}$ is the change in current assets for firm i from year $t\text{-}1$ to year t, $\Delta Cash_{i,t}$ is the change in cash and cash equivalents for firm i from year $t\text{-}1$ to year t, $\Delta CL_{i,t}$ is the change in current liabilities for firm i from year $t\text{-}1$ to year t, $\Delta STDebt_{i,t}$ is the change in short-term debt for firm i from year $t\text{-}1$ to year t, and $DEPR_{i,t}$ is the depreciation for firm i in year t.

The first measure of AEM in this study is based on the cross-sectional modified Jones model proposed by Dechow et al. (1995). The model is estimated for each industry-year with at least 15 observations, where industry is defined according to Fama and French (1997) 48 industry classification.

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_0\left(\frac{1}{A_{i,t-1}}\right) + \alpha_1\left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}}\right) + \alpha_2\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \tag{2.2}$$

Where: $A_{i,t\text{-}1}$ is lagged total assets (total assets for firm i in year $t\text{-}1$), $\Delta REV_{i,t}$ is the change in revenues (sales) for firm i from year $t\text{-}1$ to year t, $\Delta REC_{i,t}$ is the change in accounts receivables (debtors) for firm i from year $t\text{-}1$ to year t, and $PPE_{i,t}$ is property, plant, and equipment for firm i in year t. $\varepsilon_{i,t}$ are the residuals from Equation (2.2), for firm i in year t, and represent the discretionary accruals ($DisA_{i,t}$), which is the unexplained or abnormal part of total accruals. Positive values of discretionary accruals represent income-increasing AEM and vice versa. The absolute values of discretionary accruals are used as the first proxy for AEM in this study, where a higher value represents a higher level of earnings management or lower earnings quality, and vice versa.

The second proxy of AEM is the performance-adjusted discretionary accruals proposed by Kothari et al. (2005). The model is estimated for each industry-year with at least 15 observations.

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \alpha_2\left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}}\right) + \alpha_3\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \alpha_4 ROA_{i,t} + \varepsilon_{i,t} \tag{2.3}$$

Where: α_0 is the intercept, $ROA_{i,t}$ is the return on assets defined as net income divided by lagged total assets for firm i in year t. Other variables are defined earlier. Again, discretionary accruals ($DisAK_{i,t}$) are the residuals from Equation (2.3). Absolute values of $DisAK_{i,t}$ are the second proxy for AEM, where higher values represent higher AEM or lower earnings quality, and vice versa.

The third proxy of AEM is based on the accruals quality measure proposed by Dechow and Dichev (2002), who propose a model which takes into consideration the strength of the relationship between working capital accruals and the previous, current, and following years' operating cash flows.[20] First, total current accruals (working capital accruals) are calculated as follows (e.g., Francis et al., 2005):

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[20] Accruals quality measure by Dechow and Dichev (2002) is intended to measure earnings quality based on the accuracy of managerial accruals estimates, which can be either due to normal estimation error or opportunistic earnings management, and it has been adopted in prior research as a proxy for both (e.g., Hope et al., 2013; Di Meo et al., 2017).

$$TCA_{i,t} = \Delta CA_{i,t} - \Delta Cash_{i,t} - \Delta CL_{i,t} + \Delta STDebt_{i,t} \qquad (2.4)$$

Where: $TCA_{i,t}$ is total current accruals for firm i in year t. Other variables are as defined earlier. The following model is estimated for each industry-year with at least 15 observations [21]:

$$\frac{TCA_{i,t}}{A_{i,t-1}} = \alpha_0 \left(\frac{1}{A_{i,t-1}}\right) + \alpha_1 \left(\frac{CFO_{i,t-1}}{A_{i,t-1}}\right) + \alpha_2 \left(\frac{CFO_{i,t}}{A_{i,t-1}}\right) + \alpha_3 \left(\frac{CFO_{i,t+1}}{A_{i,t-1}}\right)$$
$$+ \alpha_4 \left(\frac{\Delta REV_{i,t}}{A_{i,t-1}}\right) + \alpha_5 \left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \qquad (2.5)$$

Where: $CFO_{i,t-1}$, $CFO_{i,t}$, and $CFO_{i,t+1}$, are operating cash flows for firm i in years $t-1$, t, and $t+1$ (i.e., previous, current, and following years), respectively. Following prior research (e.g., Chen et al., 2011; Hope et al., 2013), cash flow from operations (CFO) is calculated as the sum of net income, depreciation and amortization minus working capital accruals, where all amounts are scaled by lagged total assets. The residuals from Equation (2.5) represent the accruals estimation error that is not associated with cash flow from operations and that cannot be explained by the change in revenues or the level of property, plant, and equipment (PPE). Following prior research (Hope et al., 2013), absolute values of these residuals ($DisWCA$) are used as the third proxy for earnings management, where higher values indicate more earnings management (or lower accruals/earnings quality), and vice versa.

2.3.2 Real-based measures of earnings management (REM)

Unlike AEM, real activities manipulation can negatively influence firm value in the long-run and decrease future cash flows as they involve altering real activities of the firm or sacrificing investment opportunities to achieve short-term gains (e.g., Roychowdhury, 2006; Di Meo et al., 2017; Haga et al., 2018).[22] Following Roychowdhury (2006) and Haga et al. (2018), this study focuses on three types of real activities manipulation; sales manipulation, altering normal production levels, and discretionary expenses manipulation.

Sales manipulation

According to Roychowdhury (2006), sales can be manipulated through managers' actions to accelerate sales by offering price discounts or lighter credit terms. The result is overstated earnings

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In addition, extensive earnings management using accruals leads to more accrual estimation errors that need to be corrected or reversed in the future, which reduces accruals quality (Dechow and Dichev, 2002; Durnev et al., 2017). Therefore, this measure is adopted in this study as a proxy for earnings management in the sense that higher earnings management implies lower accruals/earnings quality, and vice versa.

[21] This study follows a cross-sectional version of the DD model controlling for the change in revenues and the level of property, plant, and equipment as additional explanatory variables (e.g., Francis et al., 2005; Hope et al., 2013).

[22] (Roychowdhury, 2006 p.336) defines real activities manipulation as "*Management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain earnings thresholds.*" For example, cutting necessary expenses such as research and development and selling, general and administrative expenses to overstate earnings might negatively influence the future real firm performance and firm value (Bushee, 1998; Di Meo et al., 2017).

for the current period, abnormally lower cash flow from operations (*CFO*), and higher production costs relative to sales. According to Dechow et al. (1998) and Roychowdhury (2006), normal cash flow from operations (*CFO*) is expressed as a linear function of sales and the change in sales for the current period according to the following model. The model is estimated for each industry-year with at least 15 observations.

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{i,t-1}}\right) + \alpha_2 \left(\frac{Sales_{i,t}}{A_{i,t-1}}\right) + \alpha_3 \left(\frac{\Delta Sales_{i,t}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \qquad (2.6)$$

All variables are defined earlier. Negative values of the residuals from Equation (2.6) (*ACFO*) reflect abnormally lower operating cash flows and correspond to income-increasing sales manipulation, and vice versa (Roychowdhury, 2006). Following prior research (e.g., Haga et al., 2018), absolute values of *ACFO* are used as a proxy for sales manipulation, where higher values represent more sales manipulation.

Manipulation of discretionary expenses

Firms can also boost earnings by cutting necessary discretionary expenses such as advertising expenses, research and development (R&D), and selling, general, and administrative expenses (SG&A) (Roychowdhury, 2006). The following model estimates normal and abnormal discretionary expenses (Roychowdhury, 2006; Cohen and Zarowin, 2010). The model is estimated for each industry-year with at least 15 observations.

$$\frac{DISEXP_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{i,t-1}}\right) + \alpha_2 \left(\frac{Sales_{i,t-1}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \qquad (2.7)$$

Where: *DISEXP$_{i,t}$* is discretionary expenses which is the sum of advertising, R&D, and SG&A for firm *i* in year *t*. *Sales$_{it-1}$* is lagged sales. The residuals from Equation (2.7) represent abnormal discretionary expense (*ADISEXP*), where negative values represent income-increasing manipulation of discretionary expenses, and vice versa (Roychowdhury, 2006). Absolute values of *ADISEXP* are used as the proxy for manipulation of discretionary expenses, where higher values represent more discretionary expense manipulation (Haga et al., 2018).

Manipulation of production levels

According to Roychowdhury (2006), firms can manage earnings upwards through overproduction. The result is that fixed costs are spread over a larger number of units, which reduces the unit cost and the cost of goods sold (COGS), and overstates earnings.[23,24] Following Roychowdhury (2006), normal production costs are expressed as a linear function of sales, change in

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[23] However, overproducing firms may incur additional production and holding costs if produced units are not sold in the same period, therefore, the decline in unit cost due to overproduction might be offset by other marginal increase in unit cost (Roychowdhury, 2006).

[24] Firms may also under-produce to temporarily deflate earnings (Haga et al., 2018)

sales, and lagged change in sales as follows. The model is estimated for each industry-year with at least 15 observations.

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{i,t-1}}\right) + \alpha_2 \left(\frac{Sales_{i,t}}{A_{i,t-1}}\right) + \alpha_3 \left(\frac{\Delta Sales_{i,t}}{A_{i,t-1}}\right) + \alpha_4 \left(\frac{\Delta Sales_{i,t-1}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \quad (2.8)$$

Where: *PROD*$_{i,t}$ represents production costs which are the sum of cost of goods sold (*COGS*) and the change in inventory (Δ*INV*) for firm *i* in year *t*. The residuals from Equation (2.8) represent abnormal production costs (*APROD*), where positive values represent income-increasing manipulation of production levels, and vice versa (Roychowdhury, 2006). Absolute values of *APROD* are used as the proxy for production manipulation, where higher values represent more manipulation of production levels (Haga et al., 2018).

Aggregate REM and total earnings management (TEM)

Following prior research (Cohen et al., 2008; Cohen and Zarowin, 2010; Haga et al., 2018), signed *ADISEXP* and *ACFO* are first multiplied by -1 so that positive values represent income increasing REM, then, an aggregate measure for real earnings management (*REM_agg*) is constructed which is the sum of the signed individual measures *ACFO*, *ADISEXP*, and *APROD*. Finally, a proxy for total earnings management is used (*TEM*), which is the sum of *REM_agg* and *DisAK*. Absolute values of all earnings management proxies are used in this study, where higher values represent more earnings management (or lower earnings quality) and vice versa. However, signed earnings management proxies are also used in additional analyses investigating the incentives and direction of earnings management when firms use tax havens.

2.3.3 Measures of the use of tax havens

Following prior research, a tax haven firm is defined in this study as a firm with subsidiaries or affiliates in a tax haven (Dyreng et al., 2012; Jaafar and Thornton, 2015; Durnev et al., 2017). This chapter adopts the list employed in Durnev et al. (2017) so that results are comparable since they employ similar AEM and REM proxies. This list is reported in Table 2.1 below.

Table 2.1 List of tax haven countries

Andorra	Liechtenstein
Anguilla	Luxembourg
Bahamas	Liberia
Bahrain	Malta
Barbados	Marshall Islands
Belize	Mauritius
Bermuda	Monaco
Cayman Islands	Netherlands Antilles
Costa Rica	Panama
Cyprus	Saint Kitts and Nevis
Dominica	Saint Lucia
Gibraltar	Saint Vincent and The Grenadines
Hong Kong	Singapore
Ireland	Switzerland
Jordan	Vanuatu
Latvia	Virgin Islands (British)
Lebanon	

This table presents the list of tax haven countries used in this study following Durnev et al. (2017).

The main proxy for using tax havens adopted in this study is a dummy variable (*Haven*), taking the value of 1 for firms with at least one subsidiary or affiliate in a tax haven and 0 otherwise. In addition, alternative proxies for the use of tax havens are used for robustness checks. Firstly, a variable that captures the intensity of using tax havens (*OFCsubratio)*, which is calculated as the ratio of the number of subsidiaries that a firm has in tax havens divided by the total number of subsidiaries (Dyreng et al., 2012; Durnev et al., 2017). Secondly, a subsidiary-weighted offshore attitude index (*OFCindex*) considers the variations in off-shore characteristics among tax havens.[25] Following Durnev et al. (2017), this measure is calculated as follows.

$$OFCindex_{i,t} = \frac{\sum_c(OffshoreIndex_c \times Subsidiary_{i,t})}{\sum_c Subsidiary_{i,t}} \tag{2.9}$$

Where: *OFCindex_{i,t}* is the subsidiary weighted offshore attitude index for firm *i* in year *t*, *Subsidiary_{i,t}* is the number of subsidiaries that a firm *i* has in country *c* in year *t*, *OffshoreIndex_c* is the offshore attitude index for country *c* as developed by Masciandaro (2008). This measure takes higher values for firms with more subsidiaries in tax havens and those with subsidiaries in jurisdictions with higher offshore attitude index.

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[25] There are more than 40 jurisdictions that are classified as tax havens and these jurisdictions vary in terms of their offshore attitudes (Masciandaro, 2008; Durnev et al., 2017). Masciandaro (2008) developed an index that classifies 222 countries according to their offshore attributes. This index ranges from 0 to 5 with lower values correspond to higher on-shore characteristics and higher values correspond to higher off-shore characteristics.

2.3.4 Control variables

Several control variables shown in prior research to influence AEM and REM are included. Consistent with prior studies, larger firms are more mature, politically sensitive, and less likely to engage in AEM and REM (or have higher financial reporting quality) (e.g., Hope et al., 2013; Haga et al., 2018). Therefore, the relationship between firm size and earnings management is expected to be negative. Firm size (*SIZE*) is measured as the natural logarithm of total assets. Firms with higher financial leverage and firms with poor financial health are more likely to manipulate earnings to avoid debt covenant violations (e.g., Sweeney, 1994; Kim and Yi, 2006; Hope et al., 2013; Haga et al., 2018). Therefore, the relationship between financial leverage (financial health) and earnings management is expected to be positive (negative). Financial leverage (*LEV*) is measured as the ratio of total liabilities to total assets; financial health (*ZSCORE*) is based on Taffler (1983), where firms with *ZSCORE* below zero are at risk of failure (Haga et al., 2018).[26] Growth firms are also more likely to engage in more earnings management to signal good performance to stakeholders or to avoid the negative market reactions to a decline in earnings (Skinner and Sloan, 2002; Haga et al., 2018). Growth (*GROWTH*) is the annual percentage change in total assets.

Firms may also have incentives to manipulate earnings to report good performance and profitability or to avoid reporting a loss. Therefore, firms with higher profitability and with more earnings volatility are more likely to engage in earnings management (Healy, 1985; Burgstahler and Dichev, 1997). Performance (*SD_ROA*) is measured as the standard deviation of return on assets (ROA) for firms with at least three years of data, where ROA is the ratio of net income to total assets; profitability (*ROE*) is measured as the ratio of net income to shareholders' equity. Negative earnings (*LOSS*) is also controlled as it is associated with the quality of the firm's accruals and performance. *LOSS* is measured as the cumulative percentage of years with negative earnings. The relationship between LOSS and earnings management is expected to be negative, indicating that loss-making firms are associated with less earnings management (it is less likely that these firms managed earnings to avoid losses). Firms with higher levels of inventory (*INV*) and firms with longer operating cycles (*OPCYCLE*) have a greater ability to engage in earnings management (e.g., Roychowdhury, 2006; Zang, 2012). *INV* is measured as the ratio of inventory to total assets, and *OPCYCLE* is measured as the sum of the number of days in accounts receivable and the number of days in inventory.[27] This

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[26] $ZSCORE = 3.2 + 12.18 \times X1 + 2.5 \times X2 - 10.68 \times X3 + 0.029 \times X4$; Where *X1* is profit before tax/current liabilities; *X2* is current assets/total liabilities; *X3* is current liabilities/total assets; *X4* is no-credit interval measured as (quick assets – current liabilities)/([sales – profit before taxes – depreciation]/365). Positive values represent solvency or lower default risk, and vice versa.

[27] Operating Cycle (Dechow, 1994; Burgstahler et al., 2006; Hope et al., 2013; Haga et al., 2018) is measured as: $OPCYCLE = [(Receivables)/(Sales/360)] + [(Inventory)/(COGS/360]$

study also controls for industry and year fixed effects to control for unobservable industry-specific or year-specific factors that are systematically correlated with AEM or REM.[28]

2.3.5 Empirical models

OLS regressions are adopted to test the hypothesis of this chapter.[29] The following OLS regression model is estimated to investigate the impact of using tax havens on AEM and REM, unconditional on listing status.

$$|EM_{i,t}| = \beta_0 + \beta_1 Haven_{i,t} + Controls + Industry\ fixed\ effects$$
$$+ Year\ fixed\ effects + \varepsilon_{it} \tag{2.10}$$

Where: $|EM_{i,t}|$ is the dependent variable, the absolute value of one of the AEM or REM measures of earnings management discussed earlier. $Haven_{i,t}$ is the indicator for the use of tax havens discussed earlier. A positive and significant coefficient β_1 indicates that the use of tax havens is overall associated with more AEM and REM, and vice versa.

The following model is estimated to investigate the impact of listing status on AEM and REM (unconditional on the status of using tax havens).

$$|EM_{i,t}| = \beta_0 + \beta_1 Public_{i,t} + Controls + Industry\ fixed\ effects$$
$$+ Year\ fixed\ effects + \varepsilon_{it} \tag{2.11}$$

Where: $Public_{i,t}$ is a dummy variable taking the value of 1 for public firms and 0 for private firms. The remaining variables are defined earlier. In case β_1 is negative (positive) when AEM (REM) variables are the dependent, this indicates that public firms engage in less AEM (more REM) relative to private firms.

The following model is estimated to investigate **H1**.

$$|EM_{i,t}| = \beta_0 + \beta_1 Haven_{i,t} + \beta_2 Public_{i,t} + \beta_3 (HAVEN_{i,t} \times Public_{i,t}) + Controls$$
$$+ Industry\ fixed\ effects + Year\ fixed\ effects + \varepsilon_{it} \tag{2.12}$$

Where all variables are defined earlier. The coefficient on Haven (β_1) is expected to be positive and significant for AEM and REM variables, suggesting that private firms engage in more AEM and REM when they use tax havens. The coefficient on $Public_{i,t}$ (β_2) is expected to be negative (positive) and significant in the case of AEM (REM) variables, indicating that public firms engage in less AEM

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[28] This list of control variables is inconclusive, and this study largely follows prior research in this area (e.g., Dyreng et al., 2012; Durnev et al., 2017). Several other control variables could have been added, including important corporate governance variables such as the characteristics and composition of the board of directors and internal audit committees. This is acknowledged as a limitation and a suggestion for future research and is discussed in detail in the conclusion chapter.

[29] Heteroscedasticity has been tested for using both the Breusch-Pagan/Cook-Weisberg and the White's heteroscedasticity tests in Stata and they show the presence of heteroscedasticity, i.e., the null hypothesis of constant variance of the residuals (homoscedasticity) is rejected (Prob > chi2 = 0.0000), therefore, all regressions are estimated using the White's robust standard errors. In addition, multicollinearity is also tested for using the VIF tests in Stata, and the tests show no multicollinearity (VIF is consistently less than 4.0 in all models, this is discussed further in section 2.4.1).

AEM

(more REM) compared to private firms when they do not use tax havens. Most importantly, the coefficient on the interaction term *Public$_{i,t}$×Haven$_{i,t}$* ($β_3$) is expected to be positive in the case of REM, but negative in the case of AEM, suggesting that public firms rely more heavily on REM when they use tax havens relative to private firms and that private firms rely more heavily on AEM when they use tax havens relative to public firms.

2.3.6 Data

Data used in this chapter are collected from Amadeus database published by Bureau van Dijk (BvD). The final sample used in regressions consists of 99,441 firm-year observations, representing 94,642 (4,799) private (public) firm-year observations for the period (2010-2018). The analysis starts in 2010 to avoid the impact of the global financial crisis and ends in 2018 to avoid the impact of COVID-19. Table 2.2 below summarizes the sample selection procedure. [30]

Table 2.2 Sample selection procedure

Criteria	Private (Firm-Years)	Public (Firm-Years)
Initial observations of non-financial firms from 2008 to 2019	804,866	11,806
Excluding small private firms (Burgstahler et al., 2006), and firms with missing total assets, sales, and number of employees data	304,479	8,581
Excluding observations with missing data necessary to estimate AEM, REM proxies, and control variables	286,492	8,391
Excluding observations with zero or missing data for subsidiaries	202,602	8,222
Final sample used in regressions (2010-2018)	**94,642**	**4,799**

2.4 Results and discussion

2.4.1 Descriptive statistics and correlation matrix

Table 2.3 reports descriptive statistics. The main variables are winsorised at 1% and 99% to mitigate the effect of outliers.[31] Signed earnings management proxies are reported. Panel A reports

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[30] Please see also Section 1.4.1 of this thesis for more details about data collection and sample selection.

[31] An outlier is an extreme value that is either very large or very small and that does not fit in with the pattern of other observations, and therefore it can distort the data and lead to misleading inferences (Brooks, 2019). Therefore, this thesis follows prior research (Chen et al., 2011; Haga et al., 2018) to mitigate the effect of outliers by replacing extremely large values in each variable by the 99th percentile, and extremely small values by the 1st percentile.

descriptive statistics for the full sample partitioned by haven status. The panel shows 6,409 tax haven firm-years compared to 93,032 non-tax haven firm-years, i.e., tax haven firm years represent around 6.4% of the final sample. The panel shows that the mean values for all earnings management proxies are negative in the tax havens subsample, while they are close to zero for non-tax haven firms. The differences in means are statistically significant at the 5% level. This provides preliminary evidence that tax haven firms are more likely to rely on income-decreasing AEM and REM (and less likely to rely on income-increasing AEM and REM) than non-tax haven firms. This may indicate that firms using tax havens have higher incentives to manage earnings downwards for tax avoidance purposes or due to political sensitivity. In addition, the mean on *SIZE* for tax haven firms is 11.887 compared to 10.267 for non-tax haven firms; the differences in means are significant at the 5% level. This indicates that larger firms are more likely to use tax havens, which is consistent with prior research (Dyreng et al., 2012; Jaafar and Thornton, 2015; Durnev et al., 2017), suggesting that these firms are also more likely to use tax havens for tax avoidance or earnings manipulation (Dyreng et al., 2012; Jaafar and Thornton, 2015).

Panel B reports descriptive statistics for public firms partitioned by haven status. The panel shows that there are 1,892 public firms-years in the final sample using tax havens (representing around 29.5% of tax haven firms) compared to 2,907 firm-years without tax haven operations, indicating that around 40% of public firms use tax havens (compared to only around 4.8% of private firms as shown in panel C). This indicates that public firms are more likely to use tax havens compared to private firms, which may also reflect their incentives to use tax havens for tax avoidance or earnings manipulation since they are subject to higher political scrutiny. In addition, the means for all REM variables and *TEM,* except *ADISEXP*, are significantly more negative for tax haven firms compared to non-tax haven firms, suggesting that overall public firms with tax haven operations are more likely to rely on income-decreasing REM (or less likely to rely on income-increasing REM). The panel also shows that public tax haven firms are overall significantly larger, have higher financial leverage, and are more profitable compared to public firms without tax haven operations; therefore, these firms may have higher incentives to engage in tax avoidance or earnings manipulation when they use tax havens, which is also consistent with prior research (Dyreng et al., 2012; Jaafar and Thornton, 2015; Durnev et al., 2017).

Panel C reports descriptive statistics for private firms partitioned by haven status. The panel shows that there are 4,517 private firms-years in the final sample using tax havens (representing around 70.5% of tax haven firms) compared to 90,125 firm-years without tax haven operations, indicating that only around 4.8% of private firms use tax havens. This indicates that private firms overall are less likely to use tax havens compared to public firms, as discussed above, which may indicate that they may have less incentives compared to public firms to use tax haven subsidiaries for

tax avoidance or earnings manipulation as they are subject to less political scrutiny and market pressures, and they can achieve their tax or financial reporting objectives without this costly form of tax or financial reporting planning. The remaining points of note here are, overall, similar to those discussed in Panels A and B.

Table 2.3 Descriptive statistics

Panel A: Full sample descriptive statistics by haven status

	Haven firm-years N=6,409					Non-Haven firm-years N=93,032				
	Mean	Sd	P25	P50	P75	Mean	Sd	P25	P50	P75
DisA	-0.012	0.146	-0.072	-0.016	0.041	0.000*	0.152	-0.067	-0.002	0.058
DisAK	-0.012	0.141	-0.074	-0.017	0.042	-0.002*	0.146	-0.068	-0.003	0.056
DisWCA	-0.003	0.081	-0.041	-0.007	0.032	-0.000*	0.080	-0.040	-0.005	0.034
ACFO	-0.012	0.183	-0.090	-0.012	0.064	-0.002*	0.184	-0.083	0.001	0.076
ADISEXP	-0.046	0.425	-0.169	0.060	0.195	0.001*	0.449	-0.106	0.092	0.243
APROD	-0.045	0.437	-0.174	0.037	0.199	0.006*	0.463	-0.126	0.074	0.244
REM_agg	-0.103	0.879	-0.384	0.083	0.398	0.005*	0.920	-0.252	0.162	0.499
TEM	-0.117	0.922	-0.444	0.062	0.414	0.004*	0.962	-0.304	0.154	0.524
Public	0.295	0.456	0.000	0.000	1.000	0.031*	0.174	0.000	0.000	0.000
OFCsubratio	0.224	0.170	0.077	0.167	0.333	0.000*	0.000	0.000	0.000	0.000
OFCindex	0.223	0.304	0.000	0.077	0.333	0.017*	0.110	0.000	0.000	0.000
SIZE	11.887	1.823	10.420	11.785	13.335	10.267*	1.356	9.275	9.994	11.003
LEV	0.595	0.304	0.391	0.567	0.755	0.597	0.329	0.372	0.578	0.774
GROWTH	0.084	0.274	-0.052	0.043	0.156	0.091*	0.262	-0.048	0.054	0.176
ROE	0.159	0.614	0.028	0.121	0.244	0.175*	0.565	0.034	0.123	0.262
INV	0.097	0.130	0.000	0.037	0.154	0.129*	0.168	0.001	0.053	0.204
OPCYCLE	123.551	567.879	33.279	77.668	129.789	123.649	538.558	30.862	74.868	123.697
LOSS	0.204	0.279	0.000	0.000	0.333	0.199	0.283	0.000	0.000	0.333
SD_ROA	0.089	0.095	0.032	0.057	0.105	0.079*	0.092	0.028	0.049	0.088
ZSCORE	11.712	11.333	7.659	11.984	15.799	13.439*	11.072	9.135	13.014	16.570

Panel B: Descriptive statistics for public firms by haven status

	Haven firm-years N=1,892					Non-Haven firm-years N=2,907				
	Mean	Sd	P25	P50	P75	Mean	Sd	P25	P50	P75
DisA	-0.034	0.106	-0.067	-0.027	0.008	-0.036	0.147	-0.085	-0.023	0.024
DisAK	-0.030	0.099	-0.072	-0.029	0.011	-0.021*	0.139	-0.079	-0.019	0.036
DisWCA	-0.012	0.066	-0.038	-0.010	0.016	-0.023*	0.086	-0.056	-0.015	0.021
ACFO	-0.022	0.151	-0.092	-0.033	0.028	0.037*	0.224	-0.081	-0.000	0.096
ADISEXP	-0.088	0.404	-0.226	0.022	0.133	-0.106	0.465	-0.246	0.023	0.143
APROD	-0.090	0.407	-0.229	-0.017	0.127	-0.000*	0.429	-0.135	0.063	0.214
REM_agg	-0.199	0.813	-0.487	-0.026	0.247	-0.067*	0.865	-0.344	0.095	0.388
TEM	-0.229	0.836	-0.547	-0.059	0.230	-0.087*	0.906	-0.409	0.067	0.405
OFCsubratio	0.120	0.115	0.047	0.080	0.143	0.000*	0.000	0.000	0.000	0.000
OFCindex	0.304	0.295	0.081	0.222	0.414	0.055*	0.174	0.000	0.000	0.000
SIZE	12.766	1.856	11.569	13.062	14.527	10.982*	1.871	9.562	10.850	12.158
LEV	0.537	0.271	0.366	0.511	0.675	0.466*	0.325	0.253	0.418	0.593
GROWTH	0.088	0.286	-0.045	0.036	0.141	0.133*	0.363	-0.050	0.063	0.214
ROE	0.077	0.524	0.007	0.110	0.203	-0.034*	0.653	-0.101	0.068	0.167
INV	0.094	0.120	0.002	0.047	0.149	0.104*	0.157	0.001	0.030	0.149
OPCYCLE	177.543	777.943	29.185	86.329	155.202	207.705	691.223	29.499	85.806	163.759
LOSS	0.223	0.298	0.000	0.100	0.333	0.378*	0.383	0.000	0.250	0.727
SD_ROA	0.097	0.109	0.031	0.061	0.108	0.143*	0.157	0.037	0.074	0.189
ZSCORE	10.727	11.073	6.851	10.856	14.917	10.652	13.363	4.905	11.069	15.573

(Continued on next page)

Panel C: Descriptive statistics for private firms by haven status

	Haven firm-years N=4,517					Non-haven firm-years N=90,125				
	Mean	Sd	P25	P50	P75	Mean	Sd	P25	P50	P75
DisA	-0.003	0.159	-0.073	-0.008	0.058	0.001	0.152	-0.066	-0.001	0.059
DisAK	-0.005	0.155	-0.076	-0.008	0.056	-0.001	0.147	-0.068	-0.002	0.057
DisWCA	0.002	0.087	-0.043	-0.005	0.042	0.001	0.080	-0.039	-0.005	0.035
ACFO	-0.008	0.195	-0.088	-0.001	0.079	-0.003	0.183	-0.083	0.001	0.075
ADISEXP	-0.029	0.432	-0.139	0.080	0.219	0.005*	0.448	-0.102	0.095	0.245
APROD	-0.027	0.448	-0.151	0.064	0.228	0.007*	0.464	-0.126	0.075	0.245
REM_agg	-0.064	0.903	-0.321	0.131	0.461	0.008*	0.921	-0.250	0.165	0.502
TEM	-0.070	0.952	-0.396	0.121	0.486	0.007*	0.963	-0.300	0.157	0.528
OFCsubratio	0.268	0.171	0.111	0.250	0.500	0.000*	0.000	0.000	0.000	0.000
OFCindex	0.189	0.302	0.000	0.000	0.292	0.016*	0.107	0.000	0.000	0.000
SIZE	11.518	1.677	10.187	11.327	12.708	10.244*	1.330	9.270	9.979	10.961
LEV	0.619	0.314	0.404	0.596	0.786	0.601*	0.328	0.377	0.584	0.778
GROWTH	0.083	0.269	-0.056	0.047	0.163	0.090	0.258	-0.048	0.053	0.175
ROE	0.193	0.644	0.033	0.126	0.270	0.182	0.560	0.035	0.125	0.265
INV	0.099	0.135	0.000	0.032	0.159	0.130*	0.168	0.001	0.054	0.205
OPCYCLE	100.936	449.939	34.451	74.795	120.972	120.937*	532.691	30.892	74.609	122.805
LOSS	0.197	0.270	0.000	0.000	0.333	0.193	0.277	0.000	0.000	0.333
SD_ROA	0.085	0.087	0.032	0.055	0.104	0.077*	0.089	0.028	0.048	0.086
ZSCORE	12.124	11.416	8.075	12.643	16.038	13.529*	10.979	9.244	13.071	16.591

Please see Appendix 2.A for variable definitions. * indicates statistical significance at the 5% level (two-tailed). Differences between sample means are evaluated using t-tests.

Table 2.4 reports Pearson correlation matrix for public and private firms in Panels A and B, respectively. Panel A shows that correlations between REM variables and *TEM* are significantly stronger than those between AEM variables and *TEM*, suggesting that public firms rely more heavily on REM than AEM in their total earnings management strategy, which is consistent with prior research (Graham et al., 2005; Haga et al., 2018). The correlations between *Haven* and REM variables and *TEM* are overall negative and significant, suggesting that public firms using tax havens are less likely to engage in income-increasing REM (or more likely to engage in income-decreasing REM), while correlations between *Haven* and AEM variables are mixed (insignificant with *DisA*, negative and significant for *DisAK*, positive and significant with *DisWCA*), suggesting that public firms may not significantly change their reliance on AEM when they use tax havens. Panel B reports results that are qualitatively similar to the points discussed in Panel A.

It is also important to highlight that there are no strong correlations between explanatory variables included in the same regression (above 0.80).[32] In addition, the Variance Inflation Factor (VIF) for all regressors in all models of this study is less than 4.0, which rules out the multicollinearity

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[32] Although there are some strong correlations, e.g., in Panel A between SIZE and SD_ROA (-0.526) and between SD_ROA and LOSS (0.601), this is not a concern since they are less than the absolute value of 0.80. Furthermore, the Variance Inflation Factor for all models is consistently less than the thresholds of 4.0, 5.0 and 10.0 (Haga et al., 2018; Brooks, 2019).

bias (Haga et al., 2018).[33] Although correlations provide useful information about the direction and strength of the relationship between each pair of variables, they are not sufficient to draw the final conclusions because they do not control for differences in firm characteristics; therefore, multivariate analysis is employed in the following sections (Hope et al., 2013; Haga et al., 2018).

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[33] The only exception is the "Business services" industry, which is consistently around 10.50, however this is not a concern as the mean VIF for all regression models is always less than 4.0.

Table 2.4 Pearson correlation matrix

Panel A: Public firms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) DisA	1.000																		
(2) DisAK	0.928*	1.000																	
(3) DisWCA	0.473*	0.280*	1.000																
(4) ACFO	0.344*	0.599*	-0.342*	1.000															
(5) ADISEXP	0.073*	0.022	0.080*	-0.148*	1.000														
(6) APROD	0.017	0.119*	-0.163*	0.310*	0.735*	1.000													
(7) REM_agg	0.126*	0.213*	-0.124*	0.319*	0.847*	0.959*	1.000												
(8) TEM	0.249*	0.342*	-0.081*	0.393*	0.814*	0.939*	0.990*	1.000											
(9) Haven	0.007	-0.035*	0.064*	-0.146*	0.020	-0.104*	-0.076*	-0.079*	1.000										
(10) OFCsubratio	-0.007	-0.004	0.006	-0.034*	0.046*	-0.010	0.010	0.009	0.633*	1.000									
(11) OFCindex	0.015	0.030*	-0.001	-0.026	0.040*	-0.009	0.010	0.014	0.470*	0.602*	1.000								
(12) SIZE	0.090*	-0.053*	0.205*	-0.343*	0.048*	-0.174*	-0.145*	-0.148*	0.423*	0.095*	0.170*	1.000							
(13) LEV	-0.111*	-0.097*	-0.065*	0.037*	-0.194*	-0.085*	-0.132*	-0.140*	0.113*	0.067*	0.015	0.113*	1.000						
(14) GROWTH	0.150*	0.115*	0.126*	0.001	-0.144*	-0.004	-0.074*	-0.053*	-0.066*	-0.017	-0.027	-0.028	-0.102*	1.000					
(15) ROE	0.162*	0.001	0.301*	-0.346*	0.045*	-0.179*	-0.151*	-0.146*	0.089*	0.013	-0.005	0.245*	0.152*	0.094*	1.000				
(16) INV	0.137*	0.086*	0.127*	-0.022	0.019	0.011	0.011	0.021	-0.035*	-0.086*	-0.099*	0.136*	0.028	-0.052*	0.084*	1.000			
(17) OPCYCLE	0.067*	0.061*	0.040*	0.022	-0.058*	-0.057*	-0.053*	-0.043*	-0.020	-0.044*	-0.037*	0.065*	-0.029*	-0.002	0.006	0.171*	1.000		
(18) LOSS	-0.121*	0.106*	-0.329*	0.536*	-0.083*	0.230*	0.200*	0.209*	-0.210*	0.022	0.023	-0.521*	-0.036*	0.005	-0.360*	-0.142*	-0.011	1.000	
(19) SD_ROA	-0.116*	0.060*	-0.231*	0.440*	-0.121*	0.198*	0.142*	0.148*	-0.159*	0.052*	0.024	-0.526*	0.023	0.039*	-0.281*	-0.173*	-0.050*	0.601*	1.000
(20) ZSCORE	0.173*	-0.032*	0.355*	-0.430*	0.075*	-0.201*	-0.167*	-0.165*	0.003	-0.048*	-0.058*	0.177*	-0.228*	0.139*	0.334*	0.094*	0.022	-0.483*	-0.315*

Panel B: Private firms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) DisA	1.000																		
(2) DisAK	0.977*	1.000																	
(3) DisWCA	0.577*	0.475*	1.000																
(4) ACFO	0.715*	0.818*	0.060*	1.000															
(5) ADISEXP	0.042*	0.031*	0.030*	-0.009*	1.000														
(6) APROD	0.035*	0.068*	-0.097*	0.155*	0.901*	1.000													
(7) REM_agg	0.177*	0.208*	-0.023*	0.268*	0.936*	0.973*	1.000												
(8) TEM	0.316*	0.349*	0.048*	0.379*	0.901*	0.941*	0.989*	1.000											
(9) Haven	-0.006	-0.006	0.002	-0.005	-0.016*	-0.015*	-0.016*	-0.017*	1.000										
(10) OFCsubratio	-0.003	-0.004	0.006*	-0.008*	-0.009*	-0.010*	-0.011*	-0.011*	0.838*	1.000									
(11) OFCindex	0.004	0.006	0.012*	0.002	0.001	0.002	0.002	0.003	0.285*	0.267*	1.000								
(12) SIZE	0.064*	0.059*	0.033*	0.045*	0.002	0.007*	0.014*	0.022*	0.197*	0.101*	0.109*	1.000							
(13) LEV	-0.081*	-0.020*	-0.166*	0.177*	-0.090*	0.022*	0.000	-0.003	0.012*	0.014*	0.006	-0.012*	1.000						
(14) GROWTH	0.305*	0.267*	0.295*	0.105*	-0.096*	-0.032*	-0.042*	0.000	-0.006	-0.004	-0.002	0.072*	0.011*	1.000					
(15) ROE	0.009	-0.049*	0.182*	-0.207*	-0.010*	-0.077*	-0.085*	-0.088*	0.004	0.006	0.001	-0.031*	0.089*	0.071*	1.000				
(16) INV	0.040*	0.038*	-0.014*	0.062*	0.042*	0.091*	0.079*	0.081*	-0.040*	-0.014*	-0.031*	-0.072*	-0.011*	-0.021*	-0.041*	1.000			
(17) OPCYCLE	0.022*	0.021*	0.004	0.023*	-0.038*	-0.034*	-0.031*	-0.026*	-0.008*	-0.004	-0.002	0.036*	-0.016*	0.001	-0.014*	0.111*	1.000		
(18) LOSS	-0.077*	0.004	-0.206*	0.234*	-0.108*	-0.001	-0.009*	-0.007*	0.003	0.005	0.010*	0.044*	0.367*	-0.071*	-0.149*	-0.075*	0.000	1.000	
(19) SD_ROA	-0.023*	-0.007*	0.006	0.040*	-0.142*	-0.114*	-0.122*	-0.118*	0.020*	0.023*	0.053*	-0.037*	0.186*	0.029*	0.041*	-0.150*	-0.021*	0.317*	1.000
(20) ZSCORE	0.048*	-0.047*	0.273*	-0.317*	0.006*	-0.116*	-0.118*	-0.121*	-0.027*	-0.004	-0.001	-0.178*	-0.402*	0.091*	0.172*	0.044*	-0.010*	-0.359*	-0.010*

This table reports Pearson Correlations for public and private firms. Please see Appendix 2.A for variable definitions. * Indicates statistical significance at the 5% levels respectively (two-tailed).

2.4.2 Multivariate analysis

Baseline results

Table 2.5 reports the regression results of Equation (2.10) to investigate the impact of using tax havens on earnings management. The table shows that the coefficient on *Haven* for all AEM variables (columns 1 – 3) is negative and statistically significant at the 1% level (except in the case of *DisWCA*, where it is negative and significant at the 10% level), while it is positive and significant at the 1% level for all REM variables (columns 4 – 7) and *TEM* (column 8) (except in the case of *ACFO*, where it is negative and significant at the 10% level). The positive and significant coefficient on *Haven* when the dependent variable is *TEM* indicates that REM is a major part of the firm's total earnings management strategy, which illustrates the heavy reliance on REM by tax haven firms. This finding indicates that the use of tax havens is overall associated with less AEM but more REM.

As discussed earlier, this finding can be expected because firms using tax havens are usually larger and more profitable firms (Dyreng et al., 2012; Durnev et al., 2017), therefore they are subject to higher scrutiny by regulators and stakeholders, and consequently, they are expected to rely more heavily on REM relative to AEM to achieve their objectives since REM is less scrutinized compared to AEM. Furthermore, this finding is also expected given the high institutional environment quality in the UK, which is expected to constrain AEM relative to REM (Francis et al., 2016). Overall, this finding is consistent with the theory of institutional environment quality and with prior research suggesting that the institutional environment quality of the home country has a significant impact on firms' earnings management and financial reporting behaviour (e.g., Leuz et al., 2003; Francis et al., 2016). This finding is different from Durnev et al. (2017), who find higher AEM and REM among off-shore firms due to the lower institutional environment quality in tax havens; however, their results are based on an international sample of public firms only, where the UK represents only around 12% of off-shore observations in their sample. Therefore, their results may not generalise to a larger UK public and private firms sample. The findings of the current study suggest that the strong legal system in the UK has a stronger impact on firms' financial reporting behaviour than tax haven operations.

Regarding the control variables, the results are overall as predicted and consistent with prior research (e.g., Hope et al., 2013; Haga et al., 2018). For instance, the results show that the coefficient on *SIZE* is negative and significant at the 1% level for all earnings management

variables, indicating that larger firms engage in less earnings management using both AEM and REM. The coefficients on *LEVERAGE* and *ZSCORE* indicate that firms with high financial leverage and firms with poor financial health exhibit higher AEM, REM, and TEM. In addition, growth firms (GROWTH), firms with higher profitability (ROE), and firms with earnings volatility (SD_ROA) are all associated with more earnings management.

Table 2.5 The impact of using tax havens on AEM/REM

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	-0.007***	-0.006***	-0.001*	-0.003*	0.017***	0.023***	0.041***	0.037***
	(-4.95)	(-4.63)	(-1.70)	(-1.77)	(3.87)	(5.24)	(4.65)	(4.10)
SIZE	-0.002***	-0.002***	-0.001***	-0.002***	-0.024***	-0.022***	-0.040***	-0.037***
	(-6.76)	(-6.03)	(-3.80)	(-5.58)	(-31.73)	(-27.47)	(-25.19)	(-22.54)
LEV	0.048***	0.045***	0.022***	0.061***	0.175***	0.230***	0.415***	0.420***
	(33.51)	(33.16)	(26.67)	(33.87)	(39.02)	(48.78)	(46.49)	(46.13)
GROWTH	0.112***	0.107***	0.047***	0.135***	0.123***	0.189***	0.361***	0.436***
	(45.35)	(45.11)	(42.13)	(48.39)	(22.48)	(34.24)	(34.22)	(39.54)
ROE	0.002**	0.005***	0.003***	0.022***	0.001	0.013***	0.024***	0.029***
	(2.00)	(6.26)	(5.86)	(19.38)	(0.34)	(5.33)	(4.99)	(5.70)
INV	0.009***	0.003	-0.002*	-0.009***	0.005	0.119***	0.156***	0.181***
	(3.40)	(1.10)	(-1.92)	(-3.16)	(0.71)	(15.46)	(10.64)	(11.81)
OPCYCLE	-0.000	-0.000	-0.000	0.000	0.000***	0.000***	0.000***	0.000***
	(-0.84)	(-0.70)	(-1.36)	(0.65)	(3.86)	(3.27)	(3.72)	(3.78)
LOSS	0.001	-0.003**	0.016***	0.024***	-0.039***	-0.048***	-0.086***	-0.088***
	(0.42)	(-2.04)	(19.05)	(13.43)	(-8.96)	(-10.95)	(-10.03)	(-9.86)
SD_ROA	0.182***	0.168***	0.180***	0.367***	0.242***	0.177***	0.366***	0.458***
	(33.10)	(33.02)	(53.83)	(50.54)	(16.06)	(11.74)	(12.80)	(15.58)
ZSCORE	0.000***	0.000***	0.001***	0.001***	0.002***	0.004***	0.007***	0.007***
	(3.30)	(4.88)	(23.21)	(24.14)	(23.38)	(36.96)	(33.94)	(32.21)
Constant	0.047***	0.047***	0.012***	0.021***	0.383***	0.294***	0.586***	0.563***
	(11.87)	(12.47)	(5.70)	(4.54)	(29.85)	(22.17)	(22.69)	(21.19)
Observations	99,441	99,441	99,441	99,441	99,441	99,441	99,441	99,441
R-squared	0.138	0.133	0.191	0.212	0.109	0.138	0.127	0.127
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Please see Appendix 2.A for variable definitions. Robust t-statistics in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Table 2.6 reports the regression results of Equation (2.11) investigating the impact of listing status (unconditional on the use of tax havens) on AEM/REM. The table shows that the coefficient on *Public* is negative and significant for all AEM variables while positive and significant for all REM variables and *TEM* (except for ACFO, where it is negative and significant), which is overall expected and consistent with prior research (e.g., Hope et al., 2013; Haga et al., 2018). This indicates that public firms engage in less AEM but more REM than private firms. This finding is consistent with prior research suggesting that public firms

are subject to higher regulatory scrutiny and market pressures to report high quality earnings compared to private firms, which constrains AEM by public firms relative to private firms since AEM is highly regulated and scrutinised and can be more costly (Hope et al., 2013; Francis et al., 2016). Alternatively, public firms may rely more heavily on REM to achieve their financial reporting objectives and meet market expectations (Haga et al., 2018) since REM is less regulated and can be less costly compared to AEM, especially in strong legal systems (Francis et al., 2016).[34] This finding is also consistent with the trade-off argument between AEM and REM, suggesting that firms balance AEM and REM depending on their relative costliness (Cohen et al., 2008; Zang, 2012).

Table 2.6 The impact of listing status on AEM and REM (unconditional on Haven status)

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Public	-0.023***	-0.022***	-0.010***	-0.004**	0.038***	0.035***	0.051***	0.035***
	(-15.16)	(-16.03)	(-10.95)	(-1.97)	(7.37)	(6.94)	(5.14)	(3.37)
SIZE	-0.001***	-0.001***	-0.000**	-0.002***	-0.024***	-0.022***	-0.039***	-0.036***
	(-5.74)	(-4.92)	(-2.34)	(-5.69)	(-32.72)	(-28.01)	(-25.49)	(-22.60)
LEV	0.046***	0.043***	0.021***	0.061***	0.179***	0.232***	0.419***	0.423***
	(32.15)	(31.78)	(25.70)	(33.92)	(39.49)	(48.93)	(46.53)	(46.03)
GROWTH	0.113***	0.108***	0.047***	0.135***	0.123***	0.188***	0.360***	0.435***
	(45.59)	(45.36)	(42.25)	(48.43)	(22.36)	(34.07)	(34.07)	(39.41)
ROE	0.001*	0.005***	0.003***	0.022***	0.001	0.014***	0.025***	0.029***
	(1.71)	(5.96)	(5.66)	(19.34)	(0.50)	(5.47)	(5.09)	(5.76)
INV	0.009***	0.003	-0.002*	-0.009***	0.004	0.119***	0.154***	0.180***
	(3.47)	(1.16)	(-1.92)	(-3.12)	(0.64)	(15.36)	(10.54)	(11.72)
OPCYCLE	-0.000	-0.000	-0.000	0.000	0.000***	0.000***	0.000***	0.000***
	(-0.49)	(-0.35)	(-1.11)	(0.71)	(3.78)	(3.19)	(3.66)	(3.73)
LOSS	0.002	-0.002	0.016***	0.025***	-0.042***	-0.051***	-0.090***	-0.090***
	(1.34)	(-1.11)	(19.80)	(13.66)	(-9.50)	(-11.44)	(-10.40)	(-10.11)
SD_ROA	0.187***	0.172***	0.182***	0.368***	0.234***	0.171***	0.358***	0.453***
	(33.90)	(33.83)	(54.25)	(50.71)	(15.55)	(11.30)	(12.46)	(15.37)
ZSCORE	0.000***	0.000***	0.001***	0.001***	0.002***	0.004***	0.007***	0.007***
	(2.95)	(4.52)	(23.00)	(24.14)	(23.69)	(37.17)	(34.10)	(32.30)
Constant	0.046***	0.046***	0.011***	0.022***	0.382***	0.290***	0.578***	0.553***
	(11.72)	(12.28)	(5.15)	(4.69)	(30.29)	(22.21)	(22.69)	(21.12)
Observations	99,441	99,441	99,441	99,441	99,441	99,441	99,441	99,441
R-squared	0.139	0.134	0.192	0.212	0.110	0.138	0.127	0.127
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Please see Appendix 2.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

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[34] This finding supports both the demand and opportunistic hypotheses discussed earlier in this study (Ball and Shivakumar, 2005; Hope et al., 2013). Public firms face higher demand for high quality earnings and therefore engage in less AEM relative to private firms (Hope et al., 2013). At the same time, public firms have incentives to opportunistically manipulate earnings to meet market expectations, therefore, public firms rely more on REM since REM is less scrutinised and regulated compared to AEM, which is consistent with Francis et al. (2016) and Haga et al. (2018).

Table 2.7 reports the results of estimating Equation (2.12) which investigates whether the impact of using tax havens on AEM/REM is different between public and private firms (H1). The table shows that the coefficient on *Haven* is positive and statistically significant for *DisWCA* and all REM variables and TEM, suggesting that private firms engage more aggressively in AEM and REM when they use tax havens. This finding can also be expected given that private firms are subject to less scrutiny and market demand for high quality earnings compared to public firms, while at the same time, they also have several incentives to engage in earnings management as discussed earlier (Ball and Shivakumar, 2005; Jaafar and Thornton, 2015; Chung et al., 2021b; a), therefore, the use of tax havens exacerbates their reliance on different forms of earnings management.

Most importantly, the coefficient on the interaction term *Haven×Public* is negative and significant for all AEM variables and *ACFO*, while insignificant for the remaining REM variables and *TEM*. This indicates that public firms are less likely to engage in AEM and sales manipulation (*ACFO*) relative to private firms when they use tax havens. In contrast, the sensitivity of the remaining REM proxies and *TEM* to using tax havens is not different between public and private firms. This finding might be explained by the differences between public and private firms discussed earlier. Public firms are subject to higher scrutiny and market pressure to report high quality earnings, which is not generally the case for private firms; therefore, public firms overall engage in less AEM and exhibit higher earnings quality relative to private firms (e.g., Hope et al., 2013). Furthermore, this finding can be also expected given that public firms' use of tax havens may attract more scrutiny towards the quality of their financial reporting relative to private firms, especially because these firms are usually larger firms that are politically sensitive. Finally, the strong legal system in the UK may also play a significant role in constraining earnings management by public firms when they use tax havens, as they are more politically sensitive relative to private firms.

Overall, the findings suggest that the impact of using tax havens on earnings management is different between public and private firms, as expected, which can be explained by the natural differences between public and private firms and institutional factors.

Table 2.7 The impact of using tax havens on AEM and REM by public and private firms (H1)

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	0.001	0.002	0.003***	0.004**	0.010**	0.016***	0.031***	0.034***
	(0.62)	(0.95)	(3.16)	(2.06)	(2.03)	(3.20)	(3.06)	(3.25)
Public	-0.017***	-0.017***	-0.007***	0.007***	0.038***	0.030***	0.042***	0.030**
	(-8.41)	(-9.03)	(-5.69)	(2.66)	(5.66)	(4.78)	(3.34)	(2.32)
Haven×Public	-0.017***	-0.016***	-0.010***	-0.032***	-0.006	0.001	0.002	-0.013
	(-5.26)	(-5.56)	(-5.71)	(-7.86)	(-0.60)	(0.08)	(0.08)	(-0.60)
SIZE	-0.001***	-0.001***	-0.000**	-0.002***	-0.025***	-0.023***	-0.040***	-0.037***
	(-5.06)	(-4.34)	(-2.32)	(-5.01)	(-32.33)	(-27.99)	(-25.55)	(-22.69)
LEV	0.047***	0.043***	0.021***	0.061***	0.178***	0.232***	0.418***	0.422***
	(32.35)	(31.98)	(25.93)	(34.33)	(39.44)	(48.78)	(46.38)	(45.92)
GROWTH	0.112***	0.108***	0.047***	0.135***	0.123***	0.189***	0.360***	0.435***
	(45.49)	(45.28)	(42.21)	(48.31)	(22.40)	(34.11)	(34.11)	(39.45)
ROE	0.001*	0.005***	0.003***	0.022***	0.001	0.014***	0.025***	0.029***
	(1.73)	(5.97)	(5.67)	(19.37)	(0.50)	(5.46)	(5.08)	(5.75)
INV	0.009***	0.003	-0.002*	-0.009***	0.005	0.119***	0.155***	0.181***
	(3.45)	(1.15)	(-1.87)	(-3.12)	(0.70)	(15.46)	(10.63)	(11.80)
OPCYCLE	-0.000	-0.000	-0.000	0.000	0.000***	0.000***	0.000***	0.000***
	(-0.53)	(-0.39)	(-1.11)	(0.66)	(3.79)	(3.21)	(3.68)	(3.75)
LOSS	0.002	-0.002	0.016***	0.024***	-0.041***	-0.050***	-0.089***	-0.090***
	(1.10)	(-1.35)	(19.60)	(13.31)	(-9.46)	(-11.30)	(-10.27)	(-10.02)
SD_ROA	0.186***	0.172***	0.182***	0.366***	0.233***	0.170***	0.357***	0.452***
	(33.77)	(33.68)	(54.08)	(50.57)	(15.50)	(11.25)	(12.40)	(15.28)
ZSCORE	0.000***	0.000***	0.001***	0.001***	0.002***	0.004***	0.007***	0.007***
	(3.03)	(4.60)	(23.08)	(24.28)	(23.69)	(37.15)	(34.07)	(32.28)
Constant	0.044***	0.045***	0.010***	0.019***	0.386***	0.296***	0.590***	0.565***
	(11.09)	(11.69)	(4.99)	(4.11)	(30.10)	(22.38)	(22.84)	(21.25)
Observations	99,441	99,441	99,441	99,441	99,441	99,441	99,441	99,441
R-squared	0.139	0.135	0.192	0.213	0.110	0.138	0.127	0.127
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Please see Appendix 2.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

2.4.3 Additional analysis

Using a propensity score matched sample (PSM)

Prior research documents that larger and more profitable firms are more likely to use tax havens for tax avoidance or earnings manipulation (Dyreng et al., 2012; Jaafar and Thornton, 2015; Durnev et al., 2017). To address the selection bias concern that firm specific characteristics drive the results rather than the use of tax havens *per se*, tests of Equation (2.12) are repeated using a propensity score matched (PSM) sample to test whether the results hold for a subsample where the characteristics of firms with and without tax haven operations are

closely matched.[35] The matched sample is constructed as follows. Firstly, the indicator variable *Haven* is regressed on the following firm specific characteristics that influence the firm's choice to use tax havens as documented in prior research: firm size (*SIZE*), firm leverage (*LEV*), firm growth (*GROWTH*), and firm profitability (*ROE*). The probability of using tax havens is predicted (propensity scores are obtained) from a logistic regression. Secondly, a propensity score matched sample is constructed by matching each tax haven firm with a non-tax haven firm that has the closest propensity score using a narrow caliper distance of 0.1% to ensure that firm characteristics are closely matched between the two samples.[36]

The results based on the matched sample are reported in Table 2.8. The table shows that the coefficient on *Haven* is now significant only in the case of *DisWCA*, providing weak and less robust evidence that private firms engage in more AEM when they use tax havens. Most importantly, the coefficient on the interaction term *Haven×Public* is still negative and significant for all AEM variables and *ACFO*, suggesting that public firms overall are less likely to rely on AEM and sales manipulation when they use tax havens relative to private firms. Overall, the inferences from this analysis are qualitatively similar to the main analysis discussed in Table 2.7 above.

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[35] Propensity score matching (PSM) is an econometric technique introduced by Rosenbaum and Rubin (1983) that allows for efficient matching between a treatment group of firms with a control group by removing the bias due to confounding factors/covariates (e.g., Hope et al., 2013). According to Hope et al. (2013), PSM models have the following advantages: (1) they do not rely on a specific functional form and provide a more direct estimate of the treatment effects, and (2) they mitigate the potential impact of nonlinearities in estimating the treatment effects when the underlying functional form is nonlinear. However, a major disadvantage of PSM is that the matched sample size is smaller, which results in a trade-off between identifying the treatment effects and generalizing the results to the full population.

[36] Tests of covariate balance between the treatment and control group (matched Haven vs Non-Haven) has been conducted and indicate that the balance on all covariates has been achieved (differences in covariate means between the treatment and control groups are not statistically significant).

Table 2.8 The impact of using tax havens on AEM and REM by public and private firms (matched sample)

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	-0.001	-0.001	0.003**	0.003	-0.000	0.002	0.002	0.005
	(-0.37)	(-0.47)	(2.16)	(1.33)	(-0.01)	(0.31)	(0.19)	(0.39)
Public	-0.021***	-0.022***	-0.008***	-0.006	0.022	0.011	0.017	-0.001
	(-4.61)	(-5.24)	(-3.24)	(-1.11)	(1.63)	(0.79)	(0.61)	(-0.03)
Haven×Public	-0.011**	-0.009*	-0.009***	-0.017***	-0.002	0.005	0.001	-0.006
	(-2.12)	(-1.94)	(-3.25)	(-2.71)	(-0.14)	(0.30)	(0.02)	(-0.17)
Constant	0.084***	0.079***	0.030***	0.067***	0.277***	0.182***	0.407***	0.410***
	(8.17)	(7.97)	(5.51)	(5.32)	(7.91)	(5.16)	(5.85)	(5.77)
Observations	12,812	12,812	12,812	12,812	12,812	12,812	12,812	12,812
R-squared	0.155	0.150	0.175	0.196	0.102	0.126	0.119	0.123
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Please see Appendix 2.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Using a subsample of tax haven firms and signed EM proxies

To investigate how the intensity of using tax havens and variations in offshore attributes among tax havens influence AEM and REM by public and private firms, this study also employs a subsample of firms only with tax haven operations and uses the alternative proxies for the use of tax havens discussed earlier (*OFCsubratio* and *OFCindex*). In addition, signed AEM and REM proxies are used to investigate the direction of manipulation. Therefore, tests of Equation (2.12) are repeated using the above procedure, and results are reported in Table 2.9. Panel A is based on the variable *OFCsubratio* as the proxy of tax haven intensity. The panel shows that the coefficient on *OFCsubratio* is positive and significant in the cases of *DisWCA*, *ADISEXP*, *APROD*, *REM_agg*, and *TEM*. Overall, the results suggest that as the intensity of using tax havens increase, private firms are more likely to engage in income-increasing REM (and to a lesser extent on AEM), relying mainly on manipulation of discretionary expenses and production levels. Most importantly, the coefficient on the interaction term *OFCsubratio×Public* is positive and significant for all REM variables (except ACFO, where it is insignificant) while insignificant in the case of all AEM variables, suggesting that as the intensity of using tax havens increases, public firms are more likely to engage in income-increasing REM relative to private firms. Based on the variable *OFCindex*, Panel B also shows that as firms use tax havens with higher offshore attitudes, public firms are more likely to engage in income-increasing REM than private firms.

Overall, the findings of this analysis show that both public and private firms engage in income-increasing earnings management as the intensity and offshore attributes of tax havens increase, and that this impact is more pronounced for public firms relative to private firms in the case of REM. These findings are also consistent with prior research (e.g., Dyreng et al., 2012; Durnev et al., 2017) in that the intensity of using tax havens is associated with more earnings management. However, as discussed earlier, these studies focus only on the behaviour of public firms and on different institutional settings. These findings are also consistent with the theory of institutional environment in that due to the strong legal system in the UK; public firms rely more heavily on REM relative to private firms when they have extensive tax haven operations since REM is less regulated and harder to be detected (e.g., Francis et al., 2016).

Table 2.9 The impact of using tax havens on signed AEM and REM (Haven subsample)

Panel A: OFCsubratio

	(1) DisA	(2) DisAK	(3) DisWCA	(4) ACFO	(5) ADISEXP	(6) APROD	(7) REM_agg	(8) TEM
OFCsubratio	0.014	0.010	0.011**	-0.011	0.106***	0.074***	0.170***	0.180***
	(1.62)	(1.15)	(2.49)	(-1.05)	(4.32)	(2.91)	(3.39)	(3.40)
Public	-0.036***	-0.032***	-0.011***	-0.029***	-0.092***	-0.100***	-0.216***	-0.248***
	(-7.11)	(-6.61)	(-3.91)	(-4.69)	(-5.67)	(-6.10)	(-6.60)	(-7.32)
OFCsubratio×Public	0.022	0.029	-0.004	0.057	0.210***	0.232***	0.484***	0.520***
	(0.75)	(1.02)	(-0.25)	(1.51)	(3.41)	(3.46)	(3.78)	(3.78)
Constant	-0.036*	-0.009	-0.039***	0.083***	-0.275***	-0.241***	-0.427**	-0.442**
	(-1.68)	(-0.44)	(-3.40)	(2.97)	(-2.96)	(-2.75)	(-2.38)	(-2.40)
Observations	6,409	6,409	6,409	6,409	6,409	6,409	6,409	6,409
R-squared	0.128	0.101	0.217	0.211	0.065	0.078	0.085	0.087
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: OFCindex

	(1) DisA	(2) DisAK	(3) DisWCA	(4) ACFO	(5) ADISEXP	(6) APROD	(7) REM_agg	(8) TEM
OFCindex	0.003	0.002	0.005*	-0.011	0.003	-0.021	-0.028	-0.026
	(0.56)	(0.27)	(1.85)	(-1.59)	(0.23)	(-1.38)	(-0.94)	(-0.83)
Public	-0.038***	-0.034***	-0.013***	-0.027***	-0.094***	-0.096***	-0.215***	-0.249***
	(-8.46)	(-7.90)	(-4.96)	(-4.87)	(-6.47)	(-6.54)	(-7.38)	(-8.26)
OFCindex×Public	0.009	0.013	-0.002	0.025**	0.043**	0.050**	0.118***	0.132***
	(0.99)	(1.45)	(-0.30)	(2.09)	(2.19)	(2.44)	(2.93)	(3.04)
Constant	-0.023	-0.001	-0.029***	0.072***	-0.168*	-0.163*	-0.253	-0.259
	(-1.14)	(-0.03)	(-2.63)	(2.67)	(-1.85)	(-1.90)	(-1.44)	(-1.44)
Observations	6,409	6,409	6,409	6,409	6,409	6,409	6,409	6,409
R-squared	0.127	0.101	0.217	0.212	0.060	0.075	0.082	0.083
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Please see Appendix 2.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

2.5 Conclusion

This study investigates whether using tax havens changes UK firms' reliance on AEM and REM, and whether the impact of using tax havens on AEM and REM is different between public and private firms. The main analyses yield several findings using a sample of UK public and private firms from 2010-2018 and focusing on the magnitudes of AEM and REM. Firstly, the use of tax havens is overall associated with less AEM but more REM. Although the use of tax havens was expected to exacerbate AEM relative to REM as in prior research (e.g., Dyreng et al., 2015; Durnev et al., 2017), this finding is also intuitive given that firms using tax havens

are typically larger firms that are more politically sensitive and are subject to higher scrutiny by regulators and stakeholders. This is especially so for UK firms as the UK is characterised by high institutional environment quality. Therefore, tax haven firms reduce their reliance on AEM and increase their reliance on REM due to higher costs associated with AEM (Francis et al., 2016). Previous studies in this area focused on other institutional settings and on the behaviour of public firms only, as discussed earlier; therefore, their findings may not generalise to the UK setting and to a large sample of public and private firms.

Secondly, public firms overall are found to engage in less AEM but more REM relative to private firms (unconditional on the use of tax havens). This finding is consistent with prior research documenting that public firms engage in less AEM and show higher earnings quality than private firms due to market demand for high quality earnings and the scrutiny over public firm's financial reporting (Hope et al., 2013). However, public firms rely on more REM to achieve their objectives and meet market expectations (Haga et al., 2018).

Thirdly, and most importantly, findings show that public firms overall engage in less AEM and sales manipulation when they use tax havens relative to private firms. This finding can also be expected because, as discussed earlier, UK public firms are subject to higher scrutiny and demand for high quality financial reporting relative to private firms, especially with the use of tax havens, which constrains their reliance on AEM relative to private firms. However, the sensitivity of REM to using tax havens does not appear to differ between public and private firms. In addition, private firms appear to rely more aggressively on REM when they use tax havens, as expected, which might be due to tax or debt financing considerations since their financial reporting is mainly influenced by such incentives (Jaafar and Thornton, 2015; Chung et al., 2021a). Additional analysis using a propensity score matched sample overall supports the main inference that public firms are less likely to rely on AEM (and sales manipulation) when they use tax havens relative to private firms.

Finally, using a subsample of firms only with tax haven operations and signed AEM and REM, results show that overall, as the intensity of using tax havens increases, public firms are more likely to rely on income-increasing REM relative to private firms. This finding further supports the argument that public firms using tax havens are more politically sensitive, especially given the strong institutional environment quality in the UK; therefore, they rely more on REM to achieve their financial reporting objectives and meet market expectations.

Overall, the findings of this study suggest that the impact of using tax havens on earnings management is different between public and private firms as expected and is mainly influenced by the natural differences between public and private firms and that the institutional

environment quality of the home country and countries in which public and private firms have subsidiaries significantly impacts their financial reporting behaviour; however, the impact of the home country (the UK) appears to be stronger.

This study contributes to prior research by providing evidence on how the use of tax havens differently influences public and private firms' reliance on AEM and REM. While prior research has focused on the earnings management behaviour of only public firms and their use of tax havens (Dyreng et al., 2012; Durnev et al., 2017), this study examines the differential impact of using tax havens on public and private firms' earnings management using AEM and REM. It provides robust evidence that public firms are less likely to engage in AEM and sales manipulation when they use tax havens compared to private firms and instead engage in income-increasing REM as the intensity of using tax havens increases, suggesting that UK public firms are more politically sensitive when they use tax havens compared to private firms, which is consistent with the demand hypothesis for high quality earnings in the case of AEM, and also with the opportunistic hypothesis in the case of REM.

This study is subject to some limitations. Firstly, it focuses only on the UK setting, which is characterized by high institutional environment quality; hence the findings may not generalize to firms in weaker institutional settings. Prior research in this area has also focused on high quality institutional settings such as the US and other developed countries but focused solely on the behaviour of public firms (e.g., Dyreng et al., 2012; Durnev et al., 2017). Therefore, future research may investigate whether these results hold by focusing on public and private firms in other jurisdictions, especially in emerging economies. Secondly, this chapter focuses on one dimension of financial reporting quality: earnings management using AEM/REM. Other dimensions, such as conditional conservatism, are also important and can be investigated by future research. Thirdly, this chapter did not examine the role of important corporate governance variables such as the characteristics of the board of directors and internal audit committees and whether they moderate the relationship between tax havens and earnings management. This is also another area for future research.

This chapter also has policy implications and suggests that policymakers need to consider earnings management practices as a major concern besides tax avoidance since both can negatively influence a wide range of stakeholders, especially the value-destroying REM which can negatively influence the underlying firm's performance and value in the long run due to sacrificing optimal investments or expenditures to achieve short term objectives.

Appendix 2.A Variables definitions

Variable	Definition
Haven	A dummy variable taking the value of (1) for firms with subsidiaries in tax havens and (0) otherwise.
Public	A dummy variable taking the value of (1) for public firms and (0) otherwise
DisA	Signed discretionary accruals (Dechow et al., 1995)
DisAK	Signed discretionary accruals (Kothari et al., 2005)
DisWCA	Accruals quality (Dechow and Dichev, 2002; Hope et al., 2013)
ACFO	Abnormal cash flow from operations (Roychowdhury, 2006)
ADISEXP	Abnormal discretionary expenses (Roychowdhury, 2006)
APROD	Abnormal production costs (Roychowdhury, 2006)
REM_agg	The sum of standardized signed ACFO, ADSEXP, and APROD (Cohen and Zarowin, 2010; Haga et al., 2018)
TEM	The sum of AEM and REM_agg
OFCsubratio	Tax haven intensity, calculated as the ratio of the number of subsidiaries in tax havens to the total number of subsidiaries (Dyreng et al., 2012; Durnev et al., 2017)
OFCindex	Subsidiary weighted offshore attitude index (Masciandaro, 2008; Durnev et al., 2017)
SIZE	Firm size, calculated as the natural logarithm of total assets (Hope et al., 2013)
GROWTH	Asset growth, calculated as annual percentage change in total assets (Haga et al., 2018)
ROE	Return on equity, calculated as net income divided by shareholders equity (Haga et al., 2018)
LEV	Financial leverage, measured as total liabilities divided by total assets (Hope et al., 2013)
LOSS	The cumulative percentage of years with negative earnings (Haga et al., 2018)
SD_ROA	The standard deviation of net income scaled by total assets for at least three years (Haga et al., 2018)
INV	Ratio of inventory to total assets (Haga et al., 2018)
OPCYCLE	The length of operating cycle (Haga et al., 2018)
ZSCORE	Taffler Z-score (Taffler, 1983; Haga et al., 2018)

Chapter (3) Tax havens, ownership structure, and earnings management

3.1 Introduction

Tax havens are low-tax jurisdictions that provide investors with opportunities for tax avoidance (Desai et al., 2006; Jaafar and Thornton, 2015). Tax havens are also characterised by secrecy policies and low institutional environment quality, which can significantly influence a firm's financial and tax reporting behaviour. [37] Prior research documents that the use of tax havens influences firms' financial reporting and tax reporting behaviour due to more aggressive tax avoidance (e.g., Jaafar and Thornton, 2015) and exacerbates both accrual (AEM) and real (REM) earnings management practices (e.g., Dyreng et al., 2012; Durnev et al., 2017). However, firms' financial reporting and tax reporting behaviour are also affected by other firm characteristics such as ownership structure (Dhaliwal et al., 1982; Klassen, 1997; Bushee, 1998; Badertscher et al., 2013; Khan et al., 2017). Extant research has not examined whether ownership structure moderates the impact of tax haven use on earnings management behaviour and whether this impact is different between public and private firms, which is the focus of this chapter.

Using a large sample of public and private firms domiciled in the UK between 2010 and 2018; this chapter examines whether ownership structure influences the relationship between the use of tax havens and earnings management using both accrual (AEM) and real (REM) manipulation strategies. The ownership structure is measured using three variables most commonly examined in prior research: managerial ownership, ownership concentration, and institutional ownership.

Regarding managerial ownership, agency theory predicts that higher managerial ownership in a firm reduces agency conflicts between managers and shareholders as managers' interests align with those of shareholders (hereafter, the incentive alignment or convergence of interests effect). Consequently, managers with high ownership stakes are less likely to engage in non-value-maximizing activities or opportunistic earnings management (Jensen and Meckling, 1976; Warfield et al., 1995; Di Meo et al., 2017; Haga et al., 2018). On the contrary, an opposing viewpoint suggests that at higher levels of managerial ownership, managers may act opportunistically and prioritize their own interests over those of other investors. This notion

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[37] Please see Section 1.1.1 of this thesis for more detailed definitions and discussion of tax havens.

is known as the entrenchment hypothesis (Morck et al., 1988; Claessens et al., 2002; Jung and Kwon, 2002).

Regarding ownership concentration, the incentive alignment hypothesis argues that whenever ownership is highly concentrated in the hands of few shareholders (controlling shareholders or blockholders), their interests are in line with those of minority investors, and therefore, they are less likely to engage in non-value-maximizing activities, expropriation of minority investors, or earnings management (Shleifer and Vishny, 1997; Jung and Kwon, 2002; Wang, 2006). On the other hand, the entrenchment hypothesis argues that as ownership concentration increases, controlling shareholders may have incentives to expropriate minority investors opportunistically and may engage in more earnings management to mask their opportunistic activities (Shleifer and Vishny, 1997; Fan and Wong, 2002; Kim and Yi, 2006; Wang, 2006). In addition, firms with higher ownership concentration (such as private firms) may have less incentive to produce high quality financial reports as owners have access to insider information, and there is less demand for high quality external financial reporting (Ball and Shivakumar, 2005; Kim and Yi, 2006; Givoly et al., 2010). Furthermore, prior research also documents that expropriation of minority investors and earnings manipulation are more likely to take place in settings characterised by weak legal systems, weak investor protection, and concentrated ownership structure (e.g., Leuz et al., 2003; Burgstahler et al., 2006; Leuz, 2006; Francis et al., 2016).

Due to secrecy policies and the low institutional environment quality in tax havens (Dyreng et al., 2012; Durnev et al., 2017), UK firms' use of tax havens may exacerbate opportunistic earnings management using AEM and REM strategies. However, this behaviour may be constrained (or exacerbated) by high managerial ownership according to the incentive alignment hypothesis (managerial entrenchment hypothesis). In the case of ownership concentration, the entrenchment effect may further exacerbate the sensitivity of AEM and REM to the use of tax havens, while the incentive alignment effect may reduce AEM and REM. Furthermore, since firms using tax havens are usually larger firms that are politically sensitive and subject to higher scrutiny and market demand for high quality earnings, especially given the strong legal system in the UK, controlling shareholders or owner-managers of these firms may engage in less earnings manipulation (especially AEM). Therefore, the net effect of using tax havens and managerial ownership or ownership concentration on how UK firms manipulate earnings is an empirical question.

Regarding institutional ownership, there are two competing hypotheses regarding how institutional investors might influence earnings management: the active monitoring hypothesis

and the private benefits or myopic behaviour hypothesis. According to the active monitoring hypothesis, since institutional shareholders are sophisticated investors who hold or manage significant investments, they are more likely to focus on the long-term success of the firm, and they have the incentives and expertise to monitor management and constrain non-value maximising activities closely and earnings manipulation (Bushee, 1998; Chung et al., 2002; Velury and Jenkins, 2006; Hadani et al., 2011).

On the other hand, the private benefits or myopic behaviour hypothesis suggests that institutional investors may opportunistically utilise their access to insider information to achieve private gain at the expense of other shareholders. In addition, institutional investors may focus on short-term gains at the expense of long-term firm performance (myopic behaviour). This may induce managers to focus on short-term performance by engaging in non-value maximising activities or more earnings manipulation to meet their short-term expectations. This behaviour by institutional investors can also discourage managers from producing high-quality financial reports (Bushee, 1998; Velury and Jenkins, 2006). As discussed earlier, although the use of tax havens may exacerbate earnings manipulation, the presence of institutional investors can either constrain such behaviour according to the active monitoring hypothesis or, to the contrary, can further exacerbate the earnings manipulation behaviour according to the private benefits and myopic behaviour hypotheses. Therefore, the net effect of institutional ownership on how firms change their reliance on different earnings management strategies when they use tax havens is also an empirical question.

Another unique feature of this study is focusing on a large sample of public and private UK firms since the behaviour of private firms is under-investigated relative to public firms. However, private firms are larger in number and important to the economy (Hope et al., 2013). In addition, prior research documents a trade-off between AEM and REM techniques depending on the relative costliness of the two alternatives and the strength of public and political scrutiny and the legal system (Cohen et al., 2008; Zang, 2012; Francis et al., 2016). Typically, higher scrutiny and strong legal systems are associated with more REM but less AEM since AEM is highly regulated and can be more easily detected relative to REM which is harder to detect (Francis et al., 2016). Therefore, managers of politically sensitive firms might rely more on REM as it is less visible despite being more costly to shareholders. This study contributes to this debate by investigating how the interplay between ownership structure and the use of tax havens influences the choice between different earnings management techniques.

Based on the above discussion, the main research question of this study can be stated as follows: **"*How does ownership structure influence the relationship between the use of tax havens and earnings management through AEM and/or REM, and is this impact different for public vis-à-vis private firms?*"**

The results of the analysis reveal the following. Firstly, managerial ownership in non-tax haven firms is associated with lower magnitudes of AEM and REM, indicating that managerial ownership constrains both AEM and REM, which is consistent with the incentive alignment effect (Warfield et al., 1995; Di Meo et al., 2017). In addition, the use of tax havens is associated with less AEM but more REM, suggesting that as tax haven firms are subject to higher scrutiny, they reduce their reliance on AEM and increase their reliance on REM, which is harder to detect (Francis et al., 2016). However, results show that tax haven firms with higher managerial ownership are likely to engage in more AEM and sales manipulation compared to non-tax haven firms, suggesting that owner-managers of tax haven firms may have incentives to exploit the low institutional environment quality of these settings to rely more on AEM and sales manipulation rather than manipulation of production levels and discretionary expenses; this may indicate that earnings management using AEM and sales manipulation may be considered by owner-managers as being less value destroying to the firm compared to manipulation of discretionary expenses and production levels, which – to some extent – can be consistent with the incentives alignment hypothesis. Furthermore, findings also show that the impact of managerial ownership on the sensitivity of AEM and REM to tax haven use is not significantly different between public and private firms.

Secondly, results show that tax haven firms with higher ownership concentration are associated with more AEM and sales manipulation but less manipulation of discretionary expenses and production levels. This finding can be consistent with the incentive alignment effect of ownership concentration (Jung and Kwon, 2002; Wang, 2006), indicating that controlling shareholders may prefer relying on AEM and sales manipulation when they use tax havens while constraining the manipulation of discretionary expenses and production levels which can be more value destroying. Furthermore, the impact of ownership by the largest shareholders on how tax haven firms engage in AEM is not significantly different between public and private firms, while their impact in constraining manipulation of discretionary expenses and production levels by tax haven firms is more pronounced for public firms than private firms.

Thirdly, in terms of institutional ownership, while results show that institutional ownership in non-tax haven firms is associated with more AEM and REM reflecting their short-

term focus, adding pressure on management to act myopically and engage in more earnings management (e.g., Bushee, 1998), results also show that institutional investors are more likely to constrain AEM and sales manipulation for tax haven firms relative to non-tax haven firms. This suggests that institutional investors in tax haven firms are more sophisticated and constrain AEM and sales manipulation, which is consistent with the active monitoring role of sophisticated institutional investors (Bushee, 1998; Chung et al., 2002; Hadani et al., 2011). In addition, results show that the impact of institutional ownership on how the use of tax havens associates with AEM and REM is not significantly different between public and private firms.

Fourthly, using a propensity score matched sample to address the concern that firm-specific characteristics drive the results rather than the status of using tax havens *per se*, the new results are overall consistent with the baseline results discussed above (although weaker evidence) in the cases of ownership concentration and institutional ownership, while they are insignificant regarding the impact of managerial ownership on the relationship between the use of tax havens and earnings management, suggesting that the main findings may be partially influenced firm-specific characteristics that influence their choice to use tax havens rather than ownership structure and the use of tax havens *per se*.[38]

Finally, this chapter adopts a subsample of firms only with tax haven subsidiaries and alternative proxies for the use of tax havens and uses signed earnings management proxies to investigate how variation in using tax havens influences the direction of AEM and REM and how ownership structure affects this relationship. This analysis shows that as the intensity of using tax havens increases, firms are more likely to manipulate upwards earnings using both AEM and REM, which is consistent with prior research (Dyreng et al., 2012; Durnev et al., 2017). However, there is some evidence that managerial ownership constrains this behaviour, which is consistent with the incentive alignment hypothesis (Warfield et al., 1995; Di Meo et al., 2017), suggesting that firms with more tax haven subsidiaries are larger firms that are politically sensitive; therefore managers of these firms are more likely to engage in income-decreasing (or less likely to engage in income-increasing) AEM and REM for tax avoidance purposes or to avoid political costs (Watts and Zimmerman, 1978, 1986).

In terms of ownership concentration, the findings are similar to those of managerial ownership, suggesting that controlling shareholders are less likely to engage in upwards earnings manipulation as the intensity of using tax havens increase, potentially for tax

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[38] However, the propensity score matching approach has several criticisms, such as the smaller sample size which compromises the generalisability of results to larger samples (Hope et al., 2013).

avoidance or to avoid political costs, which is also consistent with prior research and with the incentive alignment hypothesis (e.g., Watts and Zimmerman, 1978; Dhaliwal et al., 1982). Finally, in terms of institutional ownership, there is weak evidence that institutional investors in tax haven firms are associated with downward earnings manipulation using AEM and REM. There is no evidence (weak evidence) that institutional investors influence AEM and REM (engage in more manipulation using working capital accruals) as the intensity of using tax havens increases.

This chapter contributes to prior research by providing evidence that the impact of using tax havens on how firms engage in AEM and REM is overall significantly influenced by firms' ownership structure (managerial ownership, ownership concentration, and institutional ownership). As discussed earlier, a firm's ownership structure is an important determinant of its financial reporting behaviour (Dhaliwal et al., 1982; Klassen, 1997; Bushee, 1998; Badertscher et al., 2013; Khan et al., 2017). Within the context of using tax havens, prior research has not examined how ownership structure moderates the impact of using tax havens on financial reporting quality or on tax avoidance practices.

This chapter also contributes to the broad literature on earnings management by public versus private firms (Ball and Shivakumar, 2005; Hope et al., 2013; Haga et al., 2018). As discussed earlier, the findings of this chapter suggest that, overall, the impact of ownership structure variables on the relationship between the use of tax havens and earnings management is not significantly different between public and private firms, suggesting that a firm's ownership structure attributes have a more significant impact on its financial reporting behaviour than its listing status. Overall, the findings of this chapter suggest that the strong legal system in the UK (and the institutional environment quality more generally) may not be sufficient to constrain different forms of earnings management when managers have incentives to do so, and that ownership structure may have a more substantial impact on how firms engage in earnings management.

The remainder of this chapter is organized as follows: section 2 discusses prior literature and hypotheses development; Section 3 discusses the data and research methodology; Section 4 discusses the results of empirical analyses; and Section 5 concludes.

3.2 Prior literature and hypotheses development

3.2.1 Prior empirical evidence

This chapter focuses on how three important dimensions of ownership structure that are most widely examined in prior research affect the sensitivity of earnings management to tax haven use, namely: managerial ownership, ownership concentration, and institutional ownership. The following sections discuss these three aspects of ownership structure and the mixed evidence regarding their effects on firm behaviour and earnings management.

Managerial ownership and earnings management

Prior research documents mixed evidence regarding the impact of managerial ownership on earnings management and financial reporting behaviour, this evidence can be broadly explained by the incentive alignment (agency framework) hypothesis and the entrenchment hypothesis. Agency theory predicts that whenever managers of a firm are not its sole owners (agent-managers), they have incentives to engage in opportunistic or non-value maximizing activities at the expense of shareholders. As a result, agency conflicts arise between managers and shareholders, leading to agency costs such as monitoring and bonding costs (Jensen and Meckling, 1976). According to agency theory, managers of firms characterised by diffuse ownership structure are more likely to expropriate shareholders or engage in more opportunistic earnings management for private gain (managerial entrenchment effect). However, as managerial ownership increases in a firm, managers are more likely to enact long-term value maximisation of the firm and engage in less opportunistic activities and earnings manipulation, as their incentives are better aligned with shareholders (the incentive alignment effect) (Jensen and Meckling, 1976; Warfield et al., 1995; Claessens et al., 2002; Di Meo et al., 2017). However, even at higher levels of managerial ownership, managers can be entrenched/opportunistic and pursue private benefits at the expense of other investors (Morck et al., 1988; Claessens et al., 2002; Jung and Kwon, 2002).

Dhaliwal et al. (1982) find that managers of firms characterised by diffuse ownership structure (management-controlled firms) in the US are more likely to follow depreciation methods that overstate reported earnings compared to owner-controlled firms, whereas owner-controlled firms are more likely to manage earnings downwards for tax purposes or financial reporting purposes, suggesting that lower levels of managerial ownership are associated with upwards earnings manipulation (which is consistent with the political costs hypothesis, the agency theory and the incentive alignment effect). This evidence supports the negative

consequences of managerial entrenchment at low levels of managerial ownership. Warfield et al. (1995) investigate the impact of managerial ownership on earnings informativeness in the US; they use discretionary accruals and earnings-return relation as proxies for earnings informativeness. They find that managerial ownership is positively associated with earnings informativeness and negatively associated with discretionary accruals, which supports the incentive alignment effect. In addition, using a sample of firms incorporated in Delaware (US), Di Meo et al. (2017) suggest that managerial entrenchment may not always be detrimental for shareholders, but it may reduce myopic behaviour by managers. Consistent with this, the authors find that managerial entrenchment is associated with less accrual and real earnings management to meet or beat earnings targets. This finding overall is also consistent with the incentive alignment effect. Using a sample of Australian firms, Gul et al. (2003) find that managerial ownership negatively influences the positive relationship between discretionary accruals and audit fees, suggesting that high managerial ownership is less likely to be associated with opportunistic earnings management using discretionary accruals (which is consistent with the incentive alignment effect).

Ownership concentration and earnings management

Regarding ownership concentration, on one extreme, closely-held corporations (such as small private firms) have a high concentration of equity ownership and control; on the other extreme, large publicly-traded corporations have highly dispersed equity ownership (Badertscher et al., 2013). The level of ownership concentration influences the nature and degree of agency conflicts; when ownership is diffuse, agency conflicts arise mainly between shareholders and agent-managers who own low or no proportions of the firm's equity (Jensen and Meckling, 1976; Fan and Wong, 2002), which is typically the case in the UK and the US (La Porta et al., 1999; Leuz et al., 2003). However, when ownership is highly concentrated, agency conflicts arise mainly between controlling shareholders – who actively participate in the firm's management – and minority investors, which is typically the case in emerging economies and most countries other than the UK and the US (Shleifer and Vishny, 1997; Fan and Wong, 2002; Kim and Yi, 2006). These variations in ownership concentration have several implications on firms' incentives and financial reporting behaviour, which can also be broadly explained by the two competing hypotheses: the incentive alignment hypothesis and the entrenchment hypothesis.

According to the incentive alignment or convergence of interests hypothesis, whenever ownership is highly concentrated, the interests of controlling owners (or owner-managers) are aligned with those of minority shareholders to maximise firm value, which reduces agency

conflicts and expropriation activities by controlling shareholders (Fan and Wong, 2002; Jung and Kwon, 2002; Wang, 2006). On the other hand, the entrenchment hypothesis suggests that when ownership of a firm is highly concentrated in the hands of few shareholders (block-holders), they may opportunistically engage in expropriation activities and earnings manipulation to achieve private gain at the expense of minority shareholders (Shleifer and Vishny, 1997; Fan and Wong, 2002; Jung and Kwon, 2002; Kim and Yi, 2006).

Regarding prior empirical evidence, Fan and Wong (2002) investigate the impact of controlling shareholders' entrenchment in seven East Asian economies on earnings informativeness. They find that the entrenchment effect results in conflicts of interest between controlling shareholders and minority investors, which leads to lower earnings informativeness. Consistent with this, Kim and Yi (2006) find that as the control-ownership wedge increases, controlling shareholders in Korea engage in more earnings management using discretionary accruals to mask their expropriation activities. On the other hand, Jung and Kwon (2002) investigate the impact of owner-manager ownership concentration on earnings informativeness in South Korea; they find positive associations between measures of ownership concentration and earnings informativeness, which supports the incentive alignment effect. Wang (2006) also supports the incentive alignment effect; the author tests the demand and supply for high quality earnings using the entrenchment and the incentive alignment effects as two competing hypotheses. The author investigates whether founding family firms in the US have higher earnings quality than non-family firms.[39] Findings show that founding family firms have lower abnormal accruals, report more conservatively, and have higher earnings informativeness, which supports the incentive alignment hypothesis. Using the Canadian setting, Park and Shin (2004) investigate the impact of ownership concentration (block-holders) in listed firms on earnings management as part of their analysis. They find no significant association between ownership concentration and discretionary accruals, even using alternative cut-off points for block-holders.

Evidence is also mixed regarding real activities manipulation consequences of ownership concentration. For instance, Landry and Callimaci (2003) employ a logit regression and investigate the impact of ownership concentration in Canada on the probability of capitalising R&D decisions as part of their analysis. They measure ownership concentration as an indicator variable if any individual shareholder's ownership exceeds 10%, they find that

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[39] Founding family firms are those firms with substantial shareholdings by family members or whose management is controlled by founding family members.

firms with high ownership concentration are less likely to capitalise R&D spending, which has the effect of reducing earnings and supports the political costs hypothesis, suggesting that firms with higher ownership concentration are less likely to engage in income-increasing earnings manipulation (consistent with the incentive alignment effect).

Institutional ownership and earnings management

Institutional ownership is another important dimension of ownership structure that influences firms' financial reporting behaviour (Bushee, 1998; Chung et al., 2002; Jung and Kwon, 2002; Velury and Jenkins, 2006; Hadani et al., 2011). Bushe (1998) and Velury and Jenkins (2006) define institutional investors as large investors such as banks, insurance companies, and mutual and pension funds who invest on behalf of others and manage huge amounts of funds. Institutional investors differ from individual investors because they are more sophisticated and invest or manage huge wealth. There are two competing hypotheses documented in prior research regarding the impact of institutional investors on firms' financial reporting behaviour: the active monitoring hypothesis and the private benefits and myopic behaviour hypothesis. According to the active monitoring hypothesis, institutional investors have the incentives and expertise to monitor and protect their investments actively; they focus on long-term performance and value maximisation of the firm and constrain non-value maximising activities and opportunistic earnings manipulation by managers (Bushee, 1998; Chung et al., 2002; Velury and Jenkins, 2006; Hadani et al., 2011).

On the other hand, the private benefits hypothesis suggests that institutional investors may be opportunistic and utilise their insider information and ally with management to achieve private gain at the expense of other shareholders (Shleifer and Vishny, 1997; Velury and Jenkins, 2006). In addition, institutional investors can be short-term oriented by focusing on short-term gains at the expense of the firm's long-term value, which can pressure management to engage in myopic investment behaviour and earnings manipulation to meet their short-term expectations (Bushee, 1998). According to Bushee (1998, p.306), "*Myopic investment behavior (or "managerial myopia") refers to underinvestment in long-term, intangible projects such as research and development, advertising, and employee training for the purposes of meeting short-term goals*".[40]

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[40] Bushee (1998) classifies institutional investors into three categories: transient institutional investors, dedicated institutional investors, and quasi-indexers. According to Bushee (1998), the myopic behaviour of institutional investors is present in case of transient institutional investors (and quasi-indexers to some extent) who focus on short-term gains at the expense of long-term goals. This is usually the case when institutional ownership is fragmented and dispersed rather than concentrated, leading them to act as "traders" rather than "owners".

Prior empirical evidence regarding the impact of institutional ownership on earnings management is also mixed and can be broadly explained by the active monitoring hypothesis and the private benefits or myopic behaviour hypotheses discussed above. Bushee (1998) investigates the impact of institutional investors in the US on earnings manipulation using R&D spending. The author classifies institutional investors into three categories based on their past investment behaviour and portfolio turnover: dedicated institutional investors, transient institutional investors, and quasi-indexers. The study supports the active monitoring role of dedicated investors and quasi-indexers in constraining myopic R&D manipulation by managers, and findings also show significant evidence supporting the role of transient institutional investors in creating pressures on management to engage in myopic R&D cuts to meet short term gains. Jiambalvo et al. (1999) also support the active monitoring hypothesis by US institutional investors in constraining earnings management using discretionary accruals; they find that higher institutional ownership is associated with less earnings management. They also find that when institutional ownership is high, stock prices better reflect future earnings. They suggest that institutional investors do not add pressure on management to manipulate short-term earnings by focusing on short-term profitability like individual investors. Chung et al. (2002), also within the US context, find evidence supporting the active monitoring role of institutional investors in constraining earnings management using discretionary accruals. They find that large institutional shareholdings constrain both upwards and downwards earnings manipulation.

Roychowdhury (2006) investigates the role of institutional investors in constraining upwards real earnings management (REM) by firms suspected of manipulating earnings to avoid reporting losses. Overall, Findings support institutional investors' active monitoring role in constraining real activities manipulations in suspect firms. Institutional ownership levels above the sample median constrain upwards real earnings management measured using proxies for overproduction, sales acceleration, and cutting discretionary expenses. Velury and Jenkins (2006) also support the active monitoring role of institutional investors in the US; they find that institutional ownership is significantly and positively associated with earnings quality. However, they also find that when institutional ownership is concentrated, the relationship between institutional ownership and financial reporting quality is negative (which supports the private benefits hypothesis of institutional investors and the entrenchment hypothesis of concentrated institutional ownership). Furthermore, as part of their analysis, the authors find that managerial ownership is negatively associated with earnings manipulation using abnormal accruals (which supports the incentive alignment hypothesis of managerial ownership), while

ownership concentration is positively associated with abnormal accruals (which supports the entrenchment hypothesis of ownership concentration). Using the Korean setting, Jung and Kwon (2002) also support the active monitoring role of institutional investors. They find that institutional ownership is positively associated with earnings informativeness measured using the earnings-return relation.

3.2.2 Theoretical framework and hypotheses development

Theory of institutional environment, ownership structure, and AEM and REM

The theory of institutional environment is also adopted as the main theoretical framework for this chapter, as discussed in detail in Chapter (2), Section 2.2.2, prior research documents that variations in institutional environment quality across countries significantly influence firms' financial reporting behaviour and incentives to engage in earnings management, where firms from jurisdictions characterized by higher institutional environment quality are overall associated with higher financial reporting quality and lower earnings management (Leuz et al., 2003; Burgstahler et al., 2006; Dyreng et al., 2012; Francis et al., 2016; Durnev et al., 2017). In addition, prior research documents that firms trade off between AEM and REM according to the relative costliness of the two alternatives and according to the institutional environment quality (Cohen et al., 2008; Zang, 2012; Francis et al., 2016). However, although ownership structure is an important determinant of financial reporting behaviour and earnings management, prior research did not examine how variation in a firm's ownership structure might influence how firms engage in earnings management when they use tax havens. Specifically, using the UK setting, this chapter aims to examine whether the impact of the institutional environment quality on how firms engage in earnings management is influenced by ownership structure.

The use of tax havens generally may exacerbate earnings manipulation using AEM and REM as documented in prior research; however, the strong legal system in the UK may constrain earnings manipulation using AEM. In addition, firms using tax havens are usually larger firms that are politically sensitive and can be subject to higher scrutiny; therefore they may also engage in less AEM, potentially relying on REM instead to achieve their objectives since REM cannot be easily detected, although it can be more costly to shareholders (Cohen et al., 2008; Francis et al., 2016). Therefore, as discussed in the previous chapter, since the institutional environment quality of a firm entails the characteristics of both the home country and the countries in which a firm has subsidiaries (e.g., Durnev et al., 2017), the net effect of

using tax havens on AEM and REM is an empirical question and can be influenced by ownership structure (managerial ownership, ownership concentration, and institutional ownership).

Regarding the impact of managerial ownership, there are also competing predictions. On one hand, managerial ownership in a firm may constrain accrual and real earnings manipulation according to the incentive alignment hypothesis discussed earlier (Warfield et al., 1995; Di Meo et al., 2017; Haga et al., 2018). Consequently, the use of tax havens may be negatively associated with AEM and REM for firms with higher managerial ownership. On the other hand, the managerial entrenchment hypothesis suggests that owner-managers may have incentives to engage in expropriation activities and opportunistic earnings management for private gain (Morck et al., 1988; Claessens et al., 2002; Jung and Kwon, 2002; Leuz et al., 2003). Furthermore, the high institutional environment quality in the UK may also significantly constrain earnings manipulation, especially AEM. Therefore, the net impact of managerial ownership on the relationship between the use of tax havens and AEM and REM is left to the empirical analysis.

Finally, the effect of using tax havens and managerial ownership on AEM and REM may differ between public and private firms due to the natural differences between the two types of firms, as they have different incentives and regulatory environments.[41] Public firms are subject to higher regulatory scrutiny and market demand for high quality financial reporting, while at the same time, they have incentives to manipulate earnings to meet market expectations (e.g., Hope et al., 2013; Haga et al., 2018). Therefore, public firms may engage in more earnings management (using AEM and REM) relative to private firms when they use tax havens to meet their financial reporting objectives; however, this may not be the case due to the higher scrutiny towards the use of tax havens by public firms. On the other hand, private firms are subject to less scrutiny and market demand for high quality earnings and prior research overall documents that private firms engage in more earnings manipulation and exhibit lower financial reporting quality compared to public firms (Ball and Shivakumar, 2005; Burgstahler et al., 2006; Hope et al., 2013). In addition, private firms are more aggressive tax planners, and they may have greater incentives to engage in earnings manipulation for tax considerations or for debt financing incentives (Jaafar and Thornton, 2015; Chung et al., 2021a); therefore, private firms may have greater incentives to engage in more earnings

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[41] Please see Chapter (1), Section 1.1.3 for more detailed discussion of the differences between public and private firms and their incentives to engage in earnings management.

manipulation when they use tax havens for tax avoidance purposes or debt market considerations.

Based on the above discussion, the extent to which managerial ownership influences the relationship between tax haven use and earnings manipulation, and whether this impact is different between public and private firms, is an empirical question left to the empirical analysis due to the competing predictions. Therefore, the first hypothesis can be stated in a non-directional form as follows.

H1: *Managerial ownership influences the relationship between the use of tax havens and AEM/REM, and this relationship is different between public and private firms.*

In terms of ownership concentration, as discussed earlier, there are also two competing hypotheses predicting the impact of large shareholders on earnings management; the incentive alignment hypothesis suggests that controlling shareholders are less likely to expropriate minority investors and engage in less opportunistic earnings manipulation (e.g., Fan and Wong, 2002; Wang, 2006), whereas the entrenchment hypothesis suggests that controlling shareholders may expropriate minority investors and engage in more opportunistic earnings manipulation (e.g., Kim and Yi, 2006). In addition, as discussed earlier, the degree of legal enforcement and minority investor protection also influence the extent to which controlling shareholders expropriate minority investors (Shleifer and Vishny, 1997; Kim and Yi, 2006). Therefore, the strong legal system in the UK may also constrain the controlling shareholders' expropriation incentives.

In terms of using tax havens, consistent with the previous discussions, large shareholders may constrain AEM and REM when firms use tax havens according to the incentive alignment effect. However, according to the entrenchment hypothesis, large shareholders may be incentivised to engage in more earnings management when they use tax havens. Therefore, the net effect of controlling shareholders' incentives and the use of tax havens on AEM/REM is left to the empirical analysis, and the question of whether listing status influences this relationship is also left to the empirical analysis as with the first hypothesis. Therefore, the following non-directional hypothesis is developed.

H2: *Ownership concentration influences the relationship between the use of tax havens and AEM/REM, and this relationship is different between public and private firms.*

Finally, regarding institutional ownership, there are competing predictions regarding its impact on AEM and REM. The active monitoring hypothesis suggests that the presence of

institutional investors constrains AEM and REM, whereas the private benefits and myopic behaviour hypotheses suggest that institutional investors can be opportunistic and add pressure on management to engage in opportunistic earnings manipulation for private and short-term gains at the expense of other shareholders and long-term performance (Bushee, 1998; Chung et al., 2002; Velury and Jenkins, 2006). The net impact of the differences in the institutional environment quality between the UK and tax havens is also left for empirical analysis. Similar to the discussion of the first two hypotheses of this chapter, the third hypothesis is also developed in a non-directional form as follows.

H3: *Institutional ownership influences the relationship between the use of tax havens and AEM/REM, and this relationship is different between public and private firms*.

3.3 Research methodology

3.3.1 Measures of accrual and real earnings management (AEM/REM)

As discussed in detail in Chapter (2), this study employs several proxies of accrual-based earnings management (AEM) and real activities earnings manipulation (REM) that are most commonly adopted in prior research. For AEM measures, this study employs two discretionary accruals proxies (*DisA* and *DisAK*) based on the Jones (1991) model, as modified by Dechow et al. (1995) and Kothari et al. (2005). In addition, this study employs an accruals quality measure (*DisWCA*) based on Dechow and Dichev (2002) model, as in Hope et al. (2013). Following Roychowdhury (2006) and Haga et al. (2018), several REM proxies are employed in this chapter: sales manipulation (*ACFO*), manipulation of discretionary expenses (*ADISEXP*), and manipulation of production levels (*APROD*).

In addition to the individual REM measures, an aggregate proxy for REM (*REM_agg*) is adopted, combining the three individual standardised proxies – *ACFO*, *ADISEXP*, and *APROD* – as in Haga et al. (2018). Finally, a proxy for total earnings management (*TEM*) is employed in this study following Haga et al. (2018); this proxy is the sum of *REM_agg* and *DisAK*. Absolute values are used for all earnings management proxies as discussed in Chapter (2) (unless otherwise indicated). All earnings management models are estimated for each industry-year with at least 15 observations, where industry is defined using Fama and French (1997) 48 industry classification.

3.3.2 Measures of using tax havens

As discussed in detail in Chapter (2) and following prior research (e.g., Jaafar and Thornton, 2015; Durnev et al., 2017), the primary variable of interest for the use of tax havens adopted in this study is a dummy variable taking the value of 1 if the firm has a subsidiary in a tax haven jurisdiction, and zero otherwise. This chapter adopts the list of tax havens employed by Durnev et al. (2017), reported in Table 3.1 below. This list is employed because the authors use similar AEM and REM proxies. In addition, the study adopts two alternative variables for using tax havens as described in Chapter 2 – *OFCsubratio* and *OFCindex* – which capture the intensity of using tax havens and the variations in offshore attitudes among different jurisdictions, respectively.

Table 3.1 List of tax haven countries

Andorra	Liechtenstein
Anguilla	Luxembourg
Bahamas	Liberia
Bahrain	Malta
Barbados	Marshall Islands
Belize	Mauritius
Bermuda	Monaco
Cayman Islands	Netherlands Antilles
Costa Rica	Panama
Cyprus	Saint Kitts and Nevis
Dominica	Saint Lucia
Gibraltar	Saint Vincent and The Grenadines
Hong Kong	Singapore
Ireland	Switzerland
Jordan	Vanuatu
Latvia	Virgin Islands (British)
Lebanon	

This table presents the list of tax haven countries used in this study following Durnev et al. (2017)

3.3.3 Measures of ownership structure

Measures of managerial ownership

Prior research adopts several proxies for managerial ownership. For instance, Warfield et al. (1995) measure managerial ownership as the percentage of shares insiders hold. Gul et

al. (2003) measure managerial ownership using a dummy variable equal to 1 if the percentage of shares held by insiders is greater than 5% and 0 otherwise. Velury and Jenkins (2006) control for managerial ownership as the percentage of shares held by managers. Following prior research, this study measures managerial ownership (*MAN*) as the direct percentage of shares held by managers.

Measures of ownership concentration

Several proxies for ownership concentration have been adopted in prior literature. For instance, Jung and Kwon (2002) measure ownership concentration using a dummy variable equal to 1 if the holdings of the largest shareholder exceed the sample median and 0 otherwise. They also use a dummy variable for block-holding, which equals 1 if shareholdings by a block-holder exceeds 5% and 0 otherwise. Fan and Wong (2002) capture controlling shareholders' entrenchment incentives by the divergence between cash flow rights and voting rights (CV). Following Burgstahler et al. (2006), this study measures ownership concentration as the direct percentage of shares held by the single largest shareholder.

Measures of institutional ownership

Bushee (1998) uses the percentage of outstanding shares held by institutional investors as an overall measure of institutional ownership. Chung et al. (2002) and Jung and Kwon (2002) measure institutional ownership as an indicator variable taking the value of 1 if the percentage of institutional shareholdings is above the sample median and 0 otherwise. Velury and Jenkins (2006) use several proxies for institutional ownership, including the percentage of institutional shareholdings and the percentage of shares held by the largest five institutional investors as a proxy for institutional ownership concentration. In addition, the authors alternatively measure institutional ownership concentration as a dummy variable which equals 1 if the percentage of shares held by institutional investors is greater than 5% and 0 otherwise. Following prior research, this study measures institutional ownership (*INST*) as the direct percentage of shares held by institutional investors.

3.3.4 Control variables

Several control variables documented in prior research to be associated with AEM and REM are included in the empirical models (e.g., Hope et al., 2013; Haga et al., 2018). This study controls for firm size (*SIZE*), leverage (*LEV*), growth (*GROWTH*), performance (*SD_ROA*), profitability (*ROE*), inventory intensity (*INV*), the length of the operating cycle

(*OPCYCLE*), financial health (*ZSCORE*), negative earnings (*LOSS*). Industry and year fixed effects are also included to control for systematic variation in EM across industries and time.[42]

3.3.5 Empirical models

The following baseline OLS regression model tests for moderating effects of ownership structure variables (i.e., managerial ownership, ownership concentration, and institutional ownership) on the relationship between the use of tax havens and earnings management.[43]

$$|EM_{i,t}| = \beta_0 + \beta_1 Haven_{i,t} + \beta_2 OS_{i,t} + \beta_3 (Haven_{i,t} \times OS_{i,t}) + Controls$$
$$+ Industry\ fixed\ effects + Year\ fixed\ effects + \varepsilon_{it}$$

(3.1)

Where *EM* is the dependent variable, which takes the form of the AEM, REM, and TEM proxies; absolute values are used for the main analysis. *Haven* is a proxy for the use of tax havens, as discussed earlier. *OS* represents the three ownership structure variables discussed earlier (*MAN*, *OWN*, or *INST*). A positive and significant estimated coefficient on *Haven* (*β1*) is indicative that the use of tax havens is associated with more AEM and REM. If the coefficient on OS (*β2*) is negative and significant, this indicates that higher *MAN, OWN, and INST*, respectively, constrain AEM and REM. This would support the incentive alignment hypothesis in the cases of managerial ownership and ownership concentration and an active monitoring role of institutional investors. The coefficient of interest is *β3* on the interaction term *Haven×OS*. If *β3* is negative and significant, this suggests that a more concentrated ownership structure results in a less positive relationship between tax haven use and AEM/REM, as predicted by the incentives alignment hypothesis in the cases of managerial ownership and ownership concentration, and the active monitoring role of institutional investors.

The following triple interaction model is adopted to test whether the impact of ownership structure and the use of tax havens on AEM and REM is different between public and private firms.

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[42] Please see Appendix 3.A for variables definitions. Please also see Section 2.3.4 of Chapter (2) for more details about control variables and their predicted association on AEM/REM. As discussed in the previous chapter, this list of control variables is inconclusive and does not include several corporate governance mechanisms, which is acknowledged as a limitation and a suggestion for future research in the conclusion chapter.

[43] In all OLS models, heteroscedasticity tests (using the Breusch-Pagan/Cook-Weisberg and the White's tests) indicate the presence of heteroscedasticity, therefore, the White's robust standard errors are used in all regressions. In addition, the multicollinearity issue is also tested for using the VIF tests in Stata, and the tests show no multicollinearity (VIF is consistently less than 4.0 in all models, this is discussed further in section 3.4.1).

$$\begin{aligned} |EM_{i,t}| = \beta_0 &+ \beta_1 Haven_{i,t} + \beta_2 OS_{i,t} + \beta_3 Public_{i,t} + \beta_4 (Haven_{i,t} \times OS_{i,t}) \\ &+ \beta_5 (Haven_{i,t} \times Public_{i,t}) + \beta_6 (OS_{i,t} \times Public_{i,t}) \\ &+ \beta_7 (Haven_{i,t} \times OS_{i,t} \times Public_{i,t}) + Controls \\ &+ Industry\ fixed\ effects + Year\ fixed\ effects + \varepsilon_{it} \end{aligned} \qquad (3.2)$$

Where *Public* is a dummy variable taking the value of 1 for public firms and 0 for private firms. All other variables are as defined earlier. If the coefficient of interest – *β7* – is negative and significant, this indicates that the muting effect of ownership structure on the EM-tax haven relation is more pronounced for public firms relative to private firms.

3.3.6 Data

The Amadeus database, provided by Bureau van Dijk (BvD), is the primary source of data for this study. Amadeus provides financial, subsidiaries, and ownership structure data for a large number of public and private firms across Europe. Following prior research (e.g., Burgstahler et al., 2006; Haga et al., 2018), this study excludes financial firms such as banks and insurance companies, regulated industries, and public administrative institutions, as these firms have substantially different incentives and regulatory environments.[44] In addition, small private firms are also excluded following the criteria outlined in Burgstahler et al. (2006). Furthermore, firms with missing data required to estimate earnings management proxies or control variables are excluded. Finally, since this study focuses on firms domiciled in the UK with subsidiaries in other jurisdictions, firms with no subsidiaries or missing data for subsidiaries are excluded. The final sample used in the analyses consists of 99,441 firm-year observations, representing 94,642 (4,799) private (public) firm-year observations for the period 2010-2018. The sample period is selected to avoid the impact of the global financial crisis in 2008/09 and the COVID-19 pandemic that emerged in early 2020. Table 3.2 below summarises the sample selection procedure.

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[44] Please see Section 1.4.1 of this thesis for more details about data collection and sample selection procedure.

Table 3.2 Sample selection procedure

Criteria	Private (Firm-Years)	Public (Firm-Years)
Initial observations of non-financial firms from 2008 to 2019	804,866	11,806
Excluding small private firms (Burgstahler et al., 2006), and firms with missing total assets, sales, and number of employees data	304,479	8,581
Excluding observations with missing data necessary to estimate AEM, REM proxies, and control variables	286,492	8,391
Excluding observations with zero or missing data for subsidiaries	202,602	8,222
Final sample used in regressions (2010-2018)	**94,642**	**4,799**

3.4 Results and discussion

3.4.1 Descriptive statistics and correlation matrix

Table 3.3 reports the descriptive statistics for the variables used in this study. All continuous variables are winsorized at the 1st and 99th percentiles to mitigate the effect of outliers.[45] Panel A reports descriptive statistics for the full sample of public and private firms partitioned by tax haven use status. The panel shows that there are 6,409 firm-year observations corresponding to tax haven firms compared to 93,032 relating to firms not using tax havens. The mean values of all signed earnings management proxies (AEM, REM and *TEM*) are significantly lower and more negative for tax haven firms than non-tax haven firms. [46] This indicates that tax haven firms are more likely to engage in income-decreasing (less likely to engage in income-increasing) earnings manipulation, potentially because these firms are large firms that are politically sensitive or for tax avoidance purposes.

Panel A also shows that firms using tax havens, on average, have significantly lower managerial ownership (*MAN*) and ownership concentration (*OWN*) but significantly higher institutional ownership (*INST*) (28.7%, 60%, and 11.3%, respectively) compared to firms without tax haven subsidiaries (38.3%, 67.9%, and 5.1%, respectively). This is expected since tax haven firms are large, characterised by relatively diffuse ownership structure, and attract

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[45] An outlier is an extreme value that is either very large or very small and that does not fit in with the pattern of other observations, and therefore it can distort the data and lead to misleading inferences (Brooks, 2019). Therefore, this thesis follows prior research (Chen et al., 2011; Haga et al., 2018) to mitigate the effect of outliers by replacing extremely large values in each variable by the 99th percentile, and extremely small values by the 1st percentile.

[46] Signed EM proxies are used for tables of descriptive statistics (Table 3.3) and correlations (Table 3.4).

more institutional investors. In addition, firms using tax havens are, on average, larger (SIZE) than non-tax haven firms. This is consistent with prior research suggesting that firms using tax havens are larger firms that may use tax havens for tax avoidance or earnings manipulation (Dyreng et al., 2012; Jaafar and Thornton, 2015).

Panel B reports descriptive statistics for public firms partitioned by haven status. Similar to that in Panel A, the mean values for most earnings management proxies are significantly lower and more negative in the case of using tax havens compared to non-tax haven firms, except for *DisA* and *ADISEXP*, where the differences are insignificant, and *DisWCA*, where the mean value is less negative. Overall, this indicates that public firms using tax havens are less likely to engage in upwards earnings management using AEM and REM, consistent with these firms being more politically sensitive. In terms of ownership structure variables, the panel shows that as expected, public firms with tax haven operations are, on average, characterised by lower managerial ownership (*MAN*), lower ownership concentration (*OWN*), and higher institutional ownership (*INST*) compared to public firms without tax haven subsidiaries. Furthermore, the panel also shows that public firms using tax havens are, on average, significantly larger (*SIZE*), have higher financial leverage (*LEV*), exhibit lower growth (*GROWTH*), and are more profitable (*ROE*) compared to public firms without tax haven operations.

Panel C reports descriptive statistics for private firms partitioned by haven status. The panel shows that *ADISEXP*, *APROD*, *REM_agg*, and *TEM* are on average lower and more negative in the case of using tax havens compared to not using tax havens, suggesting that private firms using tax havens are also less likely to engage in upwards REM; however, the mean values for the remaining earnings management proxies are close to zero and are not significantly different between private firms with and without tax haven operations, suggesting that private firms are less likely to engage in more (upwards or downwards) AEM and ACFO when they use tax havens.

Table 3.3 Descriptive statistics

Panel A: Full sample descriptive statistics by haven status

	Haven firm-years N=6,409					Non-Haven firm-years N=93,032				
	Mean	Sd	P25	P50	P75	Mean	Sd	P25	P50	P75
DisA	-0.012	0.146	-0.072	-0.016	0.041	0.000*	0.152	-0.067	-0.002	0.058
DisAK	-0.012	0.141	-0.074	-0.017	0.042	-0.002*	0.146	-0.068	-0.003	0.056
DisWCA	-0.003	0.081	-0.041	-0.007	0.032	-0.000*	0.080	-0.040	-0.005	0.034
ACFO	-0.012	0.183	-0.090	-0.012	0.064	-0.002*	0.184	-0.083	0.001	0.076
ADISEXP	-0.046	0.425	-0.169	0.060	0.195	0.001*	0.449	-0.106	0.092	0.243
APROD	-0.045	0.437	-0.174	0.037	0.199	0.006*	0.463	-0.126	0.074	0.244
REM_agg	-0.103	0.879	-0.384	0.083	0.398	0.005*	0.920	-0.252	0.162	0.499
TEM	-0.117	0.922	-0.444	0.062	0.414	0.004*	0.962	-0.304	0.154	0.524
Public	0.295	0.456	0.000	0.000	1.000	0.031*	0.174	0.000	0.000	0.000
OFCsubratio	0.224	0.170	0.077	0.167	0.333	0.000*	0.000	0.000	0.000	0.000
OFCindex	0.223	0.304	0.000	0.077	0.333	0.017*	0.110	0.000	0.000	0.000
MAN	0.287	0.409	0.000	0.000	0.636	0.383*	0.466	0.000	0.000	1.000
OWN	0.600	0.403	0.156	0.671	1.000	0.679*	0.377	0.370	0.984	1.000
INST	0.113	0.231	0.000	0.000	0.116	0.051*	0.195	0.000	0.000	0.000
SIZE	11.887	1.823	10.420	11.785	13.335	10.267*	1.356	9.275	9.994	11.003
LEV	0.595	0.304	0.391	0.567	0.755	0.597	0.329	0.372	0.578	0.774
GROWTH	0.084	0.274	-0.052	0.043	0.156	0.091*	0.262	-0.048	0.054	0.176
ROE	0.159	0.614	0.028	0.121	0.244	0.175*	0.565	0.034	0.123	0.262
INV	0.097	0.130	0.000	0.037	0.154	0.129*	0.168	0.001	0.053	0.204
OPCYCLE	123.551	567.879	33.279	77.668	129.789	123.649	538.558	30.862	74.868	123.697
LOSS	0.204	0.279	0.000	0.000	0.333	0.199	0.283	0.000	0.000	0.333
SD_ROA	0.089	0.095	0.032	0.057	0.105	0.079*	0.092	0.028	0.049	0.088
ZSCORE	11.712	11.333	7.659	11.984	15.799	13.439*	11.072	9.135	13.014	16.570

Please see Appendix 3.A for variable definitions. * Indicates statistical significance at the 5% level (two-tailed). Differences between sample means are evaluated using t-tests.

Table 3.3 (Continued)
Panel B: Descriptive statistics for public firms by haven status

	Haven firm-years N=1,892					Non-Haven firm-years N=2,907				
	Mean	Sd	P25	P50	P75	Mean	Sd	P25	P50	P75
DisA	-0.034	0.106	-0.067	-0.027	0.008	-0.036	0.147	-0.085	-0.023	0.024
DisAK	-0.030	0.099	-0.072	-0.029	0.011	-0.021*	0.139	-0.079	-0.019	0.036
DisWCA	-0.012	0.066	-0.038	-0.010	0.016	-0.023*	0.086	-0.056	-0.015	0.021
ACFO	-0.022	0.151	-0.092	-0.033	0.028	0.037*	0.224	-0.081	-0.000	0.096
ADISEXP	-0.088	0.404	-0.226	0.022	0.133	-0.106	0.465	-0.246	0.023	0.143
APROD	-0.090	0.407	-0.229	-0.017	0.127	-0.000*	0.429	-0.135	0.063	0.214
REM_agg	-0.199	0.813	-0.487	-0.026	0.247	-0.067*	0.865	-0.344	0.095	0.388
TEM	-0.229	0.836	-0.547	-0.059	0.230	-0.087*	0.906	-0.409	0.067	0.405
OFCsubratio	0.120	0.115	0.047	0.080	0.143	0.000*	0.000	0.000	0.000	0.000
OFCindex	0.304	0.295	0.081	0.222	0.414	0.055*	0.174	0.000	0.000	0.000
MAN	0.170	0.259	0.000	0.011	0.271	0.235*	0.301	0.000	0.048	0.457
OWN	0.171	0.156	0.066	0.114	0.222	0.201*	0.163	0.098	0.159	0.258
INST	0.190	0.184	0.041	0.135	0.300	0.165*	0.179	0.000	0.104	0.268
SIZE	12.766	1.856	11.569	13.062	14.527	10.982*	1.871	9.562	10.850	12.158
LEV	0.537	0.271	0.366	0.511	0.675	0.466*	0.325	0.253	0.418	0.593
GROWTH	0.088	0.286	-0.045	0.036	0.141	0.133*	0.363	-0.050	0.063	0.214
ROE	0.077	0.524	0.007	0.110	0.203	-0.034*	0.653	-0.101	0.068	0.167
INV	0.094	0.120	0.002	0.047	0.149	0.104*	0.157	0.001	0.030	0.149
OPCYCLE	177.543	777.943	29.185	86.329	155.202	207.705	691.223	29.499	85.806	163.759
LOSS	0.223	0.298	0.000	0.100	0.333	0.378*	0.383	0.000	0.250	0.727
SD_ROA	0.097	0.109	0.031	0.061	0.108	0.143*	0.157	0.037	0.074	0.189
ZSCORE	10.727	11.073	6.851	10.856	14.917	10.652	13.363	4.905	11.069	15.573

Please see Appendix 3.A for variable definitions. * Indicates statistical significance at the 5% level (two-tailed). Differences between sample means are evaluated using t-tests.

Table 3.3 (Continued)
Panel C: Descriptive statistics for private firms by haven status

	Haven firm-years N=4,517					Non-Haven firm-years N=90,125				
	Mean	Sd	P25	P50	P75	Mean	Sd	P25	P50	P75
DisA	-0.003	0.159	-0.073	-0.008	0.058	0.001	0.152	-0.066	-0.001	0.059
DisAK	-0.005	0.155	-0.076	-0.008	0.056	-0.001	0.147	-0.068	-0.002	0.057
DisWCA	0.002	0.087	-0.043	-0.005	0.042	0.001	0.080	-0.039	-0.005	0.035
ACFO	-0.008	0.195	-0.088	-0.001	0.079	-0.003	0.183	-0.083	0.001	0.075
ADISEXP	-0.029	0.432	-0.139	0.080	0.219	0.005*	0.448	-0.102	0.095	0.245
APROD	-0.027	0.448	-0.151	0.064	0.228	0.007*	0.464	-0.126	0.075	0.245
REM_agg	-0.064	0.903	-0.321	0.131	0.461	0.008*	0.921	-0.250	0.165	0.502
TEM	-0.070	0.952	-0.396	0.121	0.486	0.007*	0.963	-0.300	0.157	0.528
OFCsubratio	0.268	0.171	0.111	0.250	0.500	0.000*	0.000	0.000	0.000	0.000
OFCindex	0.189	0.302	0.000	0.000	0.292	0.016*	0.107	0.000	0.000	0.000
MAN	0.336	0.448	0.000	0.000	0.990	0.388*	0.470	0.000	0.000	1.000
OWN	0.780	0.333	0.501	0.990	1.000	0.695*	0.372	0.420	0.990	1.000
INST	0.081	0.241	0.000	0.000	0.000	0.047*	0.194	0.000	0.000	0.000
SIZE	11.518	1.677	10.187	11.327	12.708	10.244*	1.330	9.270	9.979	10.961
LEV	0.619	0.314	0.404	0.596	0.786	0.601*	0.328	0.377	0.584	0.778
GROWTH	0.083	0.269	-0.056	0.047	0.163	0.090	0.258	-0.048	0.053	0.175
ROE	0.193	0.644	0.033	0.126	0.270	0.182	0.560	0.035	0.125	0.265
INV	0.099	0.135	0.000	0.032	0.159	0.130*	0.168	0.001	0.054	0.205
OPCYCLE	100.936	449.939	34.451	74.795	120.972	120.937*	532.691	30.892	74.609	122.805
LOSS	0.197	0.270	0.000	0.000	0.333	0.193	0.277	0.000	0.000	0.333
SD_ROA	0.085	0.087	0.032	0.055	0.104	0.077*	0.089	0.028	0.048	0.086
ZSCORE	12.124	11.416	8.075	12.643	16.038	13.529*	10.979	9.244	13.071	16.591

Please see Appendix 3.A for variable definitions. * Indicates statistical significance at the 5% level (two-tailed). Differences between sample means are evaluated using t-tests.

Table 3.4 reports Pearson correlations for the variables used in this study, separately for public firms (Panel A) and private firms (Panel B). Panel A shows that ownership concentration (*OWN*) and institutional ownership (*INST*) are positively and significantly associated with all REM variables and *TEM* but not correlated with AEM variables overall, which may provide preliminary evidence that higher ownership concentration and institutional ownership in public firms are associated with income-increasing REM, which is consistent with the entrenchment hypothesis by the largest shareholders (Fan and Wong, 2002) and the myopic behaviour by institutional investors (Bushee, 1998), as discussed earlier. Managerial ownership (*MAN*) positively correlates with APROD, suggesting that firms with higher managerial ownership are more likely to manipulate production levels.

In the case of private firms, Panel B shows that managerial ownership (*MAN*) is negatively and significantly correlated with all AEM variables while positively and significantly correlated with REM variables. This suggests that higher managerial ownership

is more likely associated with downwards AEM, but upwards REM, in private firms. Ownership concentration (*OWN*) is positively and significantly associated with all AEM and REM variables, suggesting that controlling shareholders in private firms are more likely to manipulate earnings upwards using both AEM and REM, which is consistent with the entrenchment hypothesis. Institutional ownership (*INST*) is negatively and significantly associated with *DisWCA* and most REM variables and *TEM*, suggesting that institutional investors in private firms are more likely to constrain both AEM and REM, which is consistent with the active monitoring effect of institutional ownership.

There is no evidence of a multicollinearity problem as there are no strong correlations (above 0.80) between explanatory variables included in the same model, and the Variance Inflation Factor (VIF) is always less than 4.0 (Haga et al., 2018; Brooks, 2019).

Table 3.4 Pearson correlation matrix

Panel A: public firms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
(1) DisA	1.000																					
(2) DisAK	0.928*	1.000																				
(3) DisWCA	0.473*	0.280*	1.000																			
(4) ACFO	0.344*	0.599*	-0.342*	1.000																		
(5) ADISEXP	0.073*	0.022	0.080*	-0.148*	1.000																	
(6) APROD	0.017	0.119*	-0.163*	0.310*	0.735*	1.000																
(7) REM_agg	0.126*	0.213*	-0.124*	0.319*	0.847*	0.959*	1.000															
(8) TEM	0.249*	0.342*	-0.081*	0.393*	0.814*	0.939*	0.990*	1.000														
(9) Haven	0.007	-0.035*	0.064*	-0.146*	0.020	-0.104*	-0.076*	-0.079*	1.000													
(10) OFCsubratio	-0.007	-0.004	0.006	-0.034*	0.046*	-0.010	0.010	0.009	0.633*	1.000												
(11) OFCindex	0.015	0.030*	-0.001	-0.026	0.040*	-0.009	0.010	0.014	0.470*	0.602*	1.000											
(12) MAN	-0.013	-0.015	-0.022	0.012	0.019	0.042*	0.035*	0.031*	-0.111*	-0.004	-0.017	1.000										
(13) OWN	-0.006	0.012	-0.031*	0.031*	0.048*	0.081*	0.075*	0.074*	-0.091*	0.036*	0.050*	0.294*	1.000									
(14) INST	-0.007	0.024	-0.004	0.032*	0.030*	0.036*	0.040*	0.042*	0.068*	0.026	0.071*	-0.350*	0.030*	1.000								
(15) SIZE	0.090*	-0.053*	0.205*	-0.343*	0.048*	-0.174*	-0.145*	-0.148*	0.423*	0.095*	0.170*	-0.154*	-0.145*	0.030*	1.000							
(16) LEV	-0.111*	-0.097*	-0.065*	0.037*	-0.194*	-0.085*	-0.132*	-0.140*	0.113*	0.067*	0.015	-0.005	0.055*	-0.035*	0.113*	1.000						
(17) GROWTH	0.150*	0.115*	0.126*	0.001	-0.144*	-0.004	-0.074*	-0.053*	-0.066*	-0.017	-0.027	0.062*	0.020	-0.048*	-0.028	-0.102*	1.000					
(18) ROE	0.162*	0.001	0.301*	-0.346*	0.045*	-0.179*	-0.151*	-0.146*	0.089*	0.013	-0.005	-0.023	-0.013	-0.037*	0.245*	0.152*	0.094*	1.000				
(19) INV	0.137*	0.086*	0.127*	-0.022	0.019	0.011	0.011	0.021	-0.035*	-0.086*	-0.099*	-0.008	0.027	0.002	0.136*	0.028	-0.052*	0.084*	1.000			
(20) OPCYCLE	0.067*	0.061*	0.040*	0.022	-0.058*	-0.057*	-0.053*	-0.043*	-0.020	-0.044*	-0.037*	-0.020	-0.009	-0.010	0.065*	-0.029*	-0.002	0.006	0.171*	1.000		
(21) LOSS	-0.121*	0.106*	-0.329*	0.536*	-0.083*	0.230*	0.200*	0.209*	-0.210*	0.022	0.023	0.047*	0.092*	0.048*	-0.521*	-0.036*	0.005	-0.360*	-0.142*	-0.011	1.000	
(22) SD_ROA	-0.116*	0.060*	-0.231*	0.440*	-0.121*	0.198*	0.142*	0.148*	-0.159*	0.052*	0.024	0.029*	0.025	0.010	-0.526*	0.023	0.039*	-0.281*	-0.173*	-0.050*	0.601*	1.000
(23) ZSCORE	0.173*	-0.032*	0.355*	-0.430*	0.075*	-0.201*	-0.167*	-0.165*	0.003	-0.048*	-0.058*	0.000	0.011	-0.046*	0.177*	-0.228*	0.139*	0.334*	0.094*	0.022	-0.483*	-0.315*

(Continued on next page)

Table 3.4 (Continued)

Panel B: Private firms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
(1) DisA	1.000																					
(2) DisAK	0.977*	1.000																				
(3) DisWCA	0.577*	0.475*	1.000																			
(4) ACFO	0.715*	0.818*	0.060*	1.000																		
(5) ADISEXP	0.042*	0.031*	0.030*	-0.009*	1.000																	
(6) APROD	0.035*	0.068*	-0.097*	0.155*	0.901*	1.000																
(7) REM_agg	0.177*	0.208*	-0.023*	0.268*	0.936*	0.973*	1.000															
(8) TEM	0.316*	0.349*	0.048*	0.379*	0.901*	0.941*	0.989*	1.000														
(9) Haven	-0.006	-0.006	0.002	-0.005	-0.016*	-0.015*	-0.016*	-0.017*	1.000													
(10) OFCsubratio	-0.003	-0.004	0.006*	-0.008*	-0.009*	-0.010*	-0.011*	-0.011*	0.838*	1.000												
(11) OFCindex	0.004	0.006	0.012*	0.002	0.001	0.002	0.002	0.003	0.285*	0.267*	1.000											
(12) MAN	-0.006*	-0.016*	-0.018*	-0.007*	0.071*	0.080*	0.074*	0.068*	-0.023*	-0.017*	-0.026*	1.000										
(13) OWN	0.029*	0.026*	0.062*	0.034*	0.098*	0.108*	0.110*	0.109*	0.049*	0.054*	0.058*	0.061*	1.000									
(14) INST	-0.004	-0.001	-0.007*	0.013*	-0.013*	-0.010*	-0.009*	-0.009*	0.036*	0.031*	0.019*	-0.062*	0.083*	1.000								
(15) SIZE	0.064*	0.059*	0.033*	0.045*	0.002	0.007*	0.014*	0.022*	0.197*	0.101*	0.109*	-0.015*	0.122*	0.085*	1.000							
(16) LEV	-0.081*	-0.020*	-0.166*	0.177*	-0.090*	0.022*	0.000	-0.003	0.012*	0.014*	0.006	0.015*	0.135*	0.034*	-0.012*	1.000						
(17) GROWTH	0.305*	0.267*	0.295*	0.105*	-0.096*	-0.032*	-0.042*	0.000	-0.006	-0.004	-0.002	0.066*	0.008*	-0.010*	0.072*	0.011*	1.000					
(18) ROE	0.009*	-0.049*	0.182*	-0.207*	-0.010*	-0.077*	-0.085*	-0.088*	0.004	0.006	0.001	-0.007*	0.025*	-0.005	-0.031*	0.089*	0.071*	1.000				
(19) INV	0.040*	0.038*	-0.014*	0.062*	0.042*	0.091*	0.079*	0.081*	-0.040*	-0.014*	-0.031*	0.084*	0.062*	-0.008*	-0.072*	-0.011*	-0.021*	-0.041*	1.000			
(20) OPCYCLE	0.022*	0.021*	0.004	0.023*	-0.038*	-0.034*	-0.031*	-0.026*	-0.008*	-0.004	-0.002	0.001	-0.001	0.006	0.036*	-0.016*	0.001	-0.014*	0.111*	1.000		
(21) LOSS	-0.077*	0.004	-0.206*	0.234*	-0.108*	-0.001	-0.009*	-0.007*	0.003	0.005	0.010*	-0.075*	-0.041*	0.044*	0.044*	0.367*	-0.071*	-0.149*	-0.075*	0.000	1.000	
(22) SD_ROA	-0.023*	-0.007*	0.006	0.040*	-0.142*	-0.114*	-0.122*	-0.118*	0.020*	0.023*	0.053*	-0.098*	-0.001	0.015*	-0.037*	0.186*	0.029*	0.041*	-0.150*	-0.021*	0.317*	1.000
(23) ZSCORE	0.048*	-0.047*	0.273*	-0.317*	0.006*	-0.116*	-0.118*	-0.121*	-0.027*	-0.004	-0.001	0.003	-0.037*	-0.029*	-0.178*	-0.402*	0.091*	0.172*	0.044*	-0.010*	-0.359*	-0.010*

Please see Appendix 3.A for variable definitions. *, **, *** Indicate statistical significance at the 10%, 5%, and 1% levels respectively (two-tailed).

3.4.2 Multivariate analysis

Table 3.5 reports the results of regressions investigating whether the impact of using tax havens on AEM and REM differs depending on the level of managerial ownership. Panel A reports the results of investigating Equation (3.1) for the full sample (unconditional on listing status). The panel shows that the coefficient on *Haven* is negative and significant at the 1% level for all AEM variables and *ACFO* while positive and significant for the remaining REM variables and *TEM*. Overall, the results support the notion that, because tax haven firms are typically larger firms and are subject to higher scrutiny, they engage in less AEM since it is highly regulated and can be detected by auditors and regulators, and alternatively rely more on REM, since it is harder to detect, which is consistent with the substitution effect between AEM and REM (e.g., Francis et al., 2016). In addition, the coefficient on *MAN* is negative and significant at the 1% level for all AEM and REM instances, suggesting that higher managerial ownership in non-tax haven firms constrains both AEM and REM, which is consistent with the incentive alignment hypothesis of managerial ownership in reducing agency conflicts and earnings manipulation using AEM and REM (Jensen and Meckling, 1976; Warfield et al., 1995; Di Meo et al., 2017).

Most importantly, the coefficient on the variable of interest *Haven×MAN* is positive and statistically significant for all AEM variables and *ACFO* while insignificant for the remaining REM variables and *TEM*, indicating that tax haven firms with higher managerial ownership are more likely to engage in more AEM and sales manipulation relative to non-tax haven firms. This may be because the low institutional environment quality in tax havens exacerbates owner-managers incentives to engage in more earnings manipulation, as per the negative consequences of managerial entrenchment (Morck et al., 1988; Claessens et al., 2002; Di Meo et al., 2017). This finding also suggests that the impact of using tax havens on how firms engage in earnings management is influenced by the level of managerial ownership and that the low institutional environment quality of tax havens may have a more substantial impact than the high institutional environment quality in the UK, which is an important contribution of this study.

Panel B reports the results of Equation (3.2) which investigates whether the impact of using tax havens and managerial ownership on AEM and REM is different between public and private firms. The coefficient on the variable of interest, *Haven×MAN×Public*, is insignificant for all AEM and REM proxies, suggesting that this impact is not different between public and

private firms. However, the coefficient on *Haven×MAN* becomes insignificant for almost all AEM and REM instances. In contrast, the coefficient on *Haven× Public* is negative and significant for all AEM variables and *ACFO*, suggesting that the results may be influenced more by listing status since managerial ownership is significantly different between public and private firms. To address this issue and as a robustness check, a propensity score matched sample is also employed to examine whether the differences between public and private firms drive the findings. This approach is discussed in detail later in Table 3.9.

Table 3.5 The impact of using tax havens and managerial ownership on AEM and REM
Panel A: Full sample analysis

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	-0.012***	-0.011***	-0.003***	-0.008***	0.015***	0.022***	0.036***	0.029***
	(-6.47)	(-6.50)	(-2.78)	(-3.70)	(2.93)	(4.15)	(3.42)	(2.65)
MAN	-0.008***	-0.009***	-0.005***	-0.016***	-0.021***	-0.022***	-0.051***	-0.061***
	(-7.48)	(-8.78)	(-8.16)	(-12.44)	(-6.31)	(-6.26)	(-7.55)	(-8.81)
HavenxMAN	0.013***	0.014***	0.004**	0.013***	0.001	-0.000	0.007	0.016
	(3.87)	(4.22)	(2.01)	(3.22)	(0.11)	(-0.00)	(0.32)	(0.78)
SIZE	-0.002***	-0.002***	-0.001***	-0.002***	-0.024***	-0.022***	-0.040***	-0.037***
	(-6.91)	(-6.25)	(-4.13)	(-6.07)	(-32.01)	(-27.74)	(-25.54)	(-22.96)
LEV	0.049***	0.045***	0.022***	0.062***	0.177***	0.231***	0.418***	0.423***
	(33.73)	(33.43)	(26.93)	(34.27)	(39.20)	(48.93)	(46.71)	(46.41)
GROWTH	0.112***	0.107***	0.047***	0.135***	0.123***	0.189***	0.360***	0.435***
	(45.34)	(45.10)	(42.09)	(48.38)	(22.45)	(34.19)	(34.19)	(39.51)
ROE	0.002*	0.005***	0.003***	0.022***	0.001	0.013***	0.024***	0.028***
	(1.93)	(6.17)	(5.79)	(19.28)	(0.26)	(5.25)	(4.90)	(5.60)
INV	0.010***	0.004	-0.002	-0.007**	0.007	0.122***	0.161***	0.188***
	(3.76)	(1.52)	(-1.48)	(-2.54)	(1.05)	(15.79)	(11.03)	(12.25)
OPCYCLE	-0.000	-0.000	-0.000	0.000	0.000***	0.000***	0.000***	0.000***
	(-0.94)	(-0.82)	(-1.49)	(0.45)	(3.81)	(3.22)	(3.66)	(3.70)
LOSS	-0.000	-0.004**	0.015***	0.023***	-0.041***	-0.050***	-0.091***	-0.093***
	(-0.03)	(-2.56)	(18.52)	(12.68)	(-9.36)	(-11.35)	(-10.52)	(-10.43)
SD_ROA	0.180***	0.165***	0.179***	0.362***	0.235***	0.171***	0.351***	0.440***
	(32.52)	(32.33)	(53.29)	(49.76)	(15.58)	(11.27)	(12.22)	(14.90)
ZSCORE	0.000***	0.000***	0.001***	0.001***	0.002***	0.004***	0.007***	0.007***
	(3.19)	(4.75)	(23.10)	(23.99)	(23.24)	(36.85)	(33.80)	(32.04)
Constant	0.048***	0.049***	0.012***	0.023***	0.386***	0.297***	0.595***	0.573***
	(12.08)	(12.74)	(6.01)	(5.02)	(30.11)	(22.43)	(23.00)	(21.55)
Observations	99,441	99,441	99,441	99,441	99,441	99,441	99,441	99,441
R-squared	0.138	0.134	0.191	0.214	0.110	0.138	0.127	0.127
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(Continued on next page)

Table 3.5 (Continued)
Panel B: The differential impact between public and private firms

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	-0.001	-0.001	0.003**	0.002	0.005	0.012**	0.022*	0.023*
	(-0.36)	(-0.34)	(2.47)	(0.73)	(0.80)	(2.01)	(1.75)	(1.78)
MAN	-0.009***	-0.010***	-0.005***	-0.016***	-0.020***	-0.021***	-0.049***	-0.060***
	(-8.26)	(-9.57)	(-8.82)	(-12.45)	(-5.94)	(-5.96)	(-7.36)	(-8.73)
Public	-0.018***	-0.017***	-0.007***	0.005	0.040***	0.034***	0.042***	0.027*
	(-7.11)	(-7.41)	(-4.71)	(1.33)	(4.82)	(4.33)	(2.72)	(1.73)
HavenxMAN	0.005	0.006*	-0.000	0.006	0.015	0.011	0.025	0.030
	(1.29)	(1.68)	(-0.13)	(1.30)	(1.35)	(0.94)	(1.12)	(1.30)
HavenxPublic	-0.018***	-0.018***	-0.012***	-0.034***	0.003	0.004	0.015	0.002
	(-4.70)	(-5.01)	(-5.18)	(-6.67)	(0.24)	(0.32)	(0.58)	(0.08)
MANxPublic	0.002	-0.002	-0.001	0.004	-0.017	-0.025	-0.023	-0.017
	(0.23)	(-0.30)	(-0.26)	(0.44)	(-0.83)	(-1.31)	(-0.62)	(-0.45)
HavenxMANxPublic	0.014	0.014	0.005	0.011	-0.053	-0.023	-0.073	-0.081
	(1.30)	(1.41)	(0.82)	(0.82)	(-1.59)	(-0.71)	(-1.14)	(-1.22)
Constant	0.045***	0.046***	0.011***	0.021***	0.389***	0.300***	0.598***	0.575***
	(11.36)	(12.02)	(5.34)	(4.59)	(30.34)	(22.60)	(23.13)	(21.60)
Observations	99,441	99,441	99,441	99,441	99,441	99,441	99,441	99,441
R-squared	0.140	0.135	0.192	0.214	0.110	0.138	0.128	0.127
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Please see Appendix 3.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Table 3.6 reports the results of investigating whether ownership concentration influences the relationship between the use of tax havens and AEM and REM. Panel A reports the results testing Equation (3.1), where the variable of interest is ownership concentration (*OWN*). The coefficient on *OWN* is positive and significant for all AEM variables and *ACFO* while negative and significant for the remaining REM variables and *TEM*. This result suggests that non-tax haven firms with higher ownership concentration typically engage in more AEM and sales manipulation but less manipulation of discretionary expenses and production levels. This is consistent with prior research suggesting that higher ownership concentration is associated with more AEM (e.g., Kim and Yi, 2006). The coefficient on the variable of interest *Haven×OWN* is also positive and significant for all AEM variables and *ACFO* but negative and significant for the remaining REM variables and *TEM*. This indicates that the level of ownership concentration significantly influences the impact of using tax havens on AEM and REM. Higher ownership concentration exacerbates tax haven firms' reliance on AEM and sales manipulation relative to non-tax haven firms while reducing their reliance on the manipulation of discretionary expenses and production levels. Again, overall, the low institutional

environment quality of tax havens and the incentives of large shareholders appear to have stronger impact than the strong legal UK system; the low institutional environment quality in tax havens exacerbates controlling shareholders' incentives to engage in more AEM and sales manipulation, but less on other means of REM, as the latter can be detrimental to firm value. This may indicate that large shareholders consider AEM and sales manipulation (*ACFO*) less value-destroying than manipulation of discretionary expenses and production levels. Overall, this can be consistent with the incentive alignment hypothesis to some extent (Fan and Wong, 2002; Jung and Kwon, 2002; Wang, 2006).

Panel B shows that the coefficient on the interaction term of interest *Haven×OWN×Public* is insignificant for all AEM variables, positive and significant for *ACFO*, while negative and significant for the remaining REM variables and *TEM*. This suggests that the impact of ownership concentration on the tax haven-AEM relation is not different between public and private firms. Conversely, ownership concentration exacerbates sales manipulation for public firms relative to private firms using tax havens while constraining REM through other means. This may indicate that large shareholders of public firms relative to private firms may tolerate relying on sales manipulation rather than discretionary expenses and manipulation of production levels, as the latter may be considered more value-destroying. This may also indicate that public firms have stronger incentives due to capital market pressures to rely on sales manipulation to achieve their objectives. Overall, this is consistent with the incentive alignment effect that large shareholders constrain the use of value-destroying REM when firms have stronger incentives to do so, and that this effect is more pronounced for public firms than private firms. Again, as discussed earlier in the case of managerial ownership, a propensity score matched sample is also employed to examine whether the previous findings for ownership concentration are influenced more by the differences in listing status (which is discussed later in Table 3.9).

Table 3.6 The impact of using tax havens and ownership concentration on AEM and REM
Panel A: Full sample analysis

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	-0.008***	-0.008***	-0.002*	-0.007**	0.039***	0.036***	0.067***	0.059***
	(-3.86)	(-3.85)	(-1.95)	(-2.38)	(4.96)	(4.44)	(4.13)	(3.56)
OWN	0.037***	0.034***	0.017***	0.024***	-0.006*	-0.018***	-0.023***	-0.004
	(38.03)	(37.14)	(32.59)	(21.29)	(-1.80)	(-5.47)	(-3.51)	(-0.64)
HavenxOWN	0.010***	0.010***	0.005***	0.011***	-0.038***	-0.025**	-0.048**	-0.037*
	(2.95)	(3.07)	(3.04)	(2.74)	(-3.73)	(-2.36)	(-2.24)	(-1.70)
SIZE	-0.002***	-0.002***	-0.001***	-0.002***	-0.024***	-0.022***	-0.039***	-0.037***
	(-9.48)	(-8.68)	(-6.15)	(-6.99)	(-31.59)	(-26.97)	(-24.82)	(-22.40)
LEV	0.042***	0.038***	0.018***	0.056***	0.177***	0.233***	0.419***	0.421***
	(28.57)	(28.18)	(22.71)	(31.06)	(38.71)	(48.63)	(46.15)	(45.41)
GROWTH	0.112***	0.107***	0.047***	0.135***	0.124***	0.189***	0.361***	0.436***
	(45.82)	(45.58)	(42.33)	(48.60)	(22.50)	(34.25)	(34.24)	(39.54)
ROE	0.001*	0.005***	0.003***	0.022***	0.001	0.014***	0.025***	0.029***
	(1.65)	(5.93)	(5.60)	(19.18)	(0.40)	(5.42)	(5.06)	(5.73)
INV	0.008***	0.002	-0.003**	-0.009***	0.005	0.120***	0.156***	0.181***
	(3.17)	(0.87)	(-2.16)	(-3.31)	(0.71)	(15.48)	(10.65)	(11.81)
OPCYCLE	-0.000	0.000	-0.000	0.000	0.000***	0.000***	0.000***	0.000***
	(-0.11)	(0.01)	(-0.73)	(1.07)	(3.83)	(3.21)	(3.68)	(3.76)
LOSS	0.005***	0.001	0.018***	0.027***	-0.040***	-0.051***	-0.089***	-0.089***
	(3.42)	(0.92)	(21.61)	(15.09)	(-9.10)	(-11.41)	(-10.31)	(-9.87)
SD_ROA	0.181***	0.166***	0.179***	0.366***	0.242***	0.178***	0.367***	0.458***
	(33.02)	(32.97)	(53.77)	(50.38)	(16.07)	(11.78)	(12.82)	(15.58)
ZSCORE	0.000***	0.000***	0.001***	0.001***	0.002***	0.004***	0.007***	0.007***
	(3.32)	(4.92)	(23.43)	(24.15)	(23.33)	(36.95)	(33.93)	(32.18)
Constant	0.034***	0.035***	0.006***	0.013***	0.387***	0.301***	0.596***	0.566***
	(8.68)	(9.36)	(2.86)	(2.68)	(30.16)	(22.74)	(23.09)	(21.33)
Observations	99,441	99,441	99,441	99,441	99,441	99,441	99,441	99,441
R-squared	0.151	0.146	0.201	0.217	0.110	0.138	0.127	0.127
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3.6 (Continued)
Panel B: The differential impact between public and private firms

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	-0.003	-0.002	0.002	0.001	0.031**	0.026**	0.055**	0.058**
	(-0.73)	(-0.50)	(0.76)	(0.30)	(2.41)	(2.01)	(2.09)	(2.12)
OWN	0.037***	0.035***	0.017***	0.027***	-0.001	-0.015***	-0.018***	0.000
	(37.33)	(36.34)	(32.35)	(23.28)	(-0.29)	(-4.42)	(-2.69)	(0.02)
Public	0.006*	0.009***	0.005***	0.032***	0.044***	0.026**	0.050***	0.050**
	(1.93)	(3.11)	(2.68)	(7.50)	(4.32)	(2.54)	(2.59)	(2.53)
HavenxOWN	0.004	0.004	0.001	0.003	-0.027*	-0.012	-0.030	-0.030
	(0.89)	(0.83)	(0.53)	(0.54)	(-1.81)	(-0.81)	(-1.00)	(-0.96)
HavenxPublic	-0.012**	-0.014***	-0.009***	-0.038***	-0.005	0.012	0.011	-0.000
	(-2.21)	(-2.85)	(-2.93)	(-5.37)	(-0.28)	(0.59)	(0.29)	(-0.01)
OWNxPublic	-0.019	-0.036***	-0.011*	-0.054***	-0.031	-0.018	-0.091	-0.102
	(-1.59)	(-3.33)	(-1.84)	(-3.43)	(-0.83)	(-0.45)	(-1.20)	(-1.34)
HavenxOWNxPublic	0.010	0.021	0.008	0.055**	-0.107**	-0.122**	-0.194*	-0.199*
	(0.60)	(1.34)	(0.82)	(2.52)	(-1.99)	(-2.11)	(-1.73)	(-1.73)
Constant	0.034***	0.035***	0.006***	0.012**	0.387***	0.302***	0.597***	0.567***
	(8.59)	(9.26)	(2.73)	(2.52)	(30.23)	(22.79)	(23.13)	(21.35)
Observations	99,441	99,441	99,441	99,441	99,441	99,441	99,441	99,441
R-squared	0.151	0.146	0.201	0.217	0.110	0.138	0.127	0.127
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Please see Appendix 3.A for variable definitions. Robust t-statistics in parentheses. *, **, ***
Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Table 3.7 reports the results of tests investigating the impact of institutional ownership on the relationship between the use of tax havens and AEM and REM. Panel A reports the results of investigating Equation (3.1), where institutional ownership (INST) is the variable of interest. The coefficient on *INST* is positive and significant for all AEM and REM variables, suggesting that non-tax haven firms with higher institutional ownership engage in more AEM and REM, which supports the hypothesis that institutional investors focus on short-term private gains, adding pressure on the management of these firms to engage in myopic behaviour and earnings manipulation to meet their expectations (e.g., Bushee, 1998). However, the coefficient on *Haven×INST* is negative and significant for all AEM variables and *ACFO* and greater in magnitude than that on *INST*, indicating that institutional investors instead constrain AEM and *ACFO* for firms with tax haven subsidiaries. This is consistent with the active monitoring role of sophisticated institutional investors in constraining earnings manipulation within the context of the strong legal system in the UK since firms using tax havens are larger firms, and institutional investors in these firms are more sophisticated and are more likely to actively monitor managerial behaviour and constrain earnings manipulation (Bushee, 1998; Chung et

al., 2002; Hadani et al., 2011). This finding also represents an important contribution to prior research. It suggests that the impact of using tax havens on AEM and REM is overall significantly influenced by the level of institutional ownership, and that the UK higher institutional environment may have a stronger impact in this case .

Panel B reports the results of investigating Equation (3.2), examining whether the impact of institutional ownership (*INST*) on the tax haven-AEM/REM relation differs between public and private firms. The coefficient on *Haven×INST×Public* is insignificant for all AEM and REM variables except *APROD*, where the coefficient is negative and significant. Overall, the impact of institutional ownership on the relationship between the use of tax havens and AEM and REM is not significantly different between public and private firms, with the exception that institutional ownership appears to constrain the manipulation of production levels by public firms relative to private firms using tax havens. However, similar to what has been discussed under managerial ownership and ownership concentration, a propensity score matched sample is also adopted to investigate whether the previous findings are driven more by listing status since institutional ownership significantly differs between public and private firms.

Table 3.7 The impact of using tax havens and institutional ownership on AEM and REM
Panel A: Full sample analysis

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	-0.005***	-0.004***	0.000	-0.001	0.018***	0.026***	0.045***	0.043***
	(-3.05)	(-2.78)	(0.15)	(-0.49)	(3.82)	(5.35)	(4.73)	(4.32)
INST	0.008***	0.007***	0.002**	0.010***	0.015***	0.012**	0.028**	0.031***
	(3.85)	(3.74)	(2.23)	(4.21)	(2.70)	(2.06)	(2.44)	(2.62)
HavenxINST	-0.023***	-0.022***	-0.014***	-0.022***	-0.017	-0.029	-0.052	-0.063*
	(-3.58)	(-3.52)	(-4.28)	(-2.93)	(-0.95)	(-1.58)	(-1.44)	(-1.69)
SIZE	-0.002***	-0.002***	-0.001***	-0.002***	-0.024***	-0.022***	-0.040***	-0.037***
	(-7.01)	(-6.28)	(-3.87)	(-5.87)	(-31.69)	(-27.38)	(-25.16)	(-22.55)
LEV	0.048***	0.045***	0.021***	0.061***	0.175***	0.230***	0.415***	0.420***
	(33.43)	(33.08)	(26.59)	(33.82)	(39.03)	(48.77)	(46.49)	(46.12)
GROWTH	0.112***	0.107***	0.047***	0.135***	0.124***	0.189***	0.361***	0.436***
	(45.38)	(45.14)	(42.16)	(48.42)	(22.49)	(34.25)	(34.24)	(39.56)
ROE	0.002**	0.005***	0.003***	0.022***	0.001	0.013***	0.024***	0.029***
	(2.00)	(6.26)	(5.85)	(19.38)	(0.34)	(5.33)	(4.99)	(5.70)
INV	0.009***	0.003	-0.002*	-0.009***	0.005	0.119***	0.156***	0.181***
	(3.39)	(1.09)	(-1.93)	(-3.17)	(0.71)	(15.46)	(10.63)	(11.80)
OPCYCLE	-0.000	-0.000	-0.000	0.000	0.000***	0.000***	0.000***	0.000***
	(-0.84)	(-0.70)	(-1.35)	(0.64)	(3.86)	(3.27)	(3.72)	(3.78)
LOSS	0.000	-0.003**	0.016***	0.024***	-0.040***	-0.049***	-0.087***	-0.089***
	(0.31)	(-2.15)	(19.02)	(13.30)	(-9.07)	(-11.02)	(-10.12)	(-9.95)
SD_ROA	0.182***	0.167***	0.180***	0.367***	0.241***	0.177***	0.365***	0.457***
	(33.05)	(32.96)	(53.81)	(50.50)	(16.02)	(11.71)	(12.76)	(15.54)
ZSCORE	0.000***	0.000***	0.001***	0.001***	0.002***	0.004***	0.007***	0.007***
	(3.29)	(4.87)	(23.19)	(24.13)	(23.38)	(36.94)	(33.93)	(32.20)
Constant	0.047***	0.048***	0.012***	0.022***	0.384***	0.294***	0.588***	0.564***
	(11.95)	(12.55)	(5.71)	(4.64)	(29.89)	(22.19)	(22.71)	(21.22)
Observations	99,441	99,441	99,441	99,441	99,441	99,441	99,441	99,441
R-squared	0.138	0.133	0.191	0.213	0.110	0.138	0.127	0.127
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(Continued on next page)

Table 3.7 (Continued)
Panel B: The differential impact between public and private firms

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	0.002	0.002	0.004***	0.005**	0.011**	0.018***	0.034***	0.036***
	(1.02)	(1.23)	(3.59)	(2.15)	(2.21)	(3.33)	(3.19)	(3.34)
INST	0.009***	0.009***	0.003***	0.010***	0.013**	0.009	0.025**	0.029**
	(4.45)	(4.41)	(2.85)	(4.07)	(2.25)	(1.52)	(2.13)	(2.40)
Public	-0.017***	-0.015***	-0.005***	0.009**	0.039***	0.023***	0.037**	0.027
	(-5.96)	(-6.04)	(-3.29)	(2.39)	(3.99)	(2.62)	(2.11)	(1.48)
HavenxINST	-0.012	-0.009	-0.008**	-0.007	-0.019	-0.018	-0.037	-0.036
	(-1.60)	(-1.29)	(-2.19)	(-0.78)	(-0.91)	(-0.83)	(-0.88)	(-0.82)
HavenxPublic	-0.017***	-0.017***	-0.011***	-0.029***	0.002	0.030**	0.038	0.024
	(-4.10)	(-4.25)	(-4.37)	(-5.23)	(0.14)	(1.97)	(1.28)	(0.78)
INSTxPublic	-0.009	-0.014	-0.010	-0.017	-0.012	0.036	0.014	0.001
	(-0.72)	(-1.34)	(-1.48)	(-1.05)	(-0.32)	(1.07)	(0.21)	(0.02)
HavenxINSTxPublic	0.013	0.010	0.009	-0.008	-0.032	-0.147***	-0.172	-0.173
	(0.72)	(0.61)	(0.89)	(-0.35)	(-0.55)	(-2.68)	(-1.58)	(-1.55)
Constant	0.045***	0.045***	0.011***	0.020***	0.387***	0.297***	0.592***	0.567***
	(11.23)	(11.83)	(5.08)	(4.25)	(30.15)	(22.42)	(22.89)	(21.31)
Observations	99,441	99,441	99,441	99,441	99,441	99,441	99,441	99,441
R-squared	0.140	0.135	0.192	0.213	0.110	0.138	0.127	0.127
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Please see Appendix 3.A for variable definitions. Robust t-statistics in parentheses. *, **, ***
Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

3.4.3 Additional analysis

Using a propensity score matched sample (PSM) based on haven status

Tests of Equation (3.1) are repeated using a propensity score matched sample (*PSM*) to examine the concern that the characteristics of firms using tax havens explain the results rather than the status of using tax havens *per se*. Prior research suggests that firm-specific characteristics may influence firms' choice to use tax havens (Dyreng et al., 2012; Jaafar and Thornton, 2015; Durnev et al., 2017). Consistent with prior research, firm characteristics that may influence firms' choice to use tax havens are used to predict the probability that a firm establishes tax haven subsidiaries. Therefore, firm size (*SIZE*), leverage (*LEV*), growth (*GROWTH*), profitability (*ROE*), and industry and year dummies are used as predictors in a logistic regression where the indicator variable *Haven* is the dependent to predict the probability that a firm uses tax havens. The probabilities (propensity scores) from the logistic regression are used to construct the propensity score matched sample, where each tax haven firm is matched with a non-tax haven firm that has the closest propensity score, without

replacement. A narrow caliper distance of 0.1% is adopted to ensure that firm characteristics are closely matched between the treatment (*Haven* = 1) and control (*Haven* = 0) groups.

Table 3.8 reports the results based on the haven status propensity score matched sample. Panel A reports the results where managerial ownership (*MAN*) is the variable of interest. The panel shows that the coefficient on *Haven* is negative and significant in the cases of all AEM variables and *ACFO*, positive and weakly significant only in the case of APROD, while insignificant for the remaining earnings management proxies, which overall provide support for the baseline results. In addition, the panel shows that the coefficient on *MAN* is negative and significant in the cases of all AEM variables and *ACFO* while insignificant in the cases of the remaining REM variables and TEM, which also provides weak support for the baseline results in the cases of AEM and ACFO, suggesting that managerial ownership in non-tax haven firms constrains only AEM and sales manipulation. Most importantly, the coefficient on *Haven×MAN* is positive and significant for most AEM variables and ACFO while insignificant for other REM instances, which is again consistent with the baseline results.[47]

Results in Panel B show that ownership concentration in non-tax haven firms is associated with more AEM and sales manipulation but not associated with manipulation of discretionary expenses and production levels. In addition, under this setting, ownership concentration appears to have no impact on the relationship between the use of tax havens and AEM and REM (except in the case of *ACFO*, where the coefficient is weakly positive, providing weak support for the baseline results). Results in Panel C also show that, overall, institutional ownership has no impact on the relationship between the use of tax havens and AEM and REM (except in the case of *ACFO*, where the coefficient is negative and significant at the 5% level, also providing weak support for the baseline results).

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[47] The propensity score matching approach also has criticisms, a major criticism is that the resulting sample size is smaller, and therefore, the results may not be generalisable to larger samples (Hope et al., 2013). There is also a growing debate regarding the effectiveness of the PSM in achieving its intended purpose and that it may result in more imbalance, inefficiency, model dependence, and bias (King and Nielsen, 2019; Guo et al., 2020).

Table 3.8 The impact of using tax havens and ownership structure on AEM and REM (PSM sample, Haven status)

Panel A: *MAN* is the variable of interest

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	-0.013***	-0.013***	-0.005***	-0.010***	0.005	0.013*	0.018	0.014
	(-5.09)	(-5.26)	(-3.60)	(-3.62)	(0.69)	(1.85)	(1.30)	(0.97)
MAN	-0.007*	-0.009**	-0.005**	-0.022***	-0.009	-0.013	-0.017	-0.021
	(-1.68)	(-2.32)	(-2.15)	(-4.50)	(-0.79)	(-1.04)	(-0.73)	(-0.84)
HavenxMAN	0.008*	0.010**	0.002	0.012**	0.010	0.005	0.013	0.013
	(1.79)	(2.13)	(0.90)	(2.22)	(0.75)	(0.35)	(0.51)	(0.47)
Constant	0.106***	0.096***	0.040***	0.070***	0.215***	0.152***	0.303***	0.304***
	(9.80)	(9.22)	(6.44)	(5.28)	(5.10)	(3.73)	(3.73)	(3.66)
Observations	12,492	12,492	12,492	12,492	12,492	12,492	12,492	12,492
R-squared	0.144	0.135	0.187	0.195	0.088	0.114	0.109	0.114
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: *OWN* is the variable of interest

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	-0.006*	-0.007**	-0.003	-0.009**	0.018	0.019	0.040	0.035
	(-1.77)	(-2.20)	(-1.48)	(-2.01)	(1.51)	(1.56)	(1.63)	(1.40)
OWN	0.040***	0.037***	0.019***	0.023***	-0.011	-0.017	-0.012	0.009
	(10.86)	(10.21)	(9.82)	(5.03)	(-1.01)	(-1.47)	(-0.53)	(0.38)
HavenxOWN	0.003	0.005	0.003	0.010*	-0.019	-0.011	-0.031	-0.026
	(0.61)	(1.05)	(1.03)	(1.66)	(-1.30)	(-0.74)	(-1.03)	(-0.82)
Constant	0.072***	0.063***	0.023***	0.043***	0.226***	0.163***	0.316***	0.297***
	(6.72)	(6.19)	(3.71)	(3.23)	(5.32)	(3.97)	(3.83)	(3.54)
Observations	12,492	12,492	12,492	12,492	12,492	12,492	12,492	12,492
R-squared	0.162	0.152	0.202	0.199	0.089	0.115	0.110	0.114
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel C: *INST* is the variable of interest

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	-0.008***	-0.008***	-0.003**	-0.005**	0.010	0.018***	0.026**	0.022*
	(-3.91)	(-3.93)	(-2.40)	(-2.10)	(1.63)	(2.89)	(2.19)	(1.78)
INST	0.001	-0.000	-0.001	-0.002	0.003	-0.004	-0.020	-0.026
	(0.17)	(-0.05)	(-0.39)	(-0.27)	(0.17)	(-0.26)	(-0.59)	(-0.73)
HavenxINST	-0.014	-0.010	-0.010**	-0.005	-0.017	-0.025	-0.029	-0.026
	(-1.49)	(-1.15)	(-2.10)	(-0.49)	(-0.70)	(-1.02)	(-0.58)	(-0.52)
Constant	0.104***	0.093***	0.038***	0.062***	0.212***	0.146***	0.296***	0.295***
	(9.75)	(9.10)	(6.19)	(4.77)	(5.03)	(3.59)	(3.63)	(3.55)
Observations	12,492	12,492	12,492	12,492	12,492	12,492	12,492	12,492
R-squared	0.145	0.135	0.188	0.194	0.088	0.114	0.109	0.114
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Please see Appendix 3.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Using a propensity score matched sample (PSM) based on listing status

To further address the concern that the previous findings may be explained by listing status due to differences in ownership structure between public and private firms, the previous tests are also repeated using a propensity score matched sample where public and private firms are closely matched based on several attributes as documented in prior research. Following prior research (e.g., Hope et al., 2013; Haga et al., 2018), each public firm is matched, without replacement, with a private firm that has the closest propensity score estimated from a logistic regression where firm size (*SIZE*), leverage (*LEV*), growth (*GROWTH*), profitability (*ROE*), and fiscal year are used as predictors. A narrow caliper distance of 0.1% is adopted to ensure that firm characteristics are closely matched between the treatment (Public = 1) and control (Public = 0) groups.

Table 3.9 reports the results based on the listing status propensity score matched sample. Panel A reports the results when the variable of interest is managerial ownership (*MAN*). The panel shows that the coefficient on *HavenxMAN* is positive and significant for most AEM instances and *ACFO* (although weaker), which is overall similar to the baseline results using the full sample, suggesting that the main findings are robust to the new subsample and that the main findings are not driven more by listing status. Panel B reports the results when the variable of interest is ownership concentration. The coefficient on *HavenxOWN* is insignificant for all AEM and REM instances, suggesting that firms' listing status may partially influence the main findings due to the differences in ownership concentration between public and private firms. Panel C shows that the coefficient on *HavenxINST* is negative and significant in all REM instances but insignificant in all AEM instances, suggesting that institutional ownership constraints tax haven firms' use of REM but not AEM, which is also consistent with the active monitoring role of institutional investors in constraining REM.

Table 3.9 The impact of using tax havens and ownership structure on AEM and REM (PSM sample, Listing status)

Panel A: *MAN* is the variable of interest

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	-0.023***	-0.024***	-0.008***	-0.022***	0.002	0.004	0.001	-0.013
	(-7.36)	(-8.36)	(-4.90)	(-5.99)	(0.21)	(0.47)	(0.07)	(-0.68)
MAN	0.007	0.003	0.001	-0.014**	-0.062***	-0.053***	-0.107***	-0.104***
	(1.59)	(0.77)	(0.44)	(-2.56)	(-4.50)	(-3.83)	(-3.94)	(-3.68)
HavenxMAN	0.014*	0.016**	0.003	0.019**	-0.011	0.002	0.011	0.020
	(1.87)	(2.33)	(0.62)	(2.13)	(-0.50)	(0.10)	(0.25)	(0.44)
Constant	0.082***	0.074***	0.031***	0.077***	0.311***	0.234***	0.504***	0.500***
	(6.68)	(6.29)	(4.92)	(5.28)	(9.34)	(7.12)	(7.73)	(7.32)
Observations	9,550	9,550	9,550	9,550	9,550	9,550	9,550	9,550
R-squared	0.205	0.196	0.262	0.312	0.130	0.140	0.128	0.129
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: *OWN* is the variable of interest

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	-0.004	-0.006*	-0.001	-0.012***	0.005	0.010	0.012	0.005
	(-1.27)	(-1.81)	(-0.44)	(-2.83)	(0.47)	(0.84)	(0.52)	(0.20)
OWN	0.048***	0.042***	0.023***	0.022***	-0.019*	-0.023**	-0.030	-0.009
	(14.47)	(13.41)	(12.92)	(5.80)	(-1.87)	(-2.28)	(-1.51)	(-0.42)
HavenxOWN	-0.009	-0.011	-0.002	0.005	-0.020	-0.024	-0.028	-0.026
	(-1.24)	(-1.54)	(-0.56)	(0.58)	(-0.96)	(-1.12)	(-0.65)	(-0.59)
Constant	0.081***	0.073***	0.030***	0.074***	0.300***	0.225***	0.487***	0.482***
	(6.69)	(6.26)	(4.79)	(5.09)	(9.01)	(6.87)	(7.47)	(7.07)
Observations	9,550	9,550	9,550	9,550	9,550	9,550	9,550	9,550
R-squared	0.226	0.214	0.278	0.315	0.129	0.140	0.127	0.128
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel C: *INST* is the variable of interest

	(1) |DisA|	(2) |DisAK|	(3) |DisWCA|	(4) |ACFO|	(5) |ADISEXP|	(6) |APROD|	(7) |REM_agg|	(8) |TEM|
Haven	-0.020***	-0.020***	-0.008***	-0.012***	0.018*	0.028***	0.043**	0.031
	(-6.10)	(-6.60)	(-4.31)	(-3.22)	(1.77)	(2.78)	(2.14)	(1.52)
INST	-0.004	-0.006	-0.004	-0.001	-0.002	-0.001	-0.018	-0.024
	(-0.53)	(-0.94)	(-1.23)	(-0.09)	(-0.10)	(-0.09)	(-0.54)	(-0.68)
HavenxINST	-0.004	-0.004	0.001	-0.026*	-0.077**	-0.112***	-0.174***	-0.180***
	(-0.32)	(-0.32)	(0.21)	(-1.84)	(-2.32)	(-3.54)	(-2.76)	(-2.74)
Constant	0.085***	0.076***	0.032***	0.076***	0.300***	0.225***	0.488***	0.486***
	(6.93)	(6.50)	(5.05)	(5.24)	(9.00)	(6.87)	(7.49)	(7.12)
Observations	9,550	9,550	9,550	9,550	9,550	9,550	9,550	9,550
R-squared	0.205	0.196	0.262	0.312	0.129	0.140	0.127	0.128
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Please see Appendix 3.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Variation among tax haven firms

The tests of Equation (3.1) are repeated using a subsample of firms only using tax havens and using the alternative proxies for the use of tax havens discussed earlier in this study to investigate how variations among tax haven firms, namely the intensity of using tax havens (*OFCsubratio*) and the use of tax havens with higher offshore attitude index (*OFCindex*) influence AEM and REM, and how ownership structure influences this relationship. In addition, signed earnings management proxies are adopted to examine whether tax haven firms have incentives to manage earnings upwards or downwards. Table 3.10 reports the results of this analysis when the proxy of using tax havens is *OFCsubratio.*

Panel A reports the results when managerial ownership (*MAN*) is the variable of interest. The panel shows that the coefficient on *OFCsubratio* is positive and significant for all AEM and REM variables and TEM, suggesting that as the intensity of using tax havens increases, tax haven firms engage in upwards earnings manipulation using both AEM and REM, which is consistent with prior research suggesting that the use of tax havens exacerbates upwards earnings manipulation using AEM and REM due to the lower institutional environment quality of tax havens (Dyreng et al., 2012; Durnev et al., 2017).[48] The coefficient on *MAN* is positive and significant for most AEM and REM variables, suggesting that owner-managers of tax haven firms are more likely to manipulate earnings upwards. However, the coefficient on the interaction term *OFCsubratio×MAN* is negative and significant for *DisAK* and most REM variables and *TEM*. This indicates that as the intensity of using tax havens increases, higher managerial ownership tends to constrain earnings management, which is consistent with the incentive alignment hypothesis of managerial ownership in constraining both AEM and REM (Warfield et al., 1995; Di Meo et al., 2017).[49] This also suggests that since firms with more subsidiaries in tax havens are larger firms that are politically sensitive and are subject to higher scrutiny, owner-managers of these firms are less likely to engage in upwards earnings manipulation using AEM and REM, which is overall consistent with the political costs hypothesis (Watts and Zimmerman, 1978), with the incentive alignment hypothesis (Jensen and Meckling, 1976; Warfield et al., 1995; Di Meo et al., 2017), and with the strong legal system in the UK in constraining income-increasing earnings management.

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[48] Using absolute measures (un-tabulated) also indicates that as the intensity of using tax havens increases, firms engage in more AEM but less REM.

[49] However, using absolute EM proxies, owner-managers appear to constrain only AEM, and there is some evidence that they rely on manipulating discretionary expenses instead.

Panel B presents results that are overall consistent with those discussed in Panel A. Negative estimated coefficients on *OFCsubratio*x*OWN* in 7 out of 8 columns (significant in cols 5-8) suggest that, while controlling shareholders overall have incentives to engage in income-increasing EM, as the intensity of using tax havens increases, they are more likely to constrain income-increasing EM, or are more likely to exercise income-decreasing EM. This finding is also consistent with the political costs and incentive alignment hypotheses by controlling shareholders, as discussed earlier (Jensen and Meckling, 1976; Watts and Zimmerman, 1978; Wang, 2006).[50] Panel C shows some evidence (although weakly significant) that institutional investors overall constrain AEM and REM by tax haven firms (the coefficient on *INST* is negative across all columns and significant in 6 out of 8 cases), which is consistent with the active monitoring role of institutional investors (Bushee, 1998; Chung et al., 2002; Hadani et al., 2011).[51] However, there is little evidence overall that institutional ownership influences AEM and REM behaviour by firms with higher intensity of using tax havens.[52]

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[50] Using absolute EM proxies (untabulated), there is also weak evidence that large shareholders constrain AEM and sales manipulation.

[51] Using absolute EM proxies (un-tabulated), there is also robust evidence that institutional investors constrain both AEM and REM.

[52] An exception is in the case of *DisWCA*, where the coefficient on *OFCsubratioxINST* is positive and significant at the 5% level, which provides a weak evidence that as the intensity of using tax havens increases, institutional investors are less likely to constrain income-increasing AEM. However, using absolute EM proxies (un-tabulated), institutional ownership appears to have no impact on EM as the intensity of using tax havens increases (except a weak evidence that institutional ownership is associated with more sales manipulation)

Table 3.10 Using a subsample of tax haven firms, signed earnings management, and OFCsubratio

Panel A: Managerial ownership is the variable of interest

	(1) DisA	(2) DisAK	(3) DisWCA	(4) ACFO	(5) ADISEXP	(6) APROD	(7) REM_agg	(8) TEM
OFCsubratio	0.062***	0.055***	0.020**	0.032*	0.341***	0.309***	0.678***	0.734***
	(3.96)	(3.58)	(2.46)	(1.73)	(8.36)	(7.43)	(8.13)	(8.27)
MAN	0.020**	0.018*	-0.006	0.030***	0.092***	0.135***	0.258***	0.277***
	(2.06)	(1.93)	(-1.09)	(2.65)	(3.26)	(4.60)	(4.45)	(4.56)
OFCsubratioxMAN	-0.041	-0.047*	0.013	-0.079**	-0.080	-0.156**	-0.314**	-0.366**
	(-1.53)	(-1.79)	(0.96)	(-2.51)	(-1.08)	(-2.06)	(-2.07)	(-2.29)
Constant	-0.044*	-0.017	-0.036***	0.070**	-0.374***	-0.351***	-0.649***	-0.671***
	(-1.91)	(-0.73)	(-2.89)	(2.38)	(-4.02)	(-3.99)	(-3.62)	(-3.63)
Observations	6,409	6,409	6,409	6,409	6,409	6,409	6,409	6,409
R-squared	0.121	0.095	0.214	0.210	0.067	0.079	0.086	0.086
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Ownership concentration is the variable of interest

	(1) DisA	(2) DisAK	(3) DisWCA	(4) ACFO	(5) ADISEXP	(6) APROD	(7) REM_agg	(8) TEM
OFCsubratio	0.023	0.017	0.007	-0.011	0.494***	0.482***	0.954***	0.980***
	(0.90)	(0.68)	(0.48)	(-0.35)	(6.65)	(6.26)	(6.29)	(6.17)
OWN	0.040***	0.037***	0.014***	0.031***	0.156***	0.164***	0.345***	0.383***
	(5.88)	(5.48)	(3.72)	(3.71)	(7.15)	(7.35)	(7.71)	(8.21)
OFCsubratioxOWN	-0.005	-0.006	0.008	-0.006	-0.349***	-0.407***	-0.747***	-0.765***
	(-0.16)	(-0.19)	(0.46)	(-0.15)	(-3.90)	(-4.34)	(-4.03)	(-3.94)
Constant	-0.059***	-0.030	-0.047***	0.065**	-0.437***	-0.401***	-0.762***	-0.798***
	(-2.60)	(-1.34)	(-3.80)	(2.23)	(-4.65)	(-4.51)	(-4.20)	(-4.28)
Observations	6,409	6,409	6,409	6,409	6,409	6,409	6,409	6,409
R-squared	0.129	0.103	0.219	0.212	0.073	0.084	0.093	0.094
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel C: Institutional ownership is the variable of interest

	(1) DisA	(2) DisAK	(3) DisWCA	(4) ACFO	(5) ADISEXP	(6) APROD	(7) REM_agg	(8) TEM
OFCsubratio	0.043***	0.035**	0.018**	0.008	0.313***	0.259***	0.577***	0.610***
	(3.05)	(2.53)	(2.46)	(0.46)	(8.17)	(6.56)	(7.33)	(7.34)
INST	-0.027**	-0.023*	-0.015**	-0.008	-0.053	-0.066*	-0.125*	-0.149*
	(-2.17)	(-1.89)	(-2.09)	(-0.57)	(-1.41)	(-1.77)	(-1.66)	(-1.88)
OFCsubratioxINST	0.064	0.051	0.057**	-0.004	0.011	-0.007	-0.004	0.051
	(1.29)	(1.07)	(2.19)	(-0.07)	(0.09)	(-0.06)	(-0.02)	(0.20)
Constant	-0.032	-0.006	-0.037***	0.085***	-0.325***	-0.280***	-0.513***	-0.524***
	(-1.44)	(-0.26)	(-3.10)	(2.98)	(-3.50)	(-3.20)	(-2.88)	(-2.86)
Observations	6,409	6,409	6,409	6,409	6,409	6,409	6,409	6,409
R-squared	0.121	0.095	0.215	0.209	0.065	0.077	0.084	0.084
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Please see Appendix 3.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Table 3.11 shows results based on *OFCindex* as the proxy for using tax havens within the subsample of tax haven firms and using signed earnings management proxies. The coefficient on *OFCindex* in Panels A, B, and C is overall insignificant, suggesting that variation in offshore attitude index among tax haven firms has an insignificant impact on AEM and REM. Regarding ownership structure variables (MAN, OWN, and INST), the results in the three panels are overall consistent with those discussed in Table 3.10 above. Finally, regarding the interactions between ownership structure variables and OFCindex, the results in the three panels show an insignificant impact of ownership structure on how variation in *OFCindex* influences AEM and REM.

Table 3.11 Using a subsample of tax haven firms, signed earnings management, and OFCindex

Panel A: Managerial ownership is the variable of interest

	(1) DisA	(2) DisAK	(3) DisWCA	(4) ACFO	(5) ADISEXP	(6) APROD	(7) REM_agg	(8) TEM
OFCindex	-0.002	-0.001	0.000	-0.008	-0.009	-0.034	-0.051	-0.050
	(-0.18)	(-0.10)	(0.03)	(-0.79)	(-0.42)	(-1.48)	(-1.10)	(-1.01)
MAN	0.009	0.006	-0.003	0.011	0.064***	0.087***	0.162***	0.167***
	(1.08)	(0.73)	(-0.83)	(1.16)	(2.82)	(3.70)	(3.50)	(3.45)
OFCindexxMAN	0.004	0.002	0.008	-0.016	0.044	0.022	0.048	0.050
	(0.21)	(0.09)	(0.95)	(-0.78)	(1.02)	(0.49)	(0.54)	(0.53)
Constant	-0.005	0.017	-0.020*	0.083***	-0.144	-0.153*	-0.209	-0.197
	(-0.22)	(0.85)	(-1.78)	(3.08)	(-1.59)	(-1.79)	(-1.20)	(-1.10)
Observations	6,409	6,409	6,409	6,409	6,409	6,409	6,409	6,409
R-squared	0.118	0.093	0.212	0.209	0.055	0.072	0.077	0.077
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Ownership concentration is the variable of interest

	(1) DisA	(2) DisAK	(3) DisWCA	(4) ACFO	(5) ADISEXP	(6) APROD	(7) REM_agg	(8) TEM
OFCindex	-0.005	-0.001	0.002	-0.004	-0.016	-0.034	-0.054	-0.053
	(-0.38)	(-0.10)	(0.24)	(-0.27)	(-0.46)	(-0.96)	(-0.77)	(-0.71)
OWN	0.039***	0.036***	0.016***	0.029***	0.109***	0.104***	0.239***	0.274***
	(7.20)	(6.77)	(5.53)	(4.53)	(6.27)	(5.84)	(6.75)	(7.42)
OFCindexxOWN	0.013	0.007	0.004	-0.009	0.040	0.017	0.047	0.053
	(0.73)	(0.43)	(0.48)	(-0.41)	(0.87)	(0.35)	(0.50)	(0.53)
Constant	-0.045**	-0.020	-0.040***	0.056**	-0.235**	-0.225***	-0.397**	-0.422**
	(-2.16)	(-1.00)	(-3.48)	(2.02)	(-2.55)	(-2.59)	(-2.24)	(-2.32)
Observations	6,409	6,409	6,409	6,409	6,409	6,409	6,409	6,409
R-squared	0.129	0.103	0.218	0.212	0.064	0.077	0.086	0.088
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel C: Institutional ownership is the variable of interest

	(1) DisA	(2) DisAK	(3) DisWCA	(4) ACFO	(5) ADISEXP	(6) APROD	(7) REM_agg	(8) TEM
OFCindex	-0.001	-0.001	0.002	-0.013	-0.019	-0.043**	-0.074*	-0.073
	(-0.18)	(-0.11)	(0.50)	(-1.30)	(-0.90)	(-1.98)	(-1.71)	(-1.59)
INST	-0.012	-0.011	-0.002	-0.009	-0.088***	-0.088***	-0.182***	-0.193***
	(-1.24)	(-1.14)	(-0.34)	(-0.78)	(-2.90)	(-2.89)	(-2.98)	(-3.03)
OFCindexxINST	0.001	0.000	0.004	-0.003	0.142**	0.067	0.203	0.206
	(0.04)	(0.01)	(0.26)	(-0.08)	(2.27)	(1.04)	(1.56)	(1.41)
Constant	-0.000	0.020	-0.022**	0.088***	-0.115	-0.110	-0.132	-0.117
	(-0.00)	(1.01)	(-1.98)	(3.34)	(-1.28)	(-1.29)	(-0.76)	(-0.66)
Observations	6,409	6,409	6,409	6,409	6,409	6,409	6,409	6,409
R-squared	0.118	0.093	0.212	0.209	0.055	0.070	0.076	0.076
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Please see Appendix 3.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

3.5 Conclusion

The primary purpose of this chapter is to investigate how three important dimensions of ownership structure that are commonly investigated in prior research – managerial ownership, ownership concentration, and institutional ownership – interact with how the use of tax havens associates with magnitudes of AEM and REM, and whether this impact differs between public and private firms. Using a sample of UK public and private firms over the period 2010-2018, results show the following. Firstly, managerial ownership in tax haven firms increases the likelihood of engagement in AEM and sales manipulation (but has an insignificant impact on the remaining REM variables) to a greater extent than non-tax haven firms. This is arguably because the low institutional environment quality in tax haven settings exacerbates the negative impacts of managerial entrenchment on earnings management (Morck et al., 1988; Di Meo et al., 2017). Furthermore, findings also show that the impact of managerial ownership on the relationship between the use of tax havens and AEM and REM is not significantly different between public and private firms.

Secondly, results show that ownership concentration in tax haven firms relative to non-tax haven firms is associated with more AEM and sales manipulation, but less manipulation of discretionary expenses and production levels, suggesting that large shareholders in tax haven firms are more likely to constrain the manipulation of discretionary expenses and production levels as this may be more value-destroying in the long-run compared to AEM, which is overall consistent with the incentives alignment hypothesis (Jung and Kwon, 2002; Wang, 2006). In addition, the impact of ownership concentration in constraining the manipulation of discretionary expenses and production levels by tax haven firms is more pronounced for public firms than private firms. In contrast, their impact on how tax haven firms engage in AEM is not significantly different between public and private firms.

Thirdly, in terms of institutional ownership, results show that institutional investors are more likely to constrain AEM and sales manipulation for tax haven firms relative to non-tax haven firms, which is consistent with the active monitoring role of sophisticated institutional investors (Bushee, 1998; Chung et al., 2002; Hadani et al., 2011), and with the strong legal system in the UK. In addition, results show that the impact of institutional ownership on how the use of tax havens is associated with AEM and REM is not significantly different between public and private firms. Fourthly, using a propensity score matched sample to investigate the concern that the results are driven more by firm-specific characteristics that influence a firm's

choice to use tax havens rather than the use of tax havens *per se*, the results overall provide very weak support for the baseline results discussed above.

Finally, using a subsample of firms only with tax haven subsidiaries, signed earnings management proxies, and alternative proxies for the use of tax havens, results show that as the intensity of using tax havens increases, firms are more likely to engage in income-increasing AEM and REM, which is consistent with prior research (Dyreng et al., 2012; Durnev et al., 2017). However, there is some evidence that managerial ownership constrains this behaviour, which is consistent with the incentive alignment effect and the political sensitivity of these firms. Findings in the case of ownership concentration are similar to those discussed for managerial ownership, suggesting that controlling shareholders are less likely to engage in upwards earnings manipulation as the intensity of using tax havens increases, which is also consistent with prior research and with the incentive alignment hypothesis (e.g., Watts and Zimmerman, 1978; Dhaliwal et al., 1982). In terms of institutional ownership, there is weak evidence that institutional investors in tax haven firms constrain upwards earnings manipulation using AEM and REM, and there is no evidence that as the intensity of using tax havens increases, they influence AEM and REM.

This study has some limitations, which include the following. Firstly, this study focuses on AEM and REM proxies; other measures of earnings management can also be employed, such as classification shifting, and other aspects of financial reporting quality, such as conditional conservatism, can be investigated, which is recommended for future research. Secondly, this chapter focuses on earnings management rather than tax avoidance. Future research in this area may examine whether ownership structure influences how tax havens influence tax avoidance, using measures such as effective tax rates (ETRs) (e.g., Jaafar and Thornton, 2015). Finally, this study focuses on the UK setting, characterized by strong enforcement and strong investor protection, and results may not be generalisable to other settings. Results might differ under different settings, and future research may focus on different institutional settings such as emerging economies.

Appendix 3.A Variables definitions

Variable	Definition
Haven	A dummy variable taking the value of (1) for firms with subsidiaries in tax havens and (0) otherwise.
Public	A dummy variable taking the value of (1) for public firms and (0) for private firms
DisA	Signed discretionary accruals (Dechow et al., 1995)
DisAK	Signed discretionary accruals (Kothari et al., 2005)
DisWCA	Accruals quality (Dechow and Dichev, 2002; Hope et al., 2013)
ACFO	Abnormal cash flow from operations (Roychowdhury, 2006)
ADISEXP	Abnormal discretionary expenses (Roychowdhury, 2006)
APROD	Abnormal production costs (Roychowdhury, 2006)
REM_agg	The sum of standardized signed ACFO, ADSEXP, and APROD (Cohen and Zarowin, 2010; Haga et al., 2018)
TEM	The sum of *AEM* and *REM_agg*
OFCsubratio	The ratio of the number of subsidiaries in tax havens to the total number of subsidiaries (Dyreng et al., 2012; Durnev et al., 2017)
OFCindex	Subsidiary weighted offshore attitude index (Masciandaro, 2008; Durnev et al., 2017)
MAN	The direct percentage of shares held by managers
OWN	The direct percentage of shares held by the largest shareholder
INST	The direct percentage of shares held by institutional investors
SIZE	The natural logarithm of total assets (Hope et al., 2013)
GROWTH	Annual percentage change in total assets (Haga et al., 2018)
ROE	Net income divided by shareholders equity (Haga et al., 2018)
LEV	Financial leverage, measured as total liabilities divided by total assets (Hope et al., 2013)
LOSS	The cumulative percentage of years with negative earnings (Haga et al., 2018)
SD_ROA	The standard deviation of net income scaled by total assets for at least three years (Haga et al., 2018)
INV	Ratio of inventory to total assets (Haga et al., 2018)
OPCYCLE	The length of operating cycle (Haga et al., 2018)
ZSCORE	Taffler Z-score (Taffler, 1983; Haga et al., 2018)

Chapter (4) Tax havens and classification shifting

4.1 Introduction

This chapter investigates earnings management using classification shifting within the context of using tax havens and for a large sample of public and private firms domiciled in the UK.[53] Classification shifting is a form of earnings management that is relatively under-investigated in prior research compared to other forms such as accruals earnings management (AEM) and real earnings management (REM) (McVay, 2006; Zalata and Roberts, 2017). Classification shifting involves deliberately misclassifying income statement items through a vertical movement between core and non-core sections, which manipulates core earnings without influencing bottom-line net income (McVay, 2006; Zalata and Roberts, 2017). For instance, classification shifting to overstate core earnings can be achieved by moving core expenses such as cost of goods sold (COGS) and selling, general, and administrative expenses (SG&A) to special items or non-recurring expenses (McVay, 2006; Zalata and Roberts, 2017).[54]

Several anecdotal examples of classification shifting to overstate core earnings are given in prior research using both revenues and expenses items. For instance, Borden, Inc., misclassified $192 million of marketing expenses as a restructuring charge when it should have been part of SG&A (Hwang, 1994; McVay, 2006; Chung et al., 2021a). In addition, ABB – a global electrical engineering company – inflated its core earnings continually and legally by misclassifying gains from the sale of fixed assets as operating revenue under the international accounting standards (IAS); however, when the firm switched to US GAAP in 2000 to list on a US stock exchange, its operating profits declined by 40% (Jones, 2011; Malikov et al., 2018). Similarly, IBM misclassified gains on the sale of fixed assets as operating revenues to inflate core earnings (Bulkeley, 2002; Malikov et al., 2018).

Firms have incentives to overstate core earnings because many financial statement users – such as financial analysts, shareholders, and creditors – consider core earnings to be more informative, persistent, and value-relevant, often putting more weight on core earnings than bottom-line net income when making decisions (Lipe, 1986; Bradshaw and Sloan, 2002;

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[53] Tax havens are low tax jurisdictions that provide investors with opportunities for tax avoidance (Desai et al., 2006; Jaafar and Thornton, 2015). Other definitions are discussed later in Section 2.1.1. The terms "tax havens" or "offshore financial centres (OFCs)" are used interchangeably throughout this study.

[54] The terms non-core items, non-recurring items, extraordinary items, or special items are used interchangeably throughout this study unless otherwise is indicated; these items can be income-decreasing (expenses or losses), or income-increasing (revenues or gains).

McVay, 2006; Fan et al., 2019). Therefore, core earnings is an important benchmark that firms aim to manage, either for financial reporting considerations to meet the expectations of different stakeholders, or in some cases, for tax planning, or both (Chung et al., 2021a).[55]

Within the context of using tax havens, prior studies generally document that the use of tax havens is associated with more earnings management (using both AEM and REM) due to secrecy policies, the low institutional environment quality, and the low (or zero) tax rates in tax havens, which enable firms with tax haven subsidiaries to achieve their financial reporting objectives at a lower tax cost and lower litigation risk (Dyreng et al., 2012; Durnev et al., 2017). However, no prior studies investigate the impact of using tax havens on classification shifting or whether such impact is different between public and private firms, and prior studies in this area have not focused exclusively on the UK setting, which is the main focus of this study.

Firms using tax havens may have incentives to engage in more classification shifting because tax havens are characterized by low institutional environment quality, secrecy policies, weak enforcement, and low tax rates, which reduce costs of earnings management (Dyreng et al., 2012; Jaafar and Thornton, 2015; Durnev et al., 2017). On the other hand, classification shifting is considered generally less costly than other earnings management strategies, as it does not affect bottom-line earnings, has no tax consequences, and is less regulated by accounting standards (McVay, 2006; Haw et al., 2011; Abernathy et al., 2014), hence it may not be as sensitive to tax haven use as other forms of earnings management. In addition, public and private firms are subject to different incentives and regulatory environments (Ball and Shivakumar, 2005; Hope et al., 2013); therefore, the sensitivity of classification shifting to using tax havens might also be different between public and private firms. For instance, public firms are subject to higher market pressure to meet different earnings benchmarks and are also subject to higher regulatory scrutiny compared to private firms, especially given the higher institutional environment quality in the UK and its strong legal system; therefore, public firms are more likely to manage earnings in settings where earnings management is facilitated (e.g., Hope et al., 2013). Consequently, public firms are expected to rely more on classification shifting when they use tax havens than when they do not, whereas this may not be true to the same extent in private firms.

This study is motivated by the following: Firstly, classification shifting is relatively under-investigated compared to other earnings management techniques (i.e., AEM and REM);

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[55] For instance, when special types of taxes are imposed on core earnings, such as the gift tax introduced in Korea in 2012, firms face a trade-off between reporting higher core earnings for financial reporting considerations, and reporting lower core earnings for tax purposes (Chung et al., 2021a).

although classification shifting can be less costly compared to other strategies because it involves no accruals manipulation that reverses, nor does it change the real activities of the firm (McVay, 2006; Zalata and Roberts, 2017). Moreover, since bottom-line earnings are not affected, regulatory intervention is less likely because auditors and regulators are more concerned when bottom-line earnings are affected (McVay, 2006) and because accounting standards focus more on recognition and measurement issues rather than the presentation of income statement items (Haw et al., 2011).

Secondly, there is a growing debate worldwide among regulators, the media, and academics about the economic implications of using tax havens, especially following a series of leaks revealing the use of these jurisdictions for tax avoidance or money laundering by high-profile companies and individuals (International Monetary Fund, 2000; Dharmapala, 2008; Jaafar and Thornton, 2015; Starkman et al., 2021). Tax havens are characterized by low institutional environment quality and secrecy policies, which are expected to facilitate tax avoidance and earnings management practices (e.g., Dyreng et al., 2012; Durnev et al., 2017). This chapter aims to investigate whether there is an association between the use of tax havens and the incentives of firms to manage earnings using classification shifting, an area that has not been investigated in prior research.

Thirdly, prior research on classification shifting focuses almost exclusively on the behaviour of public firms to overstate core earnings for equity market incentives, such as pressure to meet or beat analysts' earnings forecasts (e.g., McVay 2006; Fan et al., 2010). In contrast, extant literature on classification shifting by private firms is scarce and non-existent within the UK context. Private firms also have incentives to rely on classification shifting for debt market incentives (Chung et al., 2021b) and tax planning (Chung et al., 2021a). Private firms have no access to equity markets and rely heavily on debt to finance their activities; therefore, they may have incentives to overstate core earnings for credit market considerations since creditors focus more on core earnings than bottom-line net income when evaluating the credit worthiness of firms (Demerjian and Owens, 2016; Fan et al., 2019; Chung et al., 2021b). Therefore, both public and private firms have incentives to engage in classification shifting.

Fourthly, the sensitivity of classification shifting to using tax havens might differ between public and private firms, which has also not been investigated in prior research. Prior research documents that inherent differences between public and private firms influence their earnings management and financial reporting quality (Ball and Shivakumar, 2005; Hope et al., 2013; Haga et al., 2018). These differences are also expected to influence the impact of tax havens on classification shifting across listing status. For the reasons discussed above, public

firms may increase their reliance on classification shifting when they use tax havens due to the lower costs of this form of earnings management compared to AEM and REM, and also due to the lower institutional environment quality of tax havens which may exacerbate this form of earnings management. However, classification shifting of private firms is less likely to differ for those using tax havens since they are subject to less regulatory scrutiny and market pressures.

The current study employs a large sample of public and private firms domiciled in the UK to investigate the impact of using tax havens on classification shifting and whether the sensitivity of classification shifting to using tax havens differs between public and private firms. The research question of this chapter can be stated as follows: *Is classification shifting sensitive to using tax havens, and does the sensitivity of classification shifting to using tax havens differ between public and private firms?* To investigate this research question, several hypotheses are developed and empirically tested. Data are collected from Amadeus database published by Bureau van Dijk (BvD), and the sample covers the period from 2010 to 2018. The final sample comprises 4,424 public firm-year observations and 90,497 private firm-year observations.

The main empirical tests reveal the following: Firstly, overall, firms that use tax havens engage in more classification shifting compared to firms without tax haven operations. This indicates that the use of tax havens exacerbates not only AEM and REM (e.g., Dyreng et al. 2012; Durnev et al. 2017) but also classification shifting. This finding supports the prediction that tax havens are associated with reduced earnings management cost due to relatively low institutional environment quality, secrecy policies, and low tax rates (Dyreng et al., 2012; Durnev et al., 2017). Another argument is that since tax haven firms are larger firms that can be more politically sensitive, especially within the context of the strong legal system in the UK, these firms may resort to classification shifting due to its lower cost compared to AEM and REM.

Second, when the sample is decomposed into public and private firms, results show that both public and private firms rely on classification shifting and that private firms appear to rely more heavily on classification shifting than public firms overall. This finding is intuitive given that private firms are driven more by debt financing considerations and are more aggressive tax planners, as documented in prior research (Ball and Shivakumar, 2005; Jaafar and Thornton, 2015; Chung et al., 2021b). This finding is also consistent with prior research documenting that private firms engage in more earnings management overall and exhibit lower financial reporting quality compared to public firms since private firms are subject to lighter

regulations and lower scrutiny (Ball and Shivakumar, 2005; Burgstahler et al., 2006; Hope et al., 2013). Classification shifting may be employed more heavily by private firms because it achieves their objectives to overstate core earnings for credit market considerations while avoiding tax consequences since classification shifting does not change taxable income in the way that other earnings management strategies do (Abernathy et al., 2014).

Third and most importantly, to test the sensitivity of classification shifting to using tax havens by public and private firms, results show that public firms engage in more classification shifting when they use tax havens than when they do not, whereas classification shifting by private firms is not sensitive to the use of tax havens. This finding may indicate that – as discussed earlier – since public firms are subject to higher market pressure to report higher core earnings and are also subject to higher scrutiny by auditors and regulators in the UK, they rely more heavily on classification shifting to overstate core earnings due to its lower cost compared to AEM and REM especially with the use of tax havens which may facilitate earnings management as documented in prior research. An alternative interpretation is that, again, since public firms are subject to higher scrutiny compared to private firms when they use tax havens, and since they are larger and more politically sensitive, they resort to more classification shifting as a less costly form of earnings management compared to AEM and REM. On the other hand, as private firms are generally subject to less scrutiny, the use of tax havens has a muted impact on their classification shifting behaviour.

Fourth, in terms of incentives to engage in classification shifting, results show that public firms generally classification shift to report positive core earnings and before issuing new debt compared to private firms, whereas private firms classification shift to report core earnings increase. Incentives to classification shift to meet or beat core earnings benchmarks do not appear to be sensitive to the use of tax havens, either in public or private firms; however, public firms seeking new debt appear to reduce their reliance on classification shifting when they use tax havens.

Finally, although the main results show that classification shifting is higher among tax haven firms, propensity score matching results show some evidence suggesting that this may be explained by the systematically different characteristics of firms opting to locate in tax havens, rather than the influence of tax haven status on financial reporting, *per se*. This finding is consistent with prior research suggesting that large and profitable firms are more likely to use tax havens either for tax avoidance or earnings management since these firms are more concerned with their financial reporting and tax considerations and have the resources to

establish tax haven subsidiaries to achieve these objectives (e.g., Dyreng et al., 2012; Jaafar and Thornton, 2015; Durnev et al., 2017).

This study contributes to the literature in several ways. Firstly, this study provides evidence on the impact of using tax havens on classification shifting and shows that the use of tax havens is associated with more classification shifting overall. Prior studies within the context of using tax havens focus exclusively on AEM or REM and show that the use of tax havens is associated with more earnings management (especially using AEM) due to secrecy policies and weak regulations enforcement in tax havens (e.g., Dyreng et al. 2012; Durnev et al. 2017). Secondly, this study contributes by providing evidence that firms' listing status influences the sensitivity of classification shifting to using tax havens; public firms classification shifting is sensitive to using tax havens, while this is not the case for private firms. As discussed earlier, this is expected due to the different incentives and regulatory environments between public and private firms.

Finally, this study also has policy implications. Findings show that classification shifting is pervasive among UK firms, which is consistent with prior research based on US firms (McVay, 2006; Fan et al., 2010) and on East Asian countries (Haw et al., 2011; Chung et al., 2021a). This can be due to the light regulation of non-core items and the presentation of income statement items by accounting standards, which exacerbates classification shifting (Haw et al., 2011; Zalata and Roberts, 2016; Malikov et al., 2018). Classification shifting is widely adopted in both strong and weak legal systems and suggests that standard setters should focus more on the presentation of income statement items rather than focusing only on measurement and recognition issues (Haw et al., 2011). In addition, auditors and regulators should be aware of this earnings management technique and constrain it by carefully verifying the appropriate classification of income statement items.

The remainder of this chapter proceeds as follows: section 2 discusses prior literature and hypotheses development; Section 3 discusses the data and research methodology; Section 4 discusses the empirical results; and Section 5 concludes and discusses the limitations and suggestions for further research.

4.2 Prior literature and hypotheses development

4.2.1 Earnings management using classification shifting

Definition of classification shifting

Management of earnings using classification shifting refers to the intentional misclassification of expenses (or revenues) within the income statement to manipulate core earnings while bottom-line income is unaffected (McVay, 2006; Malikov et al., 2018).[56] For instance, managers with incentives to overstate core earnings may engage in classification shifting by classifying core expenses as non-core or by classifying non-core revenues as core (McVay, 2006; Malikov et al., 2018; Chung et al., 2021a).[57] The recent growing literature on classification shifting reflects its viability as an effective earnings management tool to influence the perception of different stakeholders regarding a firm's core performance. Prior research documents that many financial statement users put more weight on core earnings and consider them as more persistent, informative, and value-relevant (Lipe, 1986; Bradshaw and Sloan, 2002; Fan et al., 2010; Zalata and Roberts, 2017; Chung et al., 2021b).[58] Furthermore, investors seem aware that the closer line items are to sales within the income statement, the more permanent they appear to be, and therefore, they value different earnings figures differently (Lipe, 1986; Bradshaw and Sloan, 2002; McVay, 2006; Fan et al., 2010). Therefore, managers may have incentives to engage in core earnings manipulation due to such stakeholders' emphasis (McVay, 2006; Fan et al., 2010). This chapter follows the core earnings expectation model introduced by McVay (2006), which focuses on classification shifting to overstate core earnings by misclassifying core expenses as income-decreasing special items.

Managing earnings using classification shifting can be advantageous over AEM and REM for the following reasons: First, classification shifting has no impact on GAAP income; therefore, it is unlikely to attract the attention of auditors and regulators compared to AEM. In addition, the allocation of earnings components to specific accounts can be subjective, making

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[56] Earnings management reflects managers' incentives and actions to manipulate the actual economic performance of the firm to achieve specific outcomes (Healy and Wahlen, 1999; Walker, 2013). Please see Healy and Wahlen (1999) and Walker (2013) for a review of earnings management literature.

[57] Prior research also documents the possibility of using classification shifting to understate core earnings when firms have incentives to do so. For instance, Chung et al. (2021a) document and provide evidence that firms have incentives to report lower core earnings following the introduction of a gift tax imposed on controlling shareholders based on core earnings; in doing so, firms reduce their engagement in upwards core earnings manipulation using both income-decreasing and income-increasing non-core items. Firms also might engage in classification shifting by classifying non-core expenses as core to understate core earnings, which also creates a positive relationship between unexpected core earnings and income-decreasing non-core items.

[58] Core earnings are also called pro-forma earnings, non-GAAP earnings, or "street" earnings, while bottom-line earnings are also called GAAP earnings (Bradshaw and Sloan, 2002; Zalata and Roberts, 2017).

it difficult for auditors to verify the appropriate classification (Nelson et al., 2002; McVay, 2006; Fan et al., 2010). Second, contrary to AEM, which is highly regulated by accounting standards, classification shifting and the treatment of non-recurring items is lightly regulated, and accounting standards focus more on the measurement and recognition issues of income statement components rather than their appropriate classification (Haw et al., 2011; Zalata and Roberts, 2016); therefore, classification shifting can be less costly compared to AEM since it is less regulated and less scrutinized by auditors and regulators. Third, classification shifting does not impact past or future performance because it neither involves accruals manipulation that reverses nor impacts the firm's real activities which can negatively influence the actual firm performance (McVay, 2006; Fan et al., 2010).[59] As a result, there is a growing research investigating classification shifting as a viable earnings management strategy that can be less costly than AEM and REM. Some of this research is discussed briefly in the following sections.

4.2.2 Prior empirical evidence on classification shifting

Discussion of using the classification and presentation of income statement items to influence stakeholders' perceptions appeared early in prior literature. Barnea et al. (1976) stress the fact that the main focus of financial statement users is on ordinary income (before extraordinary items) rather than net income (after extraordinary items). Therefore, they investigate and find evidence that management manipulates the classification of extraordinary revenues and expenses to smooth ordinary income over time to influence stakeholders' perceptions regarding the firm's future performance. Lipe (1986) investigates whether different earnings components are more useful in explaining stock returns than a single summary earnings measure.[60] The author provides evidence supporting this hypothesis, which indicates that market participants are rational in evaluating the information contained in each earnings component instead of focusing solely on a single earnings metric; the evidence also shows that stock returns are positively associated with earnings components that are more persistent.

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[59] When managers engage in AEM to overstate current period earnings by borrowing earnings from the future, future earnings are understated accordingly (McVay, 2006; Gunny, 2010). Similarly, when managers engage in REM for instance by cutting discretionary expenses such as R&D or advertising expenses to overstate current earnings, future earnings (and cash flows) are expected to decline due to the negative impact of these decisions on the long term real economic performance of the firm (Graham et al., 2005; McVay, 2006; Roychowdhury, 2006). However, REM involves no GAAP violation, is less scrutinized by auditors, and is harder to detect compared to AEM (McVay, 2006; Gunny, 2010; Francis et al., 2016). Therefore, prior research documents that firms sometimes trade-off between AEM and REM choices depending on the relative costliness of the two alternatives (Cohen et al., 2008; Zang, 2012; Francis et al., 2016).

[60] The earnings metric used by Lipe (1986) is earnings per share before extraordinary items and discontinued operations, adjusted for stock splits and stock dividends.

Consistent with this, Fairfield et al. (1996) provide evidence that decomposing net income into specific components as prescribed by the accounting profession provides different information content, which is more useful in predicting future profitability. Specifically, operating (core) earnings should be the most heavily weighted in predicting the bottom-line ROE and ROE before special items (ROEBSI) of the following year. In contrast, special items should be given a small positive weight in predicting bottom-line ROE but zero weight in predicting ROEBSI, whereas extraordinary items and discontinued operations have no power in explaining either bottom-line ROE or ROEBSI. The authors conclude that the ability of an earnings component to predict future profitability depends on its position on the income statement, where earnings components that tend to recur in the future or are more representative of the firm's normal operations are associated with less measurement errors and have higher predictive content than earnings components that are less likely to recur in the future or are less representative of the firm's normal operations.

In addition, Bradshaw and Sloan (2002) document the recent increasing shift from focusing mainly on "GAAP" net income towards heavy reliance on "Street" earnings – also known as "operating" and "pro forma" earnings – by several stakeholders such as managers, financial analysts, investors, and the press. The authors provide evidence of this growing shift and show that managers and financial analysts focus on street earnings by excluding various expenses allowed under GAAP, such as special and non-cash items. The authors show that street earnings are more value-relevant and have more influence on stock returns than GAAP earnings, indicating that investors increasingly put higher valuation multiples on street earnings reported by financial analysts than GAAP earnings. The authors provide two main interpretations to their findings: First, managers and analysts might emphasise street earnings to receive higher valuation multiples by reporting higher street earnings. Second, managers and analysts might be increasingly focusing on street earnings to stress the transitory nature of some earnings components by excluding them to present an alternative, more persistent earnings measure that better predicts future cash flows and firm value. The authors finally refer to the possibility that their findings might be influenced by opportunistic earnings management to report higher core earnings for stock market incentives rather than due to stressing the transitory nature of some items as screened by investors. This is consistent with the argument that managers have incentives to create an alternative measure of earnings which is higher than GAAP earnings and to smooth operating income over time.

Consistent with the above, Bhattacharya et al. (2003) investigate and find that pro forma earnings announcements – also called street earnings – are perceived by market participants to

be more informative and persistent compared to GAAP earnings since pro forma earnings exclude non-recurring items, and therefore, they are less noisy and more representative of core earnings. However, critics argue that pro forma earnings can be deliberately used by managers to signal good performance to investors while hiding bad news. Therefore, pro forma earnings can be misleading to investors and should be interpreted with caution (Bhattacharya et al., 2003).

McVay (2006) recognised the importance of meeting core earnings benchmarks and predicted that managers of US firms might have incentives to engage in classification shifting to overstate core earnings to meet analysts' earnings forecasts. The author introduced a novel core earnings expectation model that captures the intentional misclassification of core expenses to special items to inflate core earnings. The author finds a positive relationship between unexpected core earnings and income-decreasing special items. In supporting the predicted hypotheses, the model became widely adopted in subsequent studies (e.g., Fan et al., 2010; Zalata and Roberts, 2017; Chung et al., 2021a). This seminal work by McVay (2006) triggered growing interest in classification shifting as an alternative earnings management strategy, although still it is relatively under-investigated compared to accrual-based earnings management (AEM) and real activities earnings management (REM).[61]

Also within the US context, Barua et al. (2010) use a methodology similar to McVay (2006) and find that US firms engage in classification shifting to overstate core earnings by classifying core expenses as income-decreasing discontinued operations. The authors also provide evidence that managers engage in classification shifting to meet or beat analysts' earnings forecasts. In addition, also in the US setting, Fan et al. (2010) respond to the call by McVay (2006) to improve the core earnings expectations model; McVay (2006) acknowledges that a limitation of the model is that it is sensitive to the inclusion of contemporaneous accruals as a control for performance. Fan et al. (2010) notes that including contemporaneous accruals as an explanatory variable is problematic because it includes accrual special items, potentially creating a positive mechanical relationship between core earnings and special items. To address this, the authors exclude contemporaneous accruals from the model, add additional controls for performance, and report findings that support McVay (2006). The authors find that managers

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[61] AEM can be achieved in several ways; such as influencing the timing of recognition of revenues or expenses, or changing the accounting methods or estimates – such as the depreciation method or the estimate for bad debts (McVay, 2006; Zang, 2012; Walker, 2013). REM, on the other hand, involves influencing how the firm actually operates; for instance, to overstate earnings, managers may engage in activities such as offering price discounts to accelerate sales, cutting discretionary expenses such as research and development (R&D), overproduction to reduce fixed costs per unit and cost of goods sold (Bushee, 1998; Roychowdhury, 2006; Walker, 2013).

of US firms engage in classification shifting to overstate core earnings in the fourth quarter more than in interim quarters and when their ability to use accruals earnings management is constrained. Managers do so to meet a range of earnings benchmarks such as analysts' earnings forecasts, the previous year's same quarter earnings, and zero earnings.[62]

Abernathy et al. (2014) provide additional evidence that managers of US firms use classification shifting as a substitute form of earnings management when their ability to use AEM and REM is constrained. They find that managers use classification shifting as a substitute for REM when the latter is constrained by poor financial conditions, higher institutional ownership, and low industry market share.[63] Similarly, when AEM is constrained by low accounting system flexibility and the provision of analyst cash flow forecasts, managers use classification shifting as an alternative. Their findings indicate that managers trade-off between the three alternative forms of earnings management depending on each method's costliness, timing, and constraints.

Fan and Liu (2017) decompose core expenses into COGS and SG&A to investigate whether managers use them separately by misclassifying them as special items to meet or beat certain earnings benchmarks and also to investigate whether managers engage in real activities manipulation (RAM) using these two expenses components to achieve certain earnings benchmarks. They find that managers misclassify COGS (but not SG&A) to beat the gross margin benchmark of the previous four quarters. However, they find that managers misclassify both COGS and SG&A in the fourth quarter to meet/beat analyst earnings forecasts, prior-year core earnings, and zero core earnings benchmarks. The authors also find that managers engage in RAM using COGS to meet the gross margin (but not core earnings) benchmark. They also find that SG&A is used extensively for classification shifting separately from RAM, which suggests that future RAM studies should control for expense misclassification.

While the vast majority of prior research on classification shifting focuses on equity market incentives to engage in classification shifting, as discussed above, Fan et al. (2019) focus on the credit market incentives to inflate core earnings using classification shifting.[64] The authors investigate whether US firms with private loan contracts use classification shifting to

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[62] Fan et al. (2010) limit their tests to the current relation between unexpected core earnings and special items, and do not investigate the subsequent reversal of unusually high core earnings associated with special items.

[63] The authors also investigate higher effective tax rates as a constraint of REM which might be associated with more classification shifting but find no evidence supporting this prediction. REM overstates both core and bottom-line earnings which can be associated with higher tax costs, therefore, classification shifting can be an optimal alternative because it can be used to overstate core earnings only without influencing taxable income.

[64] According to Fan et al. (2019), the credit market is a major source of external finance; in the US alone, private loans issued in 2016 amount to $1,895 billion compared to only $197.5 billion of equity issuance.

inflate core earnings to avoid debt covenant violations when the debt covenants are based on earnings before interest, taxes, depreciation, and amortization (EBITDA).[65] Consistent with their prediction, the authors find that firms engage in more classification shifting to inflate EBITDA by misclassifying core expenses as special items when at least one EBITDA-related debt covenant is close to violation; the authors also find that this practice is more pronounced for financially distressed firms since the cost of violation is higher. The authors conclude that creditors therefore influence classification shifting behaviour by firms and that classification shifting is a viable earnings management technique firms use to avoid debt covenant violations. These findings are also consistent with the debt hypothesis by Watts and Zimmerman (1986), which argues that firms are more likely to manipulate earnings upwards as they approach the violation of debt covenants that are based on those earnings.

Based on the UK setting, Athanasakou et al. (2009) investigate whether UK firms engage in earnings management to meet analysts' earnings forecasts by focusing on two earnings management strategies: (a) positive abnormal working capital accruals and (b) shifting the classification of core expenses to non-recurring items. The authors find no evidence supporting the use of discretionary accruals to meet analysts' earnings expectations; however, they find evidence supporting the use of classification shifting to achieve this objective for a subset of larger firms. The authors argue that firms might have incentives to engage in classification shifting by inflating core earnings to meet analysts' forecasts since non-recurring items are excluded from core earnings by both managers and financial analysts. In addition, also within the UK setting, Athanasakou et al. (2011) investigate whether UK firms achieve analysts' earnings expectations through earnings forecast guidance or earnings management and how the market responds accordingly.[66] The authors consider AEM, REM, and classification shifting as earnings management alternatives. Findings show that UK firms achieve analysts' expectations through forecast guidance and classification shifting and that the market generally rewards achievers over non-achievers. In addition, findings show that the market does not generally reward achievers who guide forecasts down but rewards achievers who classification shift. However, the market rewards genuine achievers more than those who classification shift, and correctly price both. This indicates that classification shifting can be an

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[65] Private loan contracts often include covenants or restrictions that are based on core earnings performance to protect the lender from poor decisions by the borrower (Demerjian and Owens, 2016; Fan et al., 2019), which might create incentives for the borrower to engage in core earnings manipulation to avoid violation of such covenants (Fan et al., 2019).

[66] Forecast guidance entails guiding analyst earnings forecasts downwards to make it more attainable (Athanasakou et al., 2011).

effective earnings management tool to temporarily meet or beat analysts' earnings expectations, which is consistent with McVay (2006). However, since core expenses that have been previously misclassified as non-recurring tend to recur in subsequent periods and lead to a decline in core earnings (unless shifted similarly in subsequent periods), classification shifting achievers of analysts' forecasts are more likely to receive lower market reward than genuine achievers (Athanasakou et al., 2011).

Zalata and Roberts (2016) also focus on UK firms to investigate whether strong internal corporate governance mechanisms effectively constrain opportunistic managerial behaviour in a setting that is lightly regulated by accounting standards. Specifically, the authors investigate whether strong internal corporate governance mitigates classification shifting, which is an area that is less regulated through accounting standards compared to the treatment of accruals, for instance.[67] The authors conclude that high quality internal corporate governance is a substitute for strict accounting standards in mitigating classification shifting. Specifically, long tenure of the board of directors and board independence help to reduce classification shifting. In addition, audit committees that meet more frequently, have more directors with long tenures, and have financial experts also curb classification shifting.

Zalata and Roberts (2017) investigate whether UK firms engage in classification shifting following the adoption of IFRS and how credit rating agencies respond to classification shifting to meet certain core earnings benchmarks, such as to report core earnings increases or to avoid reporting core losses.[68] The authors find that managers engage in more classification shifting under IFRS by classifying some core expenses as non-core when this allows them to report core earnings increases; however, they find no evidence that firms use classification shifting to avoid reporting core losses. They interpret their findings by highlighting that credit rating agencies may not penalize firms that use classification shifting to avoid reporting core earnings declines but may penalize firms that use classification shifting to avoid reporting core losses.

Although McVay (2006) recognises that expense and revenue items can be misclassified to manipulate core earnings, the author focuses only on expense classification

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[67] The disclosure of earnings and the treatment of non-recurring items is relatively lightly regulated under the International Financial Reporting Standards (IFRS) (Zalata and Roberts, 2016). International Accounting Standard 1 *(IAS 1 – Presentation of Financial Statements)*, requires special items to be disclosed separately in the income statement or in the notes if material, leaving managers with a great discretion over the classification of revenues and expenses (Abernathy et al., 2014; Malikov et al., 2018).

[68] According to Zalata and Roberts (2017) and Malikov et al. (2018), the treatment of non-recurring items is less regulated under IFRS (IAS1) compared to UK GAAP (FRS 3), which may provide more opportunity of managing earnings using classification shifting by IFRS adopters. Consistent with this prediction, the two studies find that UK firms engage in more classification shifting following the adoption of IFRS.

shifting and left revenues classification shifting to future research. As a response, Malikov et al. (2018) introduced a novel model which investigates and documents that firms also overstate core earnings by misclassifying non-core revenues as core. The authors investigate a large sample of 12,804 firm-years of UK publicly listed firms over the period 1995-2014 and find that firms increasingly engage in more classification shifting following the mandatory adoption of IFRS in 2005, which indicates that IFRS offers greater flexibility for manipulation by managers. In addition, the authors find that firms that report losses and firms with low growth rates engage in more classification shifting of revenues.

Outside the US and UK settings, Haw et al. (2011) investigate whether firms in eight East Asian countries engage in classification shifting to manipulate core earnings and also investigate the impact of ownership concentration and corporate governance mechanisms – such as country-level legal systems and Big-4 auditors – on classification shifting. The authors employ McVay's (2006) model and find that firms in these countries engage in classification shifting by misclassifying core expenses as special items to inflate core earnings. They also find that classification shifting is more pervasive when it allows firms to meet or beat analysts' earnings forecasts. In addition, the authors find that firms with controlling shareholders engage in more classification shifting to overstate core earnings, and that strong legal systems mitigate classification shifting. They further report that Big-4 auditors are more effective in curbing classification shifting in countries characterized by strong legal institutions compared to countries characterized by weak legal institutions. The authors suggest that managing earnings using classification shifting can mislead investors regarding the core performance of the firm, influence the credibility of financial reports and the well-functioning of the capital markets. Therefore, they suggest that standard setters and regulators need to pay more attention to the classification and presentation of the income statement items rather than focusing solely on recognition and measurement issues.

Within the context of private firms, while prior research on classification shifting focuses on the behaviour of public firms; Chung et al. (2021b) focus only on private firms and investigate whether Korean private firms engage in classification shifting for debt financing considerations. The authors employ the McVay (2006) model and find that private firms with outstanding debt engage in classification shifting to overstate core earnings while private firms without outstanding debt do not. In addition, the authors find that classification shifting is more pronounced among private firms with public debt than those with private loans. Furthermore, classification shifting is more pronounced when the firm is audited by a new auditor who is not one of the Big-4 auditors. Overall, the authors conclude that the credit market creates incentives

for managers to engage in core earnings manipulation via classification shifting, which is consistent with Fan et al. (2019), as discussed earlier.

Regarding tax incentives to engage in classification shifting, Chung et al., (2021a) investigate whether firms also have incentives to report lower core earnings when they have incentives to do so, and whether these incentives influence classification shifting. Using a sample of public and private Korean firms, the authors investigate whether controlling shareholders who are subject to a new shareholder-level tax introduced in Korea in 2012 based on core earnings have incentives to report lower core earnings. The authors find that following the introduction of the new tax, firms with controlling shareholders who are subject to the tax reduce their engagement in classification shifting practices that were previously used to inflate core earnings (i.e., by misclassifying core expenses as non-core or misclassifying non-core revenues as core). The authors further find that the decline in classification shifting is more pronounced for private firms than public firms, which indicates that public firms are more reluctant to reduce classification shifting due to the higher financial reporting costs of reporting lower core earnings by public firms.[69] The authors conclude that beneficiary firms overall are willing to incur some financial reporting costs (or sacrifice some financial reporting benefits) associated with reporting lower (higher) core earnings to avoid the new tax imposed on controlling shareholders. Overall, Their study provides evidence that both tax and financial reporting considerations play a significant role in influencing firms' classification shifting behaviour.

4.2.3 Theoretical framework and hypotheses development

Theory of institutional environment

The theory of institutional environment quality has been discussed in detail and used as a framework for the first two empirical chapters, and it is also relevant for this chapter since the institutional environment quality of a firm also influences its reliance on classification shifting. While prior research documents that the institutional environment quality of a firm influences its earnings management behaviour using AEM and REM, where higher institutional environment quality is generally associated with lower AEM (but more REM) (e.g., Francis et al., 2016). This chapter extends this line of research by examining how the use

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[69] The authors use listing status as a proxy for financial reporting costs since public firms are subject to higher scrutiny and market pressure to report higher core earnings compared to private firms. Their findings also indicate that public firms are overall more concerned with financial reporting considerations while private firms are more concerned with tax considerations than financial reporting considerations.

of tax havens – characterised by low institutional environment quality – might influence classification shifting by UK public and private firms.

The UK setting

Again, as discussed in detail in Chapter (1), Sections 1.1.5 and 1.2, this study focuses on the UK setting, whereas prior research in the area of using tax havens and earnings management did not examine the UK setting exclusively and focused only on the behaviour of public firms. The UK is a common law country characterised by strong legal system and higher institutional environment quality, and as discussed earlier, it is more likely to constrain AEM relative to REM and classification shifting. However, since classification shifting is less regulated by accounting standards as discussed earlier and it is less costly compared to other alternatives, firms (especially public firms) are more likely to rely more on classification shiting when they use tax havens. However, this also might not be the case, and the following sections discuss the different arguments in detail and develop the hypotheses.

Classification shifting and the use of tax havens

Prior research on the use of tax havens focuses more on the tax consequences of using tax havens; these studies overall show that firms that use tax havens incur lower tax burdens compared to firms without tax haven operations (e.g., Dyreng and Lindsey 2009; Jaafar and Thornton 2015), which indicates that the use of tax havens is an effective tool for tax planning. In addition, prior research documents that firms face a trade-off between reporting higher earnings for financial reporting considerations and reporting lower earnings for tax considerations (e.g., Cloyd et al., 1996; Erickson et al., 2004; Hanlon and Heitzman, 2010; Chung et al., 2021a). For instance, Erickson et al. (2004) find that US firms incur tax costs when they fraudulently overstate their earnings, i.e., firms overpay taxes due to the overstated earnings. The authors conjecture that one way to minimize such tax costs might be by overstating the earnings using subsidiaries in low-tax countries.[70] Therefore, the consequences of using tax havens on earnings management are also important to consider. While existing studies focus only on AEM and REM proxies (e.g., Dyreng et al. 2012; Durnev et al. 2017), no existing studies – to my knowledge – investigate the relationship between using tax havens and classification shifting.

Prior studies overall find that the use of tax haven subsidiaries is associated with more earnings management (and lower FRQ) due to the complex structures of tax haven firms in

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[70] The US GAAP (APB No. 23) allows no need to recognize US deferred taxes upon repatriation of earnings if earnings are invested abroad indefinitely.

addition to secrecy policies and the low institutional environment quality of tax havens, which obfuscate and facilitate earnings management activities and reduce financial reporting quality (Dyreng et al., 2012; Durnev et al., 2017). Dyreng et al. (2012) find that US firms with extensive operations in countries characterized by weak rule of law and in tax havens engage in more earnings management using discretionary accruals than firms with extensive operations in countries characterized by strong rule of law and in non-tax havens. They posit that tax havens are desirable locations for earnings management for several reasons. Firstly, there is little or no tax consequences of managing earnings of subsidiaries located in these jurisdictions due to the low or zero tax rates; in other words, they posit that earnings management is more likely when tax costs are lower.[71] Secondly, the secrecy policies of tax havens and the complex structures of tax haven firms can be conducive to both tax avoidance and managerial diversion of firm's resources for private benefits, for instance, tax shelters are created for the primary purpose of overstating accounting earnings. The authors also predict and find that the use of tax haven subsidiaries facilitates earnings management especially for profitable firms, because tax costs are higher for these firms and they are more concerned about overstating earnings at a minimal tax cost (e.g., the case of Enron).

Durnev et al. (2017) report findings that are consistent with Dyreng et al. (2012). Using a sample of firms headquartered in 15 countries with the strictest legal systems, they find that firms with subsidiaries in tax havens (OFCs) exhibit lower financial reporting quality (and higher income-increasing and absolute AEM), but less REM compared to firms without tax haven subsidiaries. However, as OFC attributes become more prevalent, tax haven firms engage in both AEM and REM to manipulate earnings upwards.[72] They interpret their findings by indicating that the low institutional environment quality in tax havens facilitate earnings management through the use of subsidiaries located in these jurisdictions and reduce financial reporting quality. More specifically, the authors indicate that secrecy policies and flexible regulations (low regulations enforcement) in tax havens are the main drivers of the increased earnings management by tax haven firms, especially through AEM more than REM, because in their original countries of domicile (characterized by strong legal systems), AEM is subject to higher scrutiny by auditors and regulators and can be more easily detected. The authors

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[71] The authors assume that earnings from foreign subsidiaries are not repatriated and no US taxes apply, therefore, overstating earnings of tax haven subsidiaries have no tax consequences due to the low or zero taxes in these jurisdictions.

[72] This is also consistent with the tax free earnings management according to Dyreng et al. (2012), i.e., managing earnings upwards using tax haven subsidiaries has minimal tax costs since tax rates are very low or zero in these jurisdictions.

finally conclude that a firm's institutional environment quality must be assessed not only on the basis of its country of domicile, but also on the basis of the foreign countries in which the firm has subsidiaries or affiliates, as both can significantly influence its financial reporting quality and incentives for earnings management.[73]

As discussed earlier, managing earnings using classification shifting can be an optimal earnings management tool to overstate core earnings without influencing bottom-line net income to achieve several financial reporting or tax objectives (McVay, 2006; Chung et al., 2021a). Classification shifting has not been investigated in prior research within the context of using tax havens; prior research investigating the use of tax havens focuses only on AEM and REM, public firms, and different institutional settings as discussed earlier. In addition, prior studies document that classification shifting can be used as an alternative form of earnings management when AEM and REM are constrained or are more costly (Abernathy et al., 2014), as managers tend to employ the form(s) of earnings management that is less costly and less constrained to achieve their financial reporting objectives (Zang, 2012).

Within the context of using tax havens, firms with tax haven operations might have incentives to engage in more classification shifting for the following reasons. Firstly, tax haven firms are larger and more profitable firms that are more concerned about reporting higher earnings for financial reporting considerations at a minimum tax cost (Erickson et al., 2004; Dyreng et al., 2012). Classification shifting can be an optimal alternative to achieve this objective because it can be used to overstate core earnings without influencing taxable income (Abernathy et al., 2014). Secondly, managing earnings using classification shifting can be a viable alternative because, as discussed earlier, tax havens are characterized by low institutional environment quality (e.g., secrecy policies, flexible or light regulations, and weak investor protection), which can obfuscate and facilitate all forms of earnings management (especially AEM) (Dyreng et al., 2012; Durnev et al., 2017). Classification shifting is unlikely to be an exception, and it can be the cheapest alternative to be employed by tax haven firms to achieve their financial reporting objectives of reporting higher core earnings at the lowest possible cost. This is because, unlike AEM and REM, classification shifting does not change bottom-line earnings, it involves no accruals manipulation that reverses in the future, nor does it involve changing the real activities of the firm, and it involves no sacrificing of investment

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[73] Other studies, such as Leuz et al. (2003), Burgstahler et al. (2006), and Francis and Wang (2008), focus on the country of domicile as the proxy for the firm's institutional environment quality. These studies conduct a cross-country comparison and generally report that firms from countries characterized by strong legal systems engage in less earnings management compared to firms located in countries characterized by weak legal systems, and vice versa.

opportunities or cutting necessary expenditures that can negatively influence the business. Furthermore, since auditors are more concerned when bottom-line net income is affected (McVay, 2006), managing earnings using classification shifting through tax haven subsidiaries is unlikely to attract auditors' attention or regulatory intervention. It can be even more difficult to detect in such a setting.

The above discussion leads to the prediction that the use of tax havens is associated with more classification shifting to overstate core earnings. However, several counter arguments exist. Firstly, due to the lower cost of classification shifting relative to AEM and REM, as discussed earlier, firms may not change their reliance on classification shifting when they use tax havens if they could engage in classification shifting without using tax havens. Secondly, since the use of tax havens may attract greater scrutiny, especially given the strong legal system of the UK, this may reduce firms' reliance on classification shifting (as well as other forms of earnings management). Thirdly, classification shifting might be less likely to be used when other forms of earnings management are not constrained or are less costly (Abernathy et al., 2014). As discussed earlier, prior studies document the use of AEM by tax haven firms, suggesting that secrecy policies and the high accounting system flexibility in tax havens facilitate this form of manipulation, especially by large and profitable firms given the low tax cost of this alternative due to the low or zero tax rates in tax havens (Dyreng et al., 2012; Durnev et al., 2017). In addition, in some cases when OFC attributes are more prevalent, REM can also be employed to overstate earnings in a tax-free manner (Durnev et al., 2017). Therefore, tax haven firms may not always favour classification shifting in a setting where managing earnings using the traditional alternatives at lower tax costs is possible.

Overall, this study predicts that the use of tax havens is associated with more earnings management using classification shifting. Therefore, the first hypothesis can be stated as follows.

H1: The use of tax havens is associated with more classification shifting.

Classification shifting and the use of tax havens by public and private UK firms

As discussed in detail in Chapter (1), the behaviour of private firms is generally under-investigated in prior research compared to public firms, although the vast majority of firms globally are private, and they play a significant role in the global economy (Chen et al., 2011; Hope et al., 2013). Furthermore, prior research investigating classification shifting by public versus private firms is scarce. Private firms differ from public firms in many respects. Shares of private firms are not publicly traded/listed on stock exchanges like public firms; therefore, their access to equity markets is restricted, and their financial statements are not widely

distributed (Ball and Shivakumar, 2005). As a result, public firms are subject to higher public/regulatory scrutiny and market pressures compared to private firms, especially given the strong legal system and investor protection in the UK, and their financial reporting behaviour is expected to be driven more by market considerations, whereas private firms are expected to be driven more by tax saving and debt financing considerations (Ball and Shivakumar, 2005; Jaafar and Thornton, 2015; Chung et al., 2021a).

Prior research documents that public firms have incentives to engage in classification shifting for several reasons related to equity markets, such as to meet or beat analysts' earnings forecasts (McVay, 2006; Athanasakou et al., 2009, 2011; Barua et al., 2010; Fan et al., 2010; Fan and Liu, 2017), to meet last year's same quarter earnings or to avoid zero earnings (Fan et al., 2010; Fan and Liu, 2017), to report core earnings increases, to improve credit ratings, or facilitate new debt financing (Zalata and Roberts, 2017). In addition, as discussed earlier, Chung et al. (2021a) document that public firms are more reluctant to reduce their reliance on classification shifting after the introduction of a special tax imposed on core earnings in Korea in 2012; the authors indicate that public firms are subject to higher financial reporting costs of reporting lower core earnings compared to private firms, which indicates that public firms rely on classification shifting more for financial reporting considerations than tax considerations, compared to private firms. Furthermore, classification shifting can be a less costly alternative compared to AEM and REM as discussed earlier (McVay, 2006; Fan et al., 2010), especially for public firms since public firms are subject to higher regulatory scrutiny and market pressures relative to private firms (Ball and Shivakumar, 2005; Hope et al., 2013; Chung et al., 2021a), therefore, public firms are expected to engage in more classification shifting due to its lower costs compared to other alternatives.

On the other hand, there are reasons why private firms may rely on classification shifting more than public firms. Firstly, prior research documents that private firms overall engage in more earnings management and show lower financial reporting quality compared to public firms since private firms are subject to less regulatory scrutiny and market demand for high quality earnings (e.g., Ball and Shivakumar 2005; Burgstahler et al. 2006; Hope et al. 2013). Classification shifting may not be an exception, and private firms may also rely on classification shifting more than public firms. Secondly, private firms are driven more by tax planning and debt financing considerations (Ball and Shivakumar, 2005; Jaafar and Thornton, 2015; Chung et al., 2021b; a), and recent studies show that private firms are more likely to change their reliance on classification shifting to match their tax planning and debt financing objectives (Chung et al., 2021b; a).

In terms of tax planning, private firms are more aggressive tax planners than public firms (Jaafar and Thornton, 2015; Chung et al., 2021a). Jaafar and Thornton (2015) find that private firms using tax havens exhibit lower effective tax rates than public firms using tax havens. In addition, as discussed earlier, Chung et al. (2021a) show that private firms significantly reduce their reliance on classification shifting to avoid a special tax imposed on core earnings, while public firms are reluctant to do so. This indicates that private firms are driven more by tax planning, even when incurring some financial reporting costs of reporting lower core earnings. Regarding debt financing incentives, Chung et al. (2021b) report that private firms engage in classification shifting mainly due to debt financing incentives since core earnings are more informative to creditors than GAAP earnings. Therefore, private firms' managers might engage in classification shifting mainly to influence creditors perceptions to gain debt because private firms rely more heavily on borrowing to finance their operations as they have no access to equity markets. Consequently, private firms might rely more heavily on classification shifting to overstate core earnings for credit considerations without incurring additional tax costs since taxable income is unaffected.[74]

Within the context of using tax havens, public firms that use tax havens might engage in more classification shifting compared to their private counterparts because even with the use of tax havens, AEM or REM can be more costly for public firms relative to private firms since public firms are subject to higher regulatory scrutiny and market pressure for high quality earnings, as discussed earlier. This might be especially the case due to the strong legal system in the UK, as discussed earlier, which is more likely to constrain AEM. Therefore, public firms using tax havens are more likely to resort to more classification shifting than private firms because classification shifting is less regulated than AEM and less costly compared to REM.[75] In addition, public firms' use of tax havens may attract more scrutiny, which might constrain AEM and therefore, public firms might rely more on classification shifting. Therefore, the second hypothesis can be stated as follows.

H2: The impact of tax haven use on classification shifting is relatively more pronounced for public firms than private firms.

The impact of core earnings benchmarks on classification shifting

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[74] Unlike other earnings management tools, classification shifting can be used to overstate core earnings without incurring tax costs; for instance, cutting discretionary expenses to overstate book income also overstates taxable income (Abernathy et al., 2014), which results in high tax costs (e.g., Erickson et al. 2004).

[75] Public firms using tax havens might have more incentives to engage in classification shifting, since REM can have significant consequences, especially for large and profitable firms as discussed earlier (Durnev et al., 2017).

Prior research documents that firms have incentives to meet or beat core earnings benchmarks (e.g., Barua et al., 2010; Fan et al., 2010; Zalata and Roberts, 2017) such as to avoid reporting zero or negative core earnings by reporting small positive core earnings (PCE), or to report core earnings increase (CEI). However, prior studies did not investigate such incentives within the context of using tax havens and whether this behaviour differs between public and private firms.

As discussed earlier, since the use of tax havens exacerbates earnings management (e.g., Dyreng et al., 2012; Durnev et al., 2017), this study expects that the use of tax havens is generally associated with more classification shifting to meet or beat core earnings benchmarks. Again, public firms face higher capital market pressures (both equity and debt incentives) to report higher core earnings (McVay, 2006; Fan et al., 2010; Zalata and Roberts, 2017; Chung et al., 2021a) and are also subject to higher regulatory and market scrutiny compared to private firms (Ball and Shivakumar, 2005; Hope et al., 2013; Haga et al., 2018). Therefore, public firms are generally expected to engage in more classification shifting, due to its lower cost than other earnings management alternatives, to meet or beat core earnings benchmarks, especially when using tax havens compared to private firms. Therefore, the following hypothesis can be developed.

H3a: The use of tax havens is associated with more classification shifting to meet or beat core earnings benchmarks, and this impact is relatively more pronounced for public firms than private firms.

The impact of debt financing incentives on classification shifting

As discussed earlier in this study, prior research documents that not only do equity market incentives influence classification shifting – the debt market also has a significant impact on firms' incentives to overstate core earnings using classification shifting. This is because creditors focus on core earnings metrics to evaluate the credit worthiness of firms (Zalata and Roberts, 2017; Fan et al., 2019; Chung et al., 2021b), and firms may have incentives to engage in more classification shifting to overstate core earnings before seeking new debt (e.g., Zalata and Roberts, 2017). Prior research has not investigated debt financing incentives to engage in classification shifting within the context of using tax havens and by public and private firms. Therefore, this study investigates whether the use of tax havens influences debt financing incentives to engage in classification shifting and whether this behaviour is different between public and private firms.

Firms with tax haven subsidiaries may exploit tax havens' low institutional environment quality to engage in more classification shifting before seeking new debt finance. In addition,

both public and private firms have incentives to overstate core earnings for debt market considerations (e.g., Fan et al., 2019; Chung et al., 2021b), especially when they use tax havens. However, public firms may rely more heavily on classification shifting for debt financing considerations when they use tax havens compared to private firms due to the relatively lower cost of this earnings management strategy for public firms and because of the higher market and regulatory scrutiny faced by public firms compared with private firms. Therefore, a final hypothesis is developed as follows:

H3b: The use of tax havens is associated with more classification shifting for debt financing incentives, and this impact is relatively more pronounced for public firms than private firms.

4.3 Research methodology

4.3.1 Estimating classification shifting

Following prior research (McVay, 2006; Fan et al., 2010; Zalata and Roberts, 2017; Chung et al., 2021a), this study focuses on classification shifting using income-decreasing non-core items (i.e., misclassifying core expenses as non-core to overstate core earnings), and follows the core earnings expectation model developed by McVay (2006).[76] The model follows a two-stage procedure (McVay, 2006; Fan et al., 2010). In the first stage, core earnings (*CE*) are regressed on variables that explain normal core earnings performance. The unexplained variation in the core earnings expectation model (the residuals) represents the unexpected or abnormal core earnings (*UCE*). In the second stage, *UCE* is regressed on income-decreasing non-recurring (or special) items (*NREC*) and control variables (e.g., Barua et al., 2010; Zalata and Roberts, 2017; Chung et al., 2021a). The following first-stage model is estimated cross-sectionally by industry and fiscal year; a minimum of 15 observations per industry-year is required to allow a sufficiently large sample to estimate expected core earnings. The industry is defined using Fama and French (1997) 48-industry classification (McVay, 2006; Fan et al., 2010).

$$CE_{i,t} = \alpha_0 + \alpha_1 CE_{i,t-1} + \alpha_2 ATO_{i,t} + \alpha_3 ACCRUALS_{i,t-1} + \alpha_4 ACCRUALS_{i,t}$$
$$+ \alpha_5 \Delta SALES_{i,t} + \alpha_6 NEG\Delta SALES_{i,t} + \varepsilon_{i,t} \qquad (4.1)$$

Where for firm *i* and in year *t*: $CE_{i,t}$ is core earnings measured as sales less cost of goods sold and selling, general, and administrative expenses (excluding depreciation and amortization),

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[76] This paper also adopts a variant of the model adopted by studies such as Fan et al. (2010) and Zalata and Roberts (2017) as a robustness check. Results using the other model are qualitatively similar.

scaled by sales.[77] Lagged core earnings *(CE_{i,t-1})* are included to control for core earnings persistence (McVay, 2006). $ATO_{i,t}$ is the asset turnover ratio; it is included to control for the inverse relationship between asset turnover and profit margin since the definition of core earnings in this model closely parallels profit margin (McVay, 2006). It is also essential to control for $ATO_{i,t}$ since firms with large income-decreasing special items are likely to make changes to their reporting strategies that can influence their mix of margin and turnover (McVay, 2006). $ATO_{i,t}$ is the ratio of sales to average net operating assets; net operating assets is equal to the difference between operating assets and operating liabilities; operating assets are calculated as total assets less cash and short term investments; operating liabilities are calculated as total liabilities less total debt (Chung et al., 2021a). $ACCRUALS_{i,t}$ is working capital accruals measured as the change in non-cash current assets less the change in current liabilities excluding short-term debt (Jones 1991; Teoh et al. 1998; Chen et al. 2011; Hope et al. 2013; Abernathy et al. 2014) scaled by sales.[78]

Lagged accruals ($ACCRUALS_{i,t-1}$) are included as a control for current performance since accruals can explain future performance (Sloan, 1996; McVay, 2006; Fan et al., 2010; Zalata and Roberts, 2017). Current-year accruals ($ACCRUALS_{i,t}$) are also included to control for extreme performance since extreme performance is highly correlated with contemporaneous accruals (DeAngelo et al., 1994; McVay, 2006). The percentage change in annual sales ($\Delta SALES_{i,t}$) from year *t-1* to year *t* is included to control for the effect of sales growth on fixed costs, because as sales increase, the ratio of fixed costs to sales declines, which overstates core earnings relative to sales levels. In addition, to allow for different slopes for sales increases and decreases (McVay, 2006; Fan et al., 2010), negative change in sales ($NEG\Delta SALES_{i,t}$) is included. This is because the effect of sales increases and decreases on fixed costs is asymmetric, as documented by Anderson et al. (2003). $NEG\Delta SALES_{i,t}$ is calculated as $\Delta SALES_{i,t}$ when it is negative and 0 otherwise.

The following second-stage model is adopted to investigate the existence of classification shifting.

$$UCE_{i,t} = \alpha_0 + \alpha_1 NREC_{i,t} + \varepsilon_{i,t} \tag{4.2}$$

[77] According to McVay (2006), depreciation and amortization expenses are excluded to avoid the mechanical reduction in these expenses due to asset write-downs. Sales is used as a scalar rather than total assets to avoid possible systematic misstatement of assets by firms with special items.
[78] McVay (2006) estimates accruals as the difference between net income before extraordinary items and cash flow from operations, stating that accruals are estimated with error using the balance sheet approach. This paper acknowledges this limitation, however, because cash flow from operations is not directly provided by Amadeus, accruals are estimated using the balance sheet approach following prior research (Jones 1991; Teoh et al. 1998; Chen et al. 2011; Hope et al. 2013; Abernathy et al. 2014).

Where for firm i and year t: $UCE_{i,t}$ is the unexpected core earnings, which is the difference between reported and predicted core earnings as estimated using Equation (4.1) (the residuals). $NREC_{i,t}$ is income-decreasing non-recurring/special items scaled by sales, defined as the difference between core earnings and bottom-line net income, where positive differences are income-decreasing non-core items. In contrast, negative differences are income-increasing and are set to zero (Zalata and Roberts, 2017).[79] In year t, firms that opportunistically classification shift by misclassifying core expenses as non-core to overstate core earnings are expected to have unexpectedly high core earnings (UCE_t), and a positive association between unexpected core earnings (UCE_t) and income-decreasing non-core items ($NREC_t$) (i.e., both unexpected core earnings and income-decreasing non-core items increase in year t). Therefore, using Equation (4.2) above, classification shifting predicts that α_1 is positive.[80]

4.3.2 Measuring the use of tax havens

The use of tax haven affiliates or subsidiaries is well-documented in prior research as a proxy for tax haven operations (Desai and Dharmapala, 2006; Dyreng et al., 2012; Jaafar and Thornton, 2015; Durnev et al., 2017). Therefore, following prior research, the main proxy for the use of tax havens (*Haven*) is an indicator variable that takes the value of 1 if the firm has at least one subsidiary in a tax haven and 0 otherwise. Table 4.1 below presents the list of tax havens adopted in this study; this list is adopted from Jaafar and Thornton (2015), which is broadly similar to the one developed by Dyreng and Lindsey (2009) and is widely used in prior research (e.g., Atwood and Lewellen, 2019).[81]

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[79] This definition is adopted because the vast majority of data for extraordinary or special items are missing in Amadeus, and this definition closely parallels those adopted in prior research (e.g., Athanasakou et al. 2009; Zalata and Roberts 2017). I acknowledge that this definition has some limitation, which are discussed later in the conclusion section.

[80] NREC can also be used to capture misclassification of income increasing non-core items as core to overstate core earnings by setting income-decreasing non-core items to zero (Chung et al., 2021a).

[81] For robustness tests, the list used by Durnev et al. (2017) is also adopted, and the results are qualitatively similar. The list by Durnev et al. (2017) is not adopted for the main analysis because the current study examines classification shifting, while their study primarily focuses on AEM and REM proxies. Overall, there is no one agreed upon list of tax havens, prior research and international organizations adopt several lists, for a review of different lists and the listing criteria see for example Dharmapala (2008), Gravelle (2014) and Remeur (2019).

Table 4.1 List of tax haven countries

Andorra	Maldives
Anguilla	Malta
Antigua and Barbuda	Marshall Islands
Aruba	Mauritius
Bahamas	Monaco
Bahrain	Montserrat
Barbados	Nauru
Belize	Netherlands Antilles
Bermuda	Niue
British Virgin Islands	Panama
Cayman Islands	St Kitts and Nevis
Channel Islands	St. Vincent and the Grenadines
Cook Islands	Samoa
Cyprus	San Marino
Dominica	Seychelles
Grenada	Tonga
Isle of Man	Turks and Caicos
Liberia	Vanuatu
Liechtenstein	Virgin Islands (US)

This table presents the list of tax haven countries used in this study following Jaafar and Thornton (2015), which is broadly similar to lists adopted by other studies such as Dyreng and Lindsey (2009) and Atwood and Lewellen (2019).

Alternative proxies for the use of tax havens are also used for robustness. The ratio of the number of subsidiaries that a firm has in tax havens to the total number of subsidiaries (*OFCsubratio*) is also used to capture the intensity of using tax havens (Dyreng et al., 2012; Durnev et al., 2017). In addition, because tax havens are not equal in their offshore attitudes (Masciandaro, 2008), a proxy is used to capture variations in offshore characteristics of tax havens. This proxy is the subsidiary-weighted offshore attitude index (*OFCindex*), which is measured as follows (Durnev et al., 2017):

$$OFCindex_{i,t} = \frac{\sum_c(OffshoreIndex_c \times Subsidiary_{i,t})}{\sum_c Subsidiary_{i,t}} \qquad (4.3)$$

Where for firm *i*, year *t,* and country *c*: *OFCindex* is the subsidiary-weighted offshore attitude index, *Subsidiary* is the number of subsidiaries, *OffshoreIndex* is the offshore attitude index for each country as developed by Masciandaro (2008).[82] This measure takes higher values for firms

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[82] Masciandaro (2008) developed an overall offshore attitude index that classifies 222 countries according to their offshore attributes. This index ranges from 0 to 5 with lower values correspond to higher on-shore characteristics and higher values correspond to higher off-shore characteristics. This index is developed as follows: First, countries that show a strong onshore attitude (members of both the OECD and FATF) are assigned the value of

with more subsidiaries in tax havens and for firms with subsidiaries in jurisdictions with higher offshore attitude index (Durnev et al., 2017).

4.3.3 Control variables

Following prior research (e.g., Barua et al., 2010; Zalata and Roberts, 2017; Chung et al., 2021a), this study controls for the following firm characteristics that might influence classification shifting. As discussed in the previous chapters, larger firms are mature firms that are less likely to engage in earnings management, and firms with high leverage are more likely to engage in more earnings management to avoid debt covenant violation; similarly, growth firms and firms with better performance and firms with higher operating cash flows may have incentives to engage in more earnings management to signal good performance. However, prior research in this area reports mixed findings; therefore, no predictions are made following Barua et al. (2010). Firm size (*SIZE*) is measured as the natural logarithm of total assets; financial leverage (*LEV*) is measured as long-term debt divided by average total assets; firm growth (*GROWTH*) is measured as the annual percentage change in total assets[83]; firm performance (*ROA*) is measured as earnings before interest and taxes divided by lagged total assets; and operating cash flow (*OCF*) is measured as the sum of net income, depreciation and amortization, minus current accruals, all scaled by lagged total assets. Industry and year fixed effects are also controlled for.[84]

4.3.4 Regression models

The following OLS model is adopted to investigate how the use of tax havens is associated with classification shifting. Separate regressions are run for firms that use tax havens and firms without tax haven operations; the differences between the coefficients of the two samples are evaluated using the Chow test to investigate the first hypothesis (*H1*).[85]

0, and 1 otherwise. Second, countries are assigned the additional values of 1, 2, or 3 if they appear on 1, 2, or 3 blacklists (FSF, OECD, FATF), respectively. Finally, countries that meet the market definition of tax havens – according to the international financial centres' years book 2006-2007 – are assigned an additional value of 1, and 0 otherwise. Please see Masciandaro (2008) for more details.

[83] GROWTH is measured here as the growth in total assets rather than as market to book ratio following prior research in this area because prior studies focus on public firms only, whereas the shares of private firms are not traded in stock markets.

[84] Again, this list of control variables is inconclusive and mainly follows prior research in this area, future research may also examine the impact of several corporate governance variables, which is discussed later in the conclusion chapter.

[85] In all OLS models, heteroscedasticity tests (using the Breusch-Pagan/Cook-Weisberg and the White's tests) overall indicate the presence of heteroscedasticity, therefore, the White's robust standard errors are used in all regressions. In addition, the multicollinearity problem is ruled out as VIF is consistently less than 10 (less than 2.4 in most regressions)

$$UCE_{i,t} = \beta_0 + \beta_1 NREC_{i,t} + Controls$$
$$+ Industry\ and\ Year\ Fixed\ Effects + \varepsilon_{i,t} \tag{4.4}$$

All variables are defined earlier. *H1* predicts β_1 to be more positive and significant for firms with tax haven operations than firms without tax haven operations, and the Chow test for the difference between the two samples is expected to show that β_1 is positive and significant, which indicates that the use of tax havens is associated with more classification shifting. Similarly, if public firms engage in more classification shifting, β_1 is expected to be more positive and significant for public firms than private firms.

The following model is adopted to investigate the sensitivity of classification shifting to using tax havens by public and private firms, where separate regressions are run for public and private firms' samples, and the differences are evaluated using the Chow test to investigate the second hypothesis (*H2*).

$$UCE_{i,t} = \beta_0 + \beta_1 NREC_{i,t} + \beta_2 Haven_{i,t} + \beta_3(NREC_{i,t} \times Haven_{i,t}) + Controls$$
$$+ Industry\ and\ Year\ Fixed\ Effects + \varepsilon_{i,t} \tag{4.5}$$

Where for firm *i* and in year *t*: *Haven* is a proxy for using tax havens, as discussed earlier. Other variables are defined earlier. If β_3 is positive for the public firm sample, this indicates that public firms using tax havens engage in more classification shifting than public firms without tax haven operations (i.e., classification shifting is sensitive to using tax havens in the case of public firms). If this effect is more pronounced for public firms, β_3 is expected to be more positive and significant for public firms' subsample, and the Chow test on β_3 is expected to show a significantly higher coefficient in the case of public firms.

Classification Shifting Incentives: Core Earnings Benchmarks and Debt Financing

The following model is adopted to test H3a and H3b, where separate regressions are run for public and private firms' samples, and the coefficient differences are evaluated using the Chow test.

$$UCE_{i,t} = \beta_0 + \beta_1 NREC_{i,t} + \beta_2 Incentive_{i,t} + \beta_3 Haven$$
$$+ \beta_4(NREC_{i,t} \times Incentive_{i,t}) + \beta_5(NREC_{i,t} \times Haven_{i,t})$$
$$+ \beta_6(Incentive_{i,t} \times Haven_{i,t})$$
$$+ \beta_7(NREC_{i,t} \times Incentive_{i,t} \times Haven_{i,t}) + Controls$$
$$+ Industry\ and\ Year\ Fixed\ Effects + \varepsilon_{i,t} \tag{4.6}$$

Where for firm *i* and in year *t*: *Incentive* is either positive core earnings benchmark (*PCE*), core earnings increase benchmark (*CEI*), or debt financing incentive (*DFIN*). Following prior research (e.g., Barua et al., 2010; Zalata and Roberts, 2017), *PCE* is an indicator variable taking

the value of 1 if core earnings are greater than zero and less than or equal to 3% of total assets and zero otherwise. *CEI* is an indicator variable taking the value of 1 if the change in core earnings from year *t-1* to year *t* is greater than zero and less than or equal to 3% of total assets, and zero otherwise. *DFIN* is an indicator variable taking the value of 1 if the change in long term debt from year t to year t+1 is greater than zero and less than or equal to 3% of average total assets and zero otherwise. The core earnings metric used to estimate *PCE* and *CEI* is earnings before taxes and extraordinary items as this metric is used extensively in prior accounting literature as a measure of core earnings performance (Barua et al., 2010). If tax haven firms generally engage in more classification shifting for any of the incentives, β_7 is expected to be positive and significant (for both public and private firms). If this effect is more pronounced for public firms, β_7 is expected to be more positive and significant for public firms' subsample, and the Chow test on β_7 is expected to show a significantly higher coefficient in the case of public firms.

4.3.5 Data

Data are collected from Amadeus database compiled by Bureau van Dijk (BvD). The sample selection procedure is described in Table 4.2 below. Please also see Section 1.4.1 of this thesis for more details regarding data collection and sample selection procedure.

Table 4.2 Sample selection procedure (firm-year observations)

Criteria	Private	Public
Initial observations from 2008 to 2019 after excluding non-financial firms and regulated industries	804,866	11,806
Excluding small private firms (as in Burgstahler et al., 2006) and firms with missing total assets, sales, and number of employees data	304,479	8,581
Excluding observations with missing data necessary to estimate the main variables used in the analyses	286,805	8,366
Excluding observations with zero subsidiaries or missing data for subsidiaries	202,780	8,203
Final sample used in regressions (2010-2018)	90,497	4,424

This table reports the sample selection procedure for public and private UK firms.

4.4 Results and discussion

4.4.1 Descriptive statistics and correlation matrix

Table 4.3 reports descriptive statistics for the main variables of this study. Following prior research, the main variables are winsorised at 1% and 99% to mitigate the effect of outliers.[86] Panel A reports descriptive statistics for the full sample partitioned by tax haven status. The panel shows that 1,123 firm-years use tax havens compared to 93,798 firm-years are without tax haven operations. The mean (median) of *UCE* for firms with tax haven operations is 0.012 (0.010) compared to a mean (median) of *UCE* for firms without tax haven operations of 0.000 (-0.002). In addition, the mean (median) of *NREC* for firms with tax haven operations is 0.169 (0.101) of sales compared to a mean (median) of *NREC* for firms without tax haven operations of 0.059 (0.035). The differences between the sample means are statistically significant at the 5% level for both *UCE* and *NREC*. Collectively, this provides preliminary evidence of more classification shifting by tax haven firms compared to non-tax haven firms, as expected, since firms with tax haven operations have significantly higher unexpected core earnings and higher non-recurring items compared to firms without tax haven operations.

Panel A also shows that the mean (median) of core earnings (*CE*) for tax haven firms is 16.7% (16.2%) of sales compared to 9.2% (7.1%) for non-tax haven firms, which indicates

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[86] An outlier is an extreme value that is either very large or very small and that does not fit in with the pattern of other observations, and therefore it can distort the data and lead to misleading inferences (Brooks, 2019). Therefore, this thesis follows prior research (McVay, 2006) to mitigate the effect of outliers by replacing extremely large values in each variable by the 99th percentile, and extremely small values by the 1st percentile.

that tax haven firms show significantly higher core earnings profitability. In addition, public firm-years represent around 60% of firm-years with tax haven operations (677 firm-years), while they represent only around 4% of firm-years without tax haven operations (3,747 firm-years). This indicates that public firms are more likely to use tax havens than private firms, possibly for tax avoidance or earnings management activities. Alternatively, it may be because public firms are generally larger, more profitable, and are subject to higher market pressures to report higher earnings, which is consistent with prior research suggesting that large and profitable firms are more likely to use tax havens for tax avoidance or earnings manipulation (e.g., Dyreng et al., 2012; Jaafar and Thornton, 2015; Durnev et al., 2017).

Regarding *OFCsubratio* and *OFCindex*, Panel A shows that – as would naturally be expected – *OFCsubratio* and *OFCindex* are significantly higher for tax haven firms compared to non-tax haven firms. In terms of possible incentives to meet or beat core earnings benchmarks, 14.6% of tax haven firms report small positive core earnings (*PCE*) compared to 16.9% of non-tax haven firms, whereas 26.9% of tax haven firms report core earnings increase (*CEI*) compared to 26.7% of non-tax haven firms. In addition, 23.7% of tax haven firms raise long-term debt (*DFIN*) compared to only 10.4% for non-tax haven firms. These figures are overall comparable with prior research (e.g., Zalata and Roberts, 2017).

Regarding control variables, Panel A shows that overall – as expected – tax haven firms are larger in size, have higher leverage and higher operating cash flows (and have higher core earnings profitability, as discussed earlier). Collectively, this indicates that firm characteristics might influence the firm's choice to use tax havens; for instance, as discussed earlier, large and profitable firms are more likely to use tax havens for tax avoidance and earnings management (e.g., Dyreng et al., 2012).

Panel B reports descriptive statistics for public firms' sample partitioned by haven status. The panel shows that on average, UCE, CE, and NREC are significantly higher for public firms using tax havens than those without tax haven operations. This provides preliminary evidence that public firms engage in more classification shifting when they use tax havens than when they do not. Panel C reports descriptive statistics for private firms partitioned by haven status and shows that CE and NREC are, on average, significantly higher for private firms using tax havens compared to those without tax haven operations, while UCE is higher but not significantly different between private firms using tax havens and those that do not, overall suggesting that private firms may not significantly change their reliance on classification shifting when they use tax havens compared to when they do not.

Table 4.3 Descriptive Statistics

Panel A: Full sample descriptive statistics by tax haven status

	Haven Firm-Years N = 1,123					Non-Haven Firm-Years N = 93,798				
	Mean	Sd	P25	P50	P75	Mean	Sd	P25	P50	P75
UCE	0.012	0.110	-0.027	0.010	0.057	0.000*	0.067	-0.024	-0.002	0.024
CE	0.167	0.252	0.057	0.162	0.305	0.092*	0.135	0.029	0.071	0.139
NREC	0.169	0.174	0.045	0.101	0.231	0.059*	0.082	0.016	0.035	0.067
Public	0.603	0.490	0.000	1.000	1.000	0.040*	0.196	0.000	0.000	0.000
OFCsubratio	0.133	0.190	0.023	0.056	0.167	0.000*	0.000	0.000	0.000	0.000
OFCindex	0.735	0.777	0.250	0.462	0.819	0.027*	0.149	0.000	0.000	0.000
PCE	0.146	0.353	0.000	0.000	0.000	0.169*	0.374	0.000	0.000	0.000
CEI	0.269	0.444	0.000	0.000	1.000	0.267	0.443	0.000	0.000	1.000
DFIN	0.237	0.425	0.000	0.000	0.000	0.104*	0.305	0.000	0.000	0.000
SIZE	13.264	1.656	11.972	13.850	14.817	10.338*	1.379	9.331	10.035	11.073
LEV	0.176	0.176	0.003	0.147	0.282	0.106*	0.185	0.000	0.011	0.134
GROWTH	0.068	0.261	-0.059	0.018	0.123	0.076	0.222	-0.043	0.049	0.158
ROA	0.059	0.136	0.005	0.059	0.124	0.080*	0.132	0.020	0.064	0.126
OCF	0.089	0.156	0.019	0.093	0.155	0.078*	0.165	0.004	0.070	0.151

Panel B: Descriptive statistics for public firms by haven status

	Haven Firm-Years N = 677					Non-Haven Firm-Years N = 3,747				
	Mean	Sd	P25	P50	P75	Mean	Sd	P25	P50	P75
UCE	0.015	0.108	-0.023	0.015	0.061	-0.004*	0.099	-0.030	0.003	0.035
CE	0.176	0.262	0.079	0.179	0.325	0.074*	0.256	0.028	0.105	0.197
NREC	0.182	0.172	0.060	0.112	0.247	0.112*	0.134	0.033	0.070	0.124
OFCsubratio	0.092	0.147	0.016	0.034	0.090	0.000*	0.000	0.000	0.000	0.000
OFCindex	0.625	0.670	0.225	0.379	0.700	0.109*	0.228	0.000	0.000	0.129
PCE	0.133	0.340	0.000	0.000	0.000	0.118	0.323	0.000	0.000	0.000
CEI	0.295	0.457	0.000	0.000	1.000	0.285	0.451	0.000	0.000	1.000
DFIN	0.272	0.445	0.000	0.000	1.000	0.177*	0.381	0.000	0.000	0.000
SIZE	13.574	1.611	12.597	14.443	14.817	11.580*	1.896	10.097	11.507	13.063
LEV	0.185	0.157	0.033	0.174	0.284	0.107*	0.151	0.000	0.034	0.171
GROWTH	0.073	0.264	-0.053	0.018	0.118	0.103*	0.287	-0.042	0.055	0.176
ROA	0.062	0.133	0.010	0.071	0.131	0.033*	0.173	-0.015	0.063	0.124
OCF	0.098	0.144	0.040	0.103	0.156	0.058*	0.180	0.003	0.080	0.150

Table 4.3 (Continued)
Panel C: Descriptive statistics for private firms by haven status

	Haven Firm-Years N = 446					Non-Haven Firm-Years N = 90,051				
	Mean	Sd	P25	P50	P75	Mean	Sd	P25	P50	P75
UCE	0.008	0.113	-0.038	0.006	0.050	0.000	0.065	-0.024	-0.002	0.023
CE	0.154	0.236	0.039	0.128	0.283	0.093*	0.128	0.029	0.070	0.137
NREC	0.150	0.177	0.026	0.075	0.197	0.056*	0.078	0.015	0.034	0.065
OFCsubratio	0.194	0.228	0.050	0.091	0.267	0.000*	0.000	0.000	0.000	0.000
OFCindex	0.902	0.892	0.350	0.600	1.121	0.024*	0.144	0.000	0.000	0.000
PCE	0.166	0.372	0.000	0.000	0.000	0.171	0.376	0.000	0.000	0.000
CEI	0.229	0.420	0.000	0.000	0.000	0.266*	0.442	0.000	0.000	1.000
DFIN	0.184	0.388	0.000	0.000	0.000	0.101*	0.301	0.000	0.000	0.000
SIZE	12.795	1.614	11.498	12.956	14.330	10.287*	1.329	9.317	10.005	10.991
LEV	0.160	0.200	0.000	0.083	0.268	0.106*	0.186	0.000	0.010	0.132
GROWTH	0.060	0.256	-0.072	0.018	0.125	0.075	0.219	-0.043	0.049	0.157
ROA	0.055	0.142	0.000	0.044	0.101	0.082*	0.130	0.020	0.064	0.127
OCF	0.075	0.171	-0.006	0.070	0.144	0.079	0.164	0.004	0.070	0.151

Please see Appendix 4.A for variable definitions. * Indicates statistical significance at the 5% level (two-tailed). Differences between sample means are evaluated using t-tests.

Table 4.4 reports Pearson correlations between each pair of the main variables of this study. Panel A reports the correlation matrix for public firms. The panel shows that the correlation between core earnings (CE) and unexpected core earnings (UCE) is positive and significant (0.672), which is consistent with prior research (e.g., McVay, 2006). The correlation between *CE* and *NREC* is negative and significant, which is consistent with prior research in that poor performers are more likely to report more income-decreasing non-recurring items (e.g., McVay, 2006; Chung et al., 2021a). In addition, the correlation between *UCE* and *NREC* is positive but insignificant, possibly due to the mixed effects of firm performance and classification shifting (Fan et al., 2010; Chung et al., 2021a).[87] More importantly, the correlations between proxies of using tax havens (*Haven*, *OFCsubratio*, and *OFCindex*) and *UCE* are positive and significant. Similarly, the correlations between proxies of using tax havens and *NREC* are also positive and significant. Collectively, this provides preliminary evidence of more classification shifting by public tax haven firms since the use of tax havens is positively and significantly associated with both UCE and NREC.

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[87] Classification shifting implies a positive association between unexpected core earnings (UCE) and income-decreasing non-recurring items (NREC) as discussed earlier, however, the association between the two variables is naturally expected to be negative since poor performers are more likely to report income-decreasing special items (McVay, 2006; Fan et al., 2010; Chung et al., 2021a). Therefore, the overall relationship between unexpected core earnings and income-decreasing non-recurring items reflects the mixed effects of both classification shifting and firm performance (Chung et al., 2021a).

Panel B of Table 4.4 reports the correlation matrix for private firms. The correlation between *UCE* and *NREC* is positive and significant, which might provide preliminary evidence of classification shifting by private firms. The correlation between CE and NREC is positive and significant, which is contrary to prior research suggesting that poor performers are more likely to report more income-decreasing non-recurring items (e.g., McVay, 2006; Chung et al., 2021a); this indicates that this may not be the case for private firms. In addition, similar to public firms (Panel A), consistent with tax havens being associated with more classification shifting by private firms, all proxies of tax haven use are positively and significantly associated with both UCE and NREC.[88]

Overall, in the two panels, there are no strong correlations (above 0.80) between explanatory variables included in the same regression model, which indicates no multicollinearity (Brooks, 2019). In addition, as discussed earlier, the multicollinearity problem is ruled out as VIF is consistently less than 10 (less than 2.4 in most regressions) (Haga et al., 2018; Brooks, 2019).

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[88] Overall, in the two panels, there are no strong correlations (above 0.80) between explanatory variables included in the same regression model, which indicates no multicollinearity. In addition as discussed earlier, the multicollinearity problem is ruled out as VIF is consistently less than 10 (less than 2.4 in most regressions)

Table 4.4 Pearson correlation matrix
Panel A: Public firms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) UCE	1.000												
(2) CE	0.672*	1.000											
(3) NREC	0.001	-0.057*	1.000										
(4) Haven	0.069*	0.141*	0.176*	1.000									
(5) OFCsubratio	0.031*	0.027	0.247*	0.501*	1.000								
(6) OFCindex	0.031*	0.046*	0.259*	0.484*	0.777*	1.000							
(7) PCE	0.036*	0.067*	-0.042*	0.017	0.005	-0.022	1.000						
(8) CEI	0.084*	0.135*	-0.130*	0.008	-0.053*	-0.057*	0.010	1.000					
(9) DFIN	0.052*	0.106*	0.015	0.087*	0.007	0.012	-0.001	0.022	1.000				
(10) SIZE	0.230*	0.478*	-0.029	0.361*	0.043*	0.120*	0.035*	0.169*	0.159*	1.000			
(11) LEV	0.122*	0.236*	0.146*	0.182*	0.025	0.032*	0.094*	0.044*	0.158*	0.423*	1.000		
(12) GROWTH	0.037*	0.113*	-0.128*	-0.038*	-0.010	-0.032*	0.046*	0.056*	0.030*	0.019	0.061*	1.000	
(13) ROA	0.477*	0.747*	-0.303*	0.062*	-0.033*	-0.004	-0.011	0.204*	0.067*	0.425*	0.086*	0.202*	1.000
(14) OCF	0.452*	0.683*	-0.182*	0.084*	0.006	0.002	0.005	0.141*	0.058*	0.352*	0.059*	0.139*	0.776*

Panel B: Private firms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) UCE	1.000												
(2) CE	0.604*	1.000											
(3) NREC	0.188*	0.406*	1.000										
(4) Haven	0.008*	0.033*	0.083*	1.000									
(5) OFCsubratio	0.017*	0.035*	0.085*	0.649*	1.000								
(6) OFCindex	0.010*	0.019*	0.047*	0.365*	0.496*	1.000							
(7) PCE	-0.034*	-0.063*	0.002	-0.001	-0.005	-0.011*	1.000						
(8) CEI	0.062*	0.054*	0.008*	-0.006	-0.009*	-0.017*	0.055*	1.000					
(9) DFIN	0.012*	0.048*	0.120*	0.019*	0.015*	-0.002	0.018*	0.020*	1.000				
(10) SIZE	0.066*	0.189*	0.263*	0.131*	0.072*	0.106*	0.064*	0.074*	0.041*	1.000			
(11) LEV	0.032*	0.125*	0.404*	0.021*	0.013*	-0.013*	0.071*	0.037*	0.203*	0.136*	1.000		
(12) GROWTH	0.031*	0.149*	-0.058*	-0.005	-0.002	-0.006	-0.018*	0.054*	0.041*	0.071*	0.048*	1.000	
(13) ROA	0.396*	0.600*	-0.045*	-0.015*	-0.006	-0.007*	-0.192*	0.000	-0.006	-0.083*	-0.091*	0.305*	1.000
(14) OCF	0.293*	0.391*	-0.009*	-0.002	0.002	-0.004	-0.134*	-0.035*	0.012*	-0.077*	-0.069*	-0.061*	0.528*

This table reports Pearson correlations for Public and Private firms. Please see Appendix 4.A for variable definitions. * Indicates statistical significance at the 5% level (two-tailed).

4.4.2 Multivariate analyses

Table 4.5 reports the regression results of testing Equation (4.4) to investigate the impact of using tax havens on classification shifting. Following prior research (e.g., McVay, 2006; Zalata and Roberts, 2017), the analysis is conducted for the full sample of all firms and for a subsample of firms with only income-decreasing non-recurring items because the latter subsample of firms has a greater opportunity of misclassifying core expenses as non-recurring. Results for the full sample are reported in columns 1, 2, and 3, whereas results for the subsample are reported in columns 4, 5, and 6.

For the full sample, results for firms that use tax havens are reported in column 1, and results for firms without tax haven operations are reported in column 2. The differences between the two samples are evaluated using Chow tests (column 3) to evaluate the first hypothesis of this study (*H1*), which predicts that the use of tax havens is generally associated with more classification shifting. Results in Columns 1 and 2 show that the coefficient on *NREC* is positive and statistically significant at the 1% level, which indicates that both firms with and without tax haven operations engage in classification shifting. In addition, results in Column 3 shows that the coefficient on *NREC* is weakly and significantly higher in Column 1, indicating that firms with tax haven operations are likely to engage in more classification shifting overall compared to firms without tax haven operations, as predicted in *H1*. Results in columns 4, 5, and 6 are qualitatively similar to those reported in the first three columns (except that the coefficient on NREC in Column 6 is insignificant).

These findings indicate that, as predicted, firms with tax haven subsidiaries are likely to engage in more classification shifting than firms without tax haven operations. This is consistent with prior research documenting that the use of tax havens facilitates earnings management through AEM (and REM in extreme cases) due to secrecy policies and the low institutional environment quality in these jurisdictions, which enables firms to manipulate earnings at a lower cost (Dyreng et al., 2012; Durnev et al., 2017). However, the strong legal system in the UK and the higher institutional environment quality are also expected to constrain earnings management (especially AEM). This finding indicates that tax haven firms rely more on classification shifting since it is less costly compared to other earnings management alternatives, as discussed earlier in detail, since it does not influence bottom-line earnings, does not alter the real activities of the firm, and is lightly regulated by accounting standards (McVay, 2006; Zalata and Roberts, 2016, 2017). This may be especially the case since the use of tax havens may attract greater scrutiny, motivating UK firms to rely more on classification shifting.

More generally, these results indicate that classification shifting is a viable earnings management tool that is employed pervasively by UK firms, which is consistent with previous studies such as Zalata and Roberts (2017).

In terms of control variables, the coefficient on *SIZE* in column 1 is insignificant while it is positive and significant in column 2, indicating that among firms using tax havens, firm size has no impact on classification shifting. Whereas among firms without tax haven operations, larger firms are more likely to use classification shifting (again, potentially due to its lower cost compared to other EM alternatives). The coefficients on *GROWTH* are significantly negative in columns 1 and 2, indicating that firms with high asset growth are less likely to engage in classification shifting in both samples.[89] The coefficients on *ROA* are positive and significant in columns 1 and 2, suggesting that firms with good performance are more likely to rely on classification shifting (e.g., Zalata and Roberts, 2017). Results for the remaining control variables are overall consistent with those reported in prior research (e.g., Barua et al., 2010; Zalata and Roberts, 2017).

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[89] This is contrary to prior research suggesting that growth firms are more likely to engage in more classification shifting to meet or beat analysts forecasts (e.g., McVay, 2006). This finding of the current study may be different because GROWTH is measured here using the growth in total assets rather than market to book ratio since this study also investigates private firms, and also this study focuses on the UK setting rather than the US. However, this finding is consistent with Chung et al. (2021a).

Table 4.5 Classification shifting and the use of tax havens

	Dependent variable: UCE					
	Full sample			Firms with income-decreasing NREC		
	(1)	(2)	(3)	(4)	(5)	(6)
	Haven	Non-Haven	Difference	Haven	Non-Haven	Difference
NREC	0.204***	0.150***	0.054*	0.197***	0.148***	0.049
	(6.60)	(27.74)	(3.06)	(6.12)	(26.82)	(2.33)
SIZE	-0.001	0.003***	-0.004*	0.000	0.003***	-0.003
	(-0.34)	(19.45)	(3.63)	(0.01)	(19.58)	(2.13)
LEV	0.014	0.001	0.013	0.015	0.001	0.014
	(0.70)	(0.80)	(0.42)	(0.70)	(0.69)	(0.43)
GROWTH	-0.041**	-0.022***	-0.018	-0.032**	-0.022***	-0.010
	(-2.56)	(-15.80)	(1.39)	(-1.99)	(-15.34)	(0.37)
ROA	0.324***	0.197***	0.127***	0.303***	0.186***	0.117***
	(8.91)	(71.89)	(12.57)	(8.52)	(67.99)	(11.29)
OCF	0.132***	0.041***	0.091***	0.134***	0.043***	0.091***
	(4.26)	(21.53)	(9.04)	(4.42)	(22.47)	(9.44)
Constant	-0.047	-0.062***	0.015	-0.059*	-0.059***	0.000
	(-1.57)	(-24.97)	(0.25)	(-1.90)	(-24.42)	(0.00)
Observations	1,123	93,798		1,047	88,453	
R-squared	0.285	0.222		0.271	0.218	
Industry and Year FE	Yes	Yes		Yes	Yes	

Please see Appendix 4.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Table 4.6 reports the regression results of testing Equation (4.4) to investigate classification shifting by public and private firms unconditional on tax haven status. Columns 1 and 2 show that the coefficient on *NREC* is positive and statistically significant at the 1% level for both public and private firms, respectively. This indicates that both public and private firms have incentive to rely on classification shifting; public firms rely on classification shifting mainly for financial reporting considerations to meet market expectations, while private firms may rely on classification shifting for credit market or tax saving considerations (Chung et al., 2021a). However, the coefficient is higher and more significant in the case of private firms, which indicates that private firms engage in more classification shifting than public firms. Results in Column 3 support this interpretation; the coefficient on NREC is statistically significantly higher at the 1% level in the private firms' sample, showing that private firms engage in more classification shifting than public firms. This finding is expected and is consistent with prior research generally documenting more earnings management (and lower financial reporting quality) by private firms compared to public firms because, as discussed earlier, private firms are subject to less regulatory scrutiny and less market demand for high

quality financial reports (e.g., Ball and Shivakumar, 2005; Burgstahler et al., 2006; Hope et al., 2013). In addition, since private firms have no access to equity markets and rely more heavily on borrowing to finance their activities (Chung et al., 2021b), private firms might rely more heavily on classification shifting for credit market incentives because creditors (and other stakeholders) put more weight on core earnings than bottom-line income since core earnings are considered more persistent and informative (Bradshaw and Sloan, 2002; Demerjian and Owens, 2016; Fan et al., 2019; Chung et al., 2021b). Finally, since private firms are more driven by credit market incentives and are more aggressive tax planners (Ball and Shivakumar, 2005; Jaafar and Thornton, 2015; Chung et al., 2021a), classification shifting – compared to AEM and REM – can be an optimal earnings management strategy for private firms that can be adopted to overstate core earnings for credit market considerations at no additional tax costs. This is because, unlike other forms of earnings management, classification shifting has no impact on taxable income (Abernathy et al., 2014). Results in Columns 4 through 6 of Table 4.6 are based on a subsample of firms only with income-decreasing NREC; these results are qualitatively similar to those reported in Columns 1 through 3.

Table 4.6 Classification shifting by public and private firms

	Dependent variable: UCE					
	Full sample			Firms with income-decreasing NREC		
	(1)	(2)	(3)	(4)	(5)	(6)
	Public	Private	Difference	Public	Private	Difference
NREC	0.105***	0.165***	-0.060***	0.106***	0.164***	-0.059***
	(5.87)	(30.43)	(10.19)	(5.51)	(29.63)	(8.71)
SIZE	-0.001	0.003***	-0.005***	-0.001	0.003***	-0.004***
	(-1.49)	(17.45)	(23.12)	(-1.41)	(17.77)	(21.73)
LEV	0.048***	-0.002	0.050***	0.047***	-0.003	0.050***
	(3.91)	(-1.39)	(16.67)	(3.84)	(-1.58)	(16.27)
GROWTH	-0.020***	-0.023***	0.003	-0.023***	-0.022***	-0.001
	(-2.87)	(-16.19)	(0.16)	(-3.14)	(-15.55)	(0.01)
ROA	0.231***	0.194***	0.037**	0.223***	0.182***	0.041**
	(12.55)	(70.14)	(4.02)	(11.09)	(66.81)	(4.19)
OCF	0.117***	0.039***	0.078***	0.124***	0.041***	0.083***
	(6.85)	(20.58)	(21.05)	(6.70)	(21.73)	(20.35)
Constant	-0.036**	-0.058***	0.022	-0.032**	-0.056***	0.024
	(-2.40)	(-23.15)	(2.24)	(-2.16)	(-22.82)	(2.57)
Observations	4,424	90,497		4,161	85,339	
R-squared	0.286	0.220		0.264	0.220	
Industry and Year FE	Yes	Yes		Yes	Yes	

Please see Appendix 4.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Table 4.7 reports the regression results of Equation (4.5) to test the sensitivity of classification shifting to using tax havens by public and private firms (*H2*) using the indicator variable *Haven* as a proxy for the use of tax havens. Column 1 reports the results for the public firms' sample; it shows that the coefficient on *NRECxHaven* is positive and statistically significant at the 1% level, which indicates that public firms using tax havens engage in more classification shifting relative to public firms without tax haven operations. This finding can be expected because, as discussed earlier, the use of tax havens can facilitate earnings manipulation and reduce its cost (Erickson et al., 2004; Dyreng et al., 2012), especially for public firms because they are subject to higher regulatory scrutiny and market pressure to report higher core earnings (Chung et al., 2021a). An alternative explanation is that public firms increase their reliance on classification shifting when they use tax havens than when they do not for the following reasons: (1) due to the lower cost of classification shifting compared to AEM and REM, as discussed earlier, (2) since public firms are subject to greater scrutiny especially in the UK due to its strong legal system which may constrain public firms' reliance

on other forms of earnings management (especially AEM), and (3) since the use of tax havens by UK public firms may attract even greater scrutiny.

Column 2 reports the results for the private firms' sample. Results show that the coefficient on *NRECxHaven* is insignificant, which indicates that classification shifting is not sensitive to the use of tax havens in the case of private firms. This may be because they prefer other forms of earnings management to achieve their objectives (especially AEM) since they enjoy less regulatory scrutiny and less market pressure for high quality financial reporting. Furthermore, this can also be expected because the cost of classification shifting for private firms may not be significantly lower when they use tax havens because private firms are subject to lower scrutiny and classification shifting is less visible and less regulated.

Overall, managing earnings using classification shifting is found to be sensitive to using tax havens for public firms, while it is not sensitive to using tax havens for private firms. This finding is consistent with the second hypothesis (*H2*). Results in Column 3 confirm this finding; the column reports the Chow test results for the differences in coefficients between public and private firms' samples; the coefficient on *NRECxHaven* is positive and significant at the 5% level, indicating that sensitivity of classification shifting to using tax havens is higher for public firms relative to private firms. Finally, Columns 4, 5, and 6 of Table 4.7 report results based on a subsample of firms only with income-decreasing NREC; the results are qualitatively similar to those discussed earlier in columns 1, 2, and 3.

Table 4.7 Classification shifting and the use of tax havens by public and private firms

	Dependent variable: UCE					
	Full sample			Firms with income-decreasing NREC		
	(1)	(2)	(3)	(4)	(5)	(6)
	Public	Private	Difference	Public	Private	Difference
NREC	0.084***	0.166***	-0.082***	0.084***	0.165***	-0.082***
	(4.26)	(30.26)	(16.45)	(4.03)	(29.52)	(16.45)
Haven	-0.015***	-0.007	-0.008	-0.016***	0.000	-0.008
	(-2.77)	(-1.15)	(1.05)	(-2.85)	(0.07)	(1.05)
NRECxHaven	0.111***	-0.009	0.121**	0.112***	-0.031	0.121**
	(2.99)	(-0.27)	(5.63)	(2.96)	(-0.90)	(5.63)
SIZE	-0.001	0.003***	-0.005***	-0.001	0.003***	-0.005***
	(-1.34)	(17.73)	(20.53)	(-1.29)	(17.84)	(20.53)
LEV	0.048***	-0.002	0.050***	0.047***	-0.003*	0.050***
	(3.92)	(-1.44)	(16.83)	(3.84)	(-1.67)	(16.83)
GROWTH	-0.020***	-0.023***	0.002	-0.023***	-0.022***	0.002
	(-2.91)	(-16.18)	(0.12)	(-3.18)	(-15.53)	(0.12)
ROA	0.231***	0.194***	0.038**	0.223***	0.182***	0.038
	(12.63)	(70.12)	(4.16)	(11.14)	(66.77)	(4.16)
OCF	0.113***	0.039***	0.074***	0.119***	0.041***	0.074
	(6.68)	(20.60)	(19.35)	(6.46)	(21.75)	(19.35)
Constant	-0.034**	-0.058***	0.024	-0.030**	-0.056***	0.024
	(-2.24)	(-23.38)	(2.48)	(-1.97)	(-22.91)	(2.48)
Observations	4,424	90,497		4,161	85,339	
R-squared	0.290	0.221		0.268	0.220	
Industry and Year FE	Yes	Yes		Yes	Yes	

Please see Appendix 4.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Table 4.8 reports the regression results of Equation (4.6) to test the impact of using tax havens on classification shifting to report positive core earnings (*PCE*) by public and private firms (to test *H3a* in the case of the *PCE* benchmark). Columns 1 and 2 show that the coefficient on *NRECxPCE* is positive and statistically significant at the 1% level in the case of both public and private firms, which indicates that both public and private firms have incentives to report positive core earnings. This can be expected since both public and private firms have incentives to signal good core earnings performance for equity or debt market incentives, as discussed earlier (McVay, 2006; Chung et al., 2021b; a). However, column 3 (The chow test) shows that the coefficient on *NRECxPCE* is positive and weakly significant, which indicates that public firms engage in more classification shifting to meet or beat the positive core earnings benchmark compared to private firms. This can also be expected given that public firms face higher capital market incentives (both equity and debt incentives) to report positive core earnings compared to private firms (only debt incentives). Most importantly, the coefficients

on *NRECxPCExHaven* in columns 1, 2, and 3 of Table 4.8 are not significant, which indicates that classification shifting to meet or beat the positive core earnings (*PCE*) benchmark is not sensitive to using tax havens neither for public nor private firms which is against *H3*. Finally, Columns 4, 5, and 6 of Table 4.8 are based on the subsample of firms with only income-decreasing NREC report results that are qualitatively similar to those discussed above.

Table 4.8 Classification shifting to meet positive core earnings (PCE) benchmark

	Dependent variable: UCE					
	Full sample			Firms with income-decreasing NREC		
	(1)	(2)	(3)	(4)	(5)	(6)
	Public	Private	Difference	Public	Private	Difference
NREC	0.075***	0.152***	-0.078***	0.072***	0.152***	-0.079***
	(3.66)	(25.34)	(13.5)	(3.32)	(24.67)	(12.50)
PCE	-0.003	0.004***	-0.007	-0.009	0.003***	-0.012**
	(-0.65)	(5.94)	(1.82)	(-1.61)	(5.20)	(4.84)
Haven	-0.015***	-0.011*	-0.004	-0.015**	0.000	-0.015*
	(-2.58)	(-1.68)	(0.21)	(-2.56)	(0.03)	(3.24)
NRECxPCE	0.164***	0.082***	0.083*	0.192***	0.084***	0.108**
	(3.38)	(8.93)	(2.82)	(3.90)	(9.18)	(4.71)
NRECxHaven	0.117***	0.014	0.103*	0.117***	-0.019	0.136**
	(2.94)	(0.37)	(3.63)	(2.89)	(-0.52)	(6.16)
PCExHaven	0.011	0.025	-0.014	0.009	0.002	0.007
	(0.81)	(1.64)	(0.48)	(0.64)	(0.11)	(0.13)
NRECxPCExHaven	-0.123	-0.130	0.006	-0.126	-0.057	-0.069
	(-1.31)	(-1.24)	(0.00)	(-1.34)	(-0.54)	(0.24)
Constant	-0.032**	-0.057***	0.025*	-0.027*	-0.054***	0.027*
	(-2.07)	(-22.83)	(2.75)	(-1.77)	(-22.27)	(3.25)
Observations	4,424	90,497		4,161	85,339	
R-squared	0.294	0.224		0.274	0.224	
Controls	Yes	Yes		Yes	Yes	
Industry and Year FE	Yes	Yes		Yes	Yes	

Please see Appendix 4.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Table 4.9 reports the regression results of Equation (4.6) to test the impact of using tax havens on classification shifting to report core earnings increase (*CEI*) by public and private firms (to test *H3a* in the case of the *CEI* benchmark). Columns 1 and 2 show that the coefficient on *NRECxCEI* is positive and statistically significant at the 1% level only in the case of private firms. This finding is unexpected but might indicate that private firms have more incentives to rely on classification shifting to report core earnings increases, possibly for credit market purposes (e.g., Chung et al., 2021b). In terms of using tax havens, similar to the results for *PCE*, the coefficients on *NRECxCEIxHaven* in columns 1, 2, and 3 are not significant, indicating that managing earnings to meet or beat the core earnings increase benchmark is not sensitive to using tax havens by both public and private firms, which is also against *H3*. Finally, these results are robust based on a subsample of firms with only income-decreasing NREC, which are reported in columns 4 through 6 of Table 4.9.

Table 4.9 Classification shifting to meet core earnings increase (CEI) benchmark

	Dependent variable: UCE					
	Full sample			Firms with income-decreasing NREC		
	(1)	(2)	(3)	(4)	(5)	(6)
	Public	Private	Difference	Public	Private	Difference
NREC	0.078***	0.141***	-0.063***	0.077***	0.139***	-0.062***
	(3.74)	(22.06)	(8.33)	(3.47)	(21.34)	(7.25)
CEI	-0.005	0.003***	-0.008*	-0.005	0.003***	-0.007*
	(-1.04)	(6.68)	(3.25)	(-1.08)	(5.30)	(2.75)
Haven	-0.015**	-0.013*	-0.002	-0.016**	-0.002	-0.014
	(-2.17)	(-1.83)	(0.03)	(-2.39)	(-0.32)	(2.16)
NRECxCEI	0.043	0.100***	-0.057	0.048	0.106***	-0.058
	(0.79)	(11.99)	(1.06)	(0.86)	(12.59)	(1.06)
NRECxHaven	0.105***	0.024	0.082	0.109***	-0.006	0.115**
	(2.62)	(0.64)	(2.22)	(2.67)	(-0.16)	(4.32)
CEIxHaven	-0.004	0.027**	-0.031*	-0.001	0.007	-0.007
	(-0.33)	(2.11)	(3.15)	(-0.07)	(0.59)	(0.21)
NRECxCEIxHaven	0.043	-0.114	0.157	0.031	-0.047	0.078
	(0.41)	(-1.15)	(1.19)	(0.29)	(-0.49)	(0.30)
Constant	-0.033**	-0.056***	0.023	-0.029*	-0.053***	0.024
	(-2.15)	(-22.42)	(2.20)	(-1.89)	(-21.75)	(2.50)
Observations	4,424	90,497		4,161	85,339	
R-squared	0.291	0.227		0.269	0.227	
Controls	Yes	Yes		Yes	Yes	
Industry and Year FE	Yes	Yes		Yes	Yes	

Please see Appendix 4.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Table 4.10 reports the regression results of Equation (4.6) to test the impact of using tax havens on classification shifting for debt financing incentives by public and private firms (to test *H3b*). The results in columns 1, 2, and 3 show that the coefficient on *NRECxDFIN* is positive and significant only in the case of public firms, which indicates that public firms are generally more likely to engage in classification shifting before seeking new debt compared to private firms, which is consistent with prior research examining UK public firms (Zalata and Roberts, 2017). More importantly, the coefficient on *NRECxDFINxHaven* is negative and significant only in the case of public firms while insignificant in the case of private firms. This indicates that – unexpectedly – public firms are less likely to engage in classification shifting before seeking new debt financing when they use tax havens. Whereas private firms do not change their reliance on classification shifting for debt financing incentives when they use tax havens. The results in columns 4, 5, and 6 of Table 4.10 are consistent with this discussion.

Table 4.10 The impact of debt financing incentives (DFIN) on classification shifting

	Full sample			Firms with income-decreasing NREC		
	(1)	(2)	(3)	(4)	(5)	(6)
	Public	Private	Difference	Public	Private	Difference
NREC	0.063***	0.166***	-0.103***	0.063***	0.165***	-0.103***
	(3.04)	(27.64)	(22.80)	(2.84)	(26.96)	(20.34)
DFIN	-0.012**	-0.001	-0.011**	-0.012**	-0.001	-0.011**
	(-2.29)	(-1.27)	(4.24)	(-2.24)	(-1.16)	(4.11)
Haven	-0.013*	-0.010	-0.003	-0.014**	-0.001	-0.013
	(-1.93)	(-1.36)	(0.10)	(-2.22)	(-0.19)	(2.12)
NRECxDFIN	0.151***	0.001	0.151***	0.153***	0.001	0.152***
	(3.01)	(0.05)	(8.67)	(2.99)	(0.05)	(8.58)
NRECxHaven	0.134***	-0.000	0.134**	0.139***	-0.026	0.165***
	(3.18)	(-0.01)	(5.16)	(3.25)	(-0.61)	(7.63)
DFINxHaven	-0.000	0.015	-0.016	0.004	0.009	-0.004
	(-0.03)	(1.22)	(0.86)	(0.39)	(0.68)	(0.06)
NRECxDFINxHaven	-0.165*	-0.050	-0.115	-0.181**	-0.030	-0.152
	(-1.91)	(-0.74)	(1.11)	(-2.07)	(-0.43)	(1.87)
Constant	-0.033**	-0.058***	0.025*	-0.029*	-0.056***	0.027*
	(-2.16)	(-23.31)	(2.71)	(-1.89)	(-22.84)	(3.20)
Observations	4,424	90,497		4,161	85,339	
R-squared	0.295	0.221		0.274	0.220	
Controls	Yes	Yes		Yes	Yes	
Industry and Year FE	Yes	Yes		Yes	Yes	

Please see Appendix 4.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

4.4.3 Additional analysis

The impact of Big-4 auditors on classification shifting

Prior research documents that high quality external auditors effectively constrain earnings management (Becker et al., 1998; Haw et al., 2011), especially in countries with strong legal institutions (Francis and Wang, 2008; Haw et al., 2011). However, prior research did not investigate the impact of audit quality on classification shifting within the context of using tax havens or by public and private firms. On one hand, high quality auditors are expected to generally constrain classification shifting as predicted in prior research (e.g., Haw et al., 2011), even with the use of tax havens due to the high institutional environment quality in the UK. This effect is expected to be more pronounced for public firms relative to private firms since public firms are subject to higher regulatory scrutiny. On the other hand, high audit quality may not be effective in constraining classification shifting, as discussed earlier, due to the lower cost of classification shifting compared to other earnings management alternatives

and since it is less visible to auditors and less regulated by accounting standards, and the use of tax havens may even exacerbate this behaviour (McVay, 2006; Haw et al., 2011; Zalata and Roberts, 2016).

To investigate the above, tests are repeated by replacing *Incentive* in Equation (4.6) with *Big-4*, where *Big-4* is an indicator variable that takes the value of 1 if firms employ an auditor who is one of the Big-4 audit firms, and zero otherwise. The results of this analysis are reported in Columns 1, 2, and 3 of Table 4.11. The results show that the coefficient on *NRECxBig4* is positive and significant in the case of public firms only, which indicates that public firms that employ one of the Big 4 auditors engage in more classification shifting. This suggests that Big 4 auditors are ineffective in constraining classification shifting by public firms, which is inconsistent with prior research (e.g., Haw et al., 2011). This may be because, as discussed earlier, classification shifting is less visible and less regulated by accounting standards compared to AEM, and because auditors focus more on bottom-line earnings (McVay, 2006; Haw et al., 2011; Zalata and Roberts, 2016). In addition, since Big 4 auditors are more effective in constraining AEM, especially in strong legal systems like the UK (Becker et al., 1998; Haw et al., 2011; Zalata and Roberts, 2016), this might indicate that public firms resort to more classification shifting when their ability to engage in AEM is constrained by high quality auditors. The impact of Big 4 auditors on classification shifting appears to be not sensitive to using tax havens for both public and private firms, as the coefficient on *NRECxBig4xHaven* is not significant in any of the columns. This contradicts the prediction that the use of tax havens may exacerbate classification shifting with the presence of high quality auditors. Results in Columns 4, 5, and 6 of Table 4.11 are consistent with the previous findings.

Table 4.11 The impact of Big4 auditors on classification shifting

	Dependent variable: UCE					
	Full sample			Firms with income-decreasing NREC		
	(1)	(2)	(3)	(4)	(5)	(6)
	Public	Private	Difference	Public	Private	Difference
NREC	0.048**	0.161***	-0.114***	0.043*	0.161***	-0.118***
	(2.00)	(23.69)	(21.22)	(1.71)	(23.27)	(20.94)
Big4	-0.011***	-0.001	-0.010**	-0.015***	-0.001	-0.014***
	(-2.66)	(-1.59)	(5.66)	(-3.48)	(-1.38)	(10.44)
Haven	-0.012	-0.009	-0.003	-0.011	-0.001	-0.010
	(-1.07)	(-1.03)	(0.06)	(-0.97)	(-0.08)	(0.58)
NRECxBig4	0.112***	0.009	0.104***	0.127***	0.008	0.119***
	(3.02)	(0.95)	(7.36)	(3.32)	(0.84)	(9.22)
NRECxHaven	0.095*	0.010	0.085	0.092	-0.019	0.111
	(1.65)	(0.17)	(1.11)	(1.58)	(-0.33)	(1.89)
Big4xHaven	-0.000	0.003	-0.003	-0.002	0.001	-0.003
	(-0.00)	(0.26)	(0.03)	(-0.12)	(0.14)	(0.03)
NRECxBig4xHaven	0.005	-0.028	0.033	0.006	-0.019	0.026
	(0.07)	(-0.39)	(0.11)	(0.09)	(-0.27)	(0.07)
Constant	-0.026*	-0.059***	0.033**	-0.023	-0.056***	0.033**
	(-1.65)	(-22.02)	(4.14)	(-1.44)	(-21.54)	(4.33)
Observations	4,424	90,497		4,161	85,339	
R-squared	0.296	0.221		0.276	0.220	
Controls	Yes	Yes		Yes	Yes	
Industry and Year FE	Yes	Yes		Yes	Yes	

Please see Appendix 4.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

The impact of IFRS adoption on classification shifting

The impact of IFRS adoption on earnings management and financial reporting quality is extensively investigated in prior research, where some studies find an increase in earnings management following IFRS adoption since it is principles-based and may allow managers more flexibility to manipulate earnings (e.g., Capkun et al., 2016), while other studies find the opposite (e.g., Barth et al., 2008). Prior studies also suggest that non-recurring items are lightly regulated under IFRS in the UK, which may increase classification shifting following IFRS adoption (Zalata and Roberts, 2016, 2017; Malikov et al., 2018). This analysis is conducted to mitigate the concern that the results of this study are influenced by IFRS adoption status.

Since IFRS adoption has been mandatory for all public firms domiciled in the UK since 2005 but is voluntary for private firms, and since the analysis period of this study covers only the post-IFRS period (from 2010 to 2018), this analysis is conducted only for private firms. This study expects that IFRS adoption does not impact classification shifting since non-

recurring items are lightly regulated under UK GAAP and IFRS. Similarly, IFRS adoption is expected to have no impact on the sensitivity of classification shifting to the use of tax havens. Tests are repeated by replacing *Incentive* in Equation (4.6) with *IFRS*, where *IFRS* is an indicator variable that takes the value of 1 if the firm adopts IFRS and zero otherwise. The results of this analysis are reported in Column 1 of Table 4.12.

The coefficient on *NRECxIFRS* is insignificant, as expected, which indicates that IFRS adoption by private firms has no impact on classification shifting. In addition, the coefficient on *NRECxHavenxIFRS* is also insignificant, which indicates that the impact of IFRS adoption on classification shifting is not sensitive to using tax havens. Column 2 of Table 4.12 reports the results based on a subsample of firms with only income-decreasing NREC, and the results are qualitatively similar.

Table 4.12 The impact of IFRS adoption on classification shifting – private firms subsample

	Dependent variable: UCE	
	Full sample	Firms with income-decreasing NREC
	(1)	(2)
	Private	Private
NREC	0.165***	0.164***
	(28.60)	(27.93)
Haven	-0.004	0.003
	(-0.53)	(0.38)
IFRS	-0.001	-0.000
	(-0.38)	(-0.27)
NRECxHaven	-0.017	-0.039
	(-0.27)	(-0.63)
NRECxIFRS	0.007	0.005
	(0.50)	(0.36)
HavenxIFRS	-0.006	-0.005
	(-0.49)	(-0.46)
NRECxHavenxIFRS	0.012	0.011
	(0.15)	(0.15)
Constant	-0.058***	-0.056***
	(-22.92)	(-22.43)
Observations	90,497	85,339
R-squared	0.221	0.220
Controls	Yes	Yes
Industry and Year FE	Yes	Yes

Please see Appendix 4.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Using alternative proxies for the use of tax havens

Tests are repeated using alternative proxies for the use of tax havens based on *OFCsubratio* and *OFCindex* as discussed earlier. Results of these tests are reported in Table 4.13 and indicate that public firms overall engage in more classification shifting as the intensity of using tax havens increases (*OFCsubratio*) and as they use tax havens with higher offshore attitude index (*OFCindex*). In contrast, private firms' classification shifting behaviour appears to be not sensitive to the intensity of using tax havens or to the use of tax havens with higher offshore attitude index. These results are qualitatively similar to the main analysis based on the indicator variable for the use of tax havens.

Table 4.13 Using alternative proxies for the use of tax havens
Panel A: OFCsubratio as the variable of interest

	Dependent variable: UCE					
	Full sample			Firms with income-decreasing NREC		
	(1)	(2)	(3)	(4)	(5)	(6)
	Public	Private	Difference	Public	Private	Difference
NREC	0.091***	0.165***	-0.074***	0.091***	0.164***	-0.073***
	(4.90)	(30.14)	(14.85)	(4.64)	(29.36)	(12.79)
OFCsubratio	-0.079**	-0.018	-0.061	-0.099**	-0.003	-0.097**
	(-2.00)	(-0.78)	(1.78)	(-2.35)	(-0.14)	(4.40)
NRECxOFCsubratio	0.393***	0.067	0.326**	0.433***	0.032	0.401***
	(2.98)	(0.91)	(4.71)	(3.12)	(0.47)	(6.78)
Constant	-0.034**	-0.058***	0.024	-0.030**	-0.056***	0.026*
	(-2.27)	(-23.17)	(2.67)	(-2.03)	(-22.81)	(3.03)
Observations	4,424	90,497		4,161	85,339	
R-squared	0.290	0.220		0.268	0.220	
Controls	Yes	Yes		Yes	Yes	
Industry and Year FE	Yes	Yes		Yes	Yes	

Panel B: OFCindex as the variable of interest

	Dependent variable: UCE					
	Full sample			Firms with income-decreasing NREC		
	(1)	(2)	(3)	(4)	(5)	(6)
	Public	Private	Difference	Public	Private	Difference
NREC	0.084***	0.165***	-0.081***	0.082***	0.164***	-0.082***
	(4.36)	(30.10)	(16.44)	(4.03)	(29.37)	(15.17)
OFCindex	-0.011	-0.000	-0.011	-0.017**	0.002	-0.019**
	(-1.63)	(-0.16)	(2.42)	(-2.32)	(1.00)	(6.24)
NRECxOFCindex	0.068***	0.001	0.068**	0.081***	-0.005	0.086***
	(2.58)	(0.06)	(5.23)	(2.90)	(-0.37)	(7.73)
Constant	-0.032**	-0.058***	0.026*	-0.030**	-0.055***	0.026*
	(-2.19)	(-23.11)	(2.95)	(-2.00)	(-22.72)	(3.03)
Observations	4,424	90,497		4,161	85,339	
R-squared	0.289	0.220		0.268	0.220	
Controls	Yes	Yes		Yes	Yes	
Industry and Year FE	Yes	Yes		Yes	Yes	

Please see Appendix 4.A for variable definitions. Robust t-statistics in parentheses. *, **, ***
Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Using a propensity score matched sample (PSM)

To investigate the self-selection bias concern that certain firm specific characteristics drive the results rather than the status of using tax haven subsidiaries *per se*, the tests are

repeated using a propensity score matched sample.[90] As discussed earlier, the characteristics of tax haven firms are inherently different from those of firms without tax haven operations, which might explain the results of this study rather than the use of tax havens. Firms with tax haven operations are usually larger and are more profitable, which might influence their choice to use tax havens for tax avoidance or earnings management purposes (Dyreng et al., 2012; Jaafar and Thornton, 2015; Durnev et al., 2017). In addition, the sample of non-tax haven firms is significantly larger than the sample of firms with tax haven operations, which might also influence the results.

To investigate these concerns, a propensity score matched sample is constructed as follows. First, as documented in prior research, firm-specific characteristics that influence the firm's choice to use tax havens are used to predict the probability (propensity score) that a firm establishes a tax haven subsidiary. At this stage, the dummy variable of interest *Haven* is regressed on the following covariates: firm size (*SIZE*), firm leverage (*LEV*), firm growth (*GROWTH*), firm performance (*ROA*), and operating cash flows (*OCF*), and the probability of using tax havens is predicted (propensity scores are obtained) from a logistic regression. Second, a propensity score matched (PSM) sample is constructed by matching each tax haven firm with a non-tax haven firm with the closest propensity score using a narrow caliper distance of 0.1% to ensure that firm characteristics are closely matched between the two samples.[91]

Results based on the PSM sample are reported in Table 4.14. Results show that the coefficient on *NRECxHaven* is not statistically significant in both public and private firms' samples, indicating that the status of using tax havens per se may not impact classification shifting. It is more likely that classification shifting is influenced by firm-specific characteristics that predict firms' choice to use tax havens. However, the PSM approach has limitations such as: (1) the matched sample size is small, and therefore the results may not be generalisable to the full population (Cram et al., 2009; Hope et al., 2013); (2) although PSM is used in research to address selection bias, PSM may still suffer from selection bias or omitted

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[90] Propensity score matching (PSM) is an econometric technique introduced by Rosenbaum and Rubin (1983) that allows for efficient matching between a treatment group of firms with a control group of firms by removing the bias due to confounding factors/covariates (e.g., Hope et al., 2013). According to Hope et al. (2013), PSM models have the following advantages: (1) they do not rely on a specific functional form and provide a more direct estimate of the treatment effects, and (2) they mitigate the potential impact of nonlinearities in estimating the treatment effects when the underlying functional form is nonlinear. However, a major disadvantage of PSM is that the matched sample size is smaller, which results in a trade-off between identifying the treatment effects and generalizing the results to the full population.

[91] Test of covariate balance between the treatment and control group (matched Haven vs Non-Haven) has been conducted and indicate that the balance on all covariates has been achieved (differences in covariate means between the treatment and control group are not statistically significant).

variables bias, i.e., there might be unobservable confounders that are correlated with both the treatment variable and the outcome variable, which might affect the validity of the PSM results (Guo and Fraser, 2014); (3) there is a growing debate regarding the effectiveness of the PSM in achieving its intended purpose and that it may result in more imbalance, inefficiency, model dependence, and bias (King and Nielsen, 2019; Guo et al., 2020).

Table 4.14 Using a propensity score matched sample

	Dependent variable: UCE		
	(1)	(2)	(3)
	Public	Private	Difference
NREC	0.291***	0.166***	0.125
	(3.01)	(5.04)	(1.59)
Haven	0.011	-0.009	0.020
	(1.03)	(-1.17)	(2.40)
NRECxHaven	-0.092	-0.003	-0.089
	(-0.95)	(-0.07)	(0.72)
SIZE	-0.001	0.003**	-0.004
	(-0.15)	(2.14)	(0.99)
LEV	0.004	-0.014	0.018
	(0.14)	(-0.96)	(0.32)
GROWTH	-0.043**	-0.041***	-0.002
	(-2.02)	(-3.15)	(0.01)
ROA	0.341***	0.273***	0.068
	(6.46)	(9.06)	(1.33)
OCF	0.109**	0.095***	0.015
	(2.18)	(4.14)	(0.07)
Constant	-0.044	-0.080***	0.035
	(-1.02)	(-3.50)	(0.55)
Observations	828	1,400	
R-squared	0.280	0.250	
Industry and Year FE	Yes	Yes	

Please see Appendix 4.A for variable definitions. Robust t-statistics in parentheses. *, **, *** Indicate significance at the 10%, 5%, and 1% levels respectively (two-tailed).

Other robustness tests [92]

As discussed earlier, McVay (2006) acknowledges that a limitation of her model is that it is sensitive to the inclusion and definition of contemporaneous accruals as a control for performance and calls for future research to investigate this issue. Fan et al. (2010) respond to this call and note that including contemporaneous accruals as an explanatory variable in the model is problematic because they include accrual special items, potentially creating a positive mechanical relationship between core earnings and special items. Therefore, contemporaneous accruals are excluded from the model developed by Fan et al. (2010) and Zalata and Roberts (2017). Tests are repeated using the model employed in Zalata and Roberts (2017), and the results are qualitatively similar to the main analysis.

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[92] The results are un-tabulated for brevity and are available upon request.

The results are also re-estimated using the tax haven list employed by Durnev et al. (2017), and they are overall qualitatively similar to the main findings. Finally, following prior research (e.g., Zalata and Roberts, 2017), alternative cut-off points (at 1% and 2%) are used for the positive core earnings (PCE) and the core earnings increase (CEI) benchmarks for robustness checking. Results are overall consistent with the main analysis, except for PCE at the cut-off point of 1%, where private firms appear to engage in more classification shifting to meet or beat the positive core earnings benchmark.

4.5 Conclusion

This study investigates the impact of using tax havens on classification shifting for a large sample of public and private firms domiciled in the UK from 2010 to 2018. Consistent with prior research (e.g., Jaafar and Thornton, 2015; Durnev et al., 2017), a tax haven firm is identified as any firm with at least one subsidiary or affiliate in a tax haven. Results show that overall, firms with tax haven operations engage in more classification shifting compared to firms without tax haven operations, which indicates that the use of tax havens also facilitates earnings management using classification shifting. This is consistent with prior research documenting that the low institutional environment quality of tax havens facilitates other forms of earnings management such as AEM and to some extent REM (e.g., Dyreng et al., 2012; Durnev et al., 2017). However, this finding may also indicate that due to the increased scrutiny towards the use of tax havens, especially given the strong legal system in the UK, tax haven firms may rely more on classification shifting due to its lower cost compared to other earnings management strategies (i.e., AEM and REM) (McVay, 2006; Zalata and Roberts, 2017).

Results also show that both public and private firms engage in classification shifting (unconditional on the status of using tax havens), which is consistent with prior research suggesting that public firms rely on classification shifting for financial reporting considerations and to meet capital market expectations such as analysts core earnings forecasts (McVay, 2006; Chung et al., 2021a), whereas private firms may have incentives to rely on classification shifting for credit market or tax avoidance considerations (Chung et al., 2021a). However, findings reveal that private firms rely more heavily on classification shifting than public firms. This is also consistent with prior research documenting that private firms rely more heavily on other forms of earnings management (and exhibit lower financial reporting quality) compared to public firms since they are subject to less scrutiny and market demand for high quality earnings (Ball and Shivakumar, 2005; Burgstahler et al., 2006; Hope et al., 2013), and this can

be especially the case in the UK due to its strong legal system and the higher scrutiny towards financial reporting by public firms as discussed earlier in this thesis.

Within the context of tax haven use, it appears that public firms engage in more classification shifting when they use tax havens than when they do not, whereas classification shifting by private firms is not sensitive to using tax havens. This may indicate that due to the lower institutional environment quality of tax havens which may exacerbate other forms of earnings management such as AEM and REM by public firms as discussed earlier (e.g., Dyreng et al., 2012; Durnev et al., 2017), the use of tax havens also facilitates classification shifting by public firms relative to private firms since public firms are subject to higher regulatory scrutiny and market pressure to report higher core earnings, whereas private firms' reliance on classification shifting is not affected by the use of tax havens, possibly due to lighter regulations and scrutiny which facilitate reliance on other forms of earnings management. Another explanation is that, as discussed earlier, since classification shifting is generally less costly compared to AEM and REM and is less regulated by accounting standards (e.g., McVay, 2006; Zalata and Roberts, 2017), it can be even less costly to UK public firms using tax havens compared to AEM and REM since they are larger and are more politically sensitive, especially given the strong legal system in the UK and the increased scrutiny towards the use of tax havens. On the other hand, classification shifting by private firms is not sensitive to using tax havens since they are subject to lower scrutiny and may achieve their objectives using other earnings management alternatives at a lower cost than public firms, regardless of the status of using tax havens or not. Overall, the findings indicate that the higher institutional environment quality in the UK may have a stronger impact on how UK public and private firms rely on classification shifting than the impact of the low institutional environment quality of tax havens.

In terms of classification shifting incentives, results show that public firms overall engage in classification shifting to report positive core earnings and for debt financing incentives more than private firms, whereas private firms engage in classification shifting to report core earnings increase; and the use of tax havens appears to have no impact on the incentives to meet or beat the core earnings benchmarks by both public and private firms but reduces classification shifting by public firms seeking new debt. Additional analysis has been conducted to test whether the main findings are influenced by other factors, such as Big-4 auditors and the status of IFRS adoption, and results show that these factors have no significant influence on the main findings. Finally, results based on a propensity score matched sample (PSM) show that the main findings could be explained by firm characteristics that might

influence firms' choice to use tax havens rather than the status of using tax havens *per se*. This aligns with prior research suggesting that large and profitable firms may have more incentives to use tax havens for tax avoidance and earnings management purposes (e.g., Dyreng et al., 2012; Jaafar and Thornton, 2015; Durnev et al., 2017).

This study contributes to the literature by providing evidence on how the use of tax havens impacts earnings management through classification shifting, adding to prior research documenting impacts on earnings management using AEM and REM (Dyreng et al., 2012; Durnev et al., 2017). In addition, this study contributes by providing evidence that public firms' reliance on classification shifting increases with the use of tax havens, whereas private firms' reliance on classification shifting is not affected by the use of tax havens. Classification shifting is a less costly alternative (compared to AEM and REM) that is adopted by public firms when they use tax havens. In that sense, the study adds to prior research investigating differences in financial reporting behaviour between public and private firms. Finally, this study shows that classification shifting is pervasive among both UK public and private firms; therefore, the findings of this study are informative to UK policymakers and suggest that the presentation of income statement items and the treatment of non-core items require a higher level of regulation.

This study is subject to some limitations. First, it focuses on the UK setting, so results might not be generalisable to other settings. In addition, prior research in classification focuses almost exclusively on the USA, UK, and East Asian countries (e.g., McVay, 2006; Haw et al., 2011; Zalata and Roberts, 2017). Therefore, future research can adopt an international setting and focus on a cross-country comparison to investigate how cross-country differences influence classification shifting. Another limitation is that validity of the findings is subject to the model adopted. Specifically, since the vast majority of data on extraordinary or special items are missing in the Amadeus database, income-decreasing non-recurring items (*NREC*) is used as a proxy in this study, which is measured as the positive differences between core earnings and bottom-line net income, whereas negative differences are income-increasing and are set to zero. This definition closely parallels those adopted in prior research (e.g., Zalata and Roberts, 2017). I acknowledge that this definition has some limitations, such as the inability to directly capture special items, aggregating income-increasing and income-decreasing non-core items, and it includes items that are less subject to discretionary classification by managers, such as financial costs. However, this measure provides for a larger sample size for the analysis and potentially captures discretionary misclassification of core items to other non-core sections within the income statement. Future research may verify the findings of this study by using an alternative proxy that directly captures income-decreasing and income-increasing special items

separately. Finally, this study focuses only on classification shifting using income-decreasing non-core (special) items as in McVay (2006); future research may investigate whether firms also rely on income-increasing non-core items to overstate core earnings using the model developed by Malikov et al. (2018) which focuses on overstating core earnings by misclassifying non-core revenues as core.

Appendix 4.A Variables definitions

Variable	Definition
CE	Core earnings, calculated as sales less cost of goods sold and selling, general, and administrative expenses (excluding depreciation and amortization), scaled by sales (McVay, 2006).
UCE	Unexpected core earnings, calculated as the difference between reported and predicted core earnings, where the predicted values are estimated using Equation (4.1) (McVay, 2006; Fan et al., 2010).
NREC	Non-recurring expenses, calculated as the difference between reported core earnings and bottom-line net income (Zalata and Roberts, 2017).
Public	Public firms' indicator variable taking the value of 1 for public firms and 0 for private firms.
Haven	An indicator variable for the use of tax havens, taking the value of 1 for firms with subsidiaries in tax havens and 0 for firms without tax haven subsidiaries.
OFCsubratio	Tax haven use intensity, calculated as the ratio of the number of subsidiaries in tax havens to the total number of subsidiaries (Dyreng et al., 2012; Durnev et al., 2017).
OFCindex	Subsidiary weighted offshore attitude index (Masciandaro, 2008; Durnev et al., 2017)
PCE	Positive core earnings, an indicator variable taking the value of 1 if core earnings are greater than zero and less than or equal to 3% of total assets, and zero otherwise.
CEI	Core earnings increase, indicator variable taking the value of 1 if the change in core earnings from year t-1 to year t is greater than zero and less than or equal to 3% of total assets, and zero otherwise.
DFIN	Debt Financing, indicator variable taking the value of 1 if the change in long term debt from year t to year t+1 is greater than zero and less than or equal to 3% of average total assets, and zero otherwise.
SIZE	Firm size, calculated as the natural logarithm of total assets (Zalata and Roberts, 2017).
LEV	Financial leverage, measured as long term debt divided by average total assets.
GROWTH	Asset growth, calculated as the annual percentage change in total assets (Haga et al., 2018)
ROA	Return on assets, calculated as earnings before interest and taxes (EBIT) divided by lagged total assets (Zalata and Roberts, 2017)
OCF	Cash flows from operations scaled by lagged total assets (Zalata and Roberts, 2017)

Chapter (5) Summary and conclusion

5.1 Summary of the thesis

This thesis examines the impact of using tax havens on earnings manipulation using accruals (AEM), real activities (REM), and classification shifting for a large sample of public and private UK firms and investigates the impact of ownership structure on the relationship between the use of tax havens and AEM and REM. Data used in this thesis are collected from the Amadeus database published by Bureau van Dijk (BvD). The analysis period starts in 2010 to avoid the impact of the global financial crisis and ends in 2018 to avoid the impact of the COVID-19 pandemic. This thesis defines a tax haven firm as any firm with a subsidiary in a tax haven (e.g., Jaafar and Thornton, 2015; Durnev et al., 2017). The thesis mainly consists of three empirical chapters; the following sections summarise the main findings of each empirical chapter.

The first empirical chapter investigates the impact of using tax havens on AEM and REM and whether this impact differs between public and private firms. The chapter employs several proxies of AEM and REM that are most commonly used in prior research so that the results are comparable with previous studies. The chapter focuses on the absolute values of these proxies (e.g., Hope et al., 2013; Haga et al., 2018). The main findings of the first empirical chapter show that firms with tax haven operations overall engage in less AEM but more REM, suggesting that these firms are more politically sensitive since they are larger in size and subject to increased scrutiny when they use tax havens and consequently rely more on REM because it is harder to detect, but less on AEM since it is more scrutinised by auditors and regulators and can be more costly (e.g., Cohen et al., 2008; Francis et al., 2016). This suggests that the higher institutional environment quality in the UK (the home country) may have a stronger impact on earnings management behaviour than the impact of tax havens characterised by lower institutional environment quality. These findings are slightly different from prior research documenting that the use of tax havens is associated with more AEM and REM (Dyreng et al., 2012; Durnev et al., 2017); however, these studies focus only on public firms and different samples using other institutional settings (i.e., the US and an international sample from 15 countries); therefore, their findings may not generalise to a sample of public and private UK firms. In addition, in all tests, public firms also engage in less AEM but more REM relative to private firms (unconditional on the status of using tax havens), which is also consistent with prior research and indicates that public firms are more politically sensitive and

are subject to demand for high quality financial reporting (e.g., Hope et al., 2013), therefore they rely more on REM since it is harder to detect compared to AEM, especially given the strong legal system in the UK (Francis et al., 2016; Haga et al., 2018).

Most importantly, public firms appear to engage in less AEM and sales manipulation than private firms when they use tax havens, whereas the sensitivity of the remaining REM variables to using tax havens appears not to be different between public and private firms. This is intuitive given that public firms are subject to increased scrutiny and demand for high quality financial reporting compared to private firms (Ball and Shivakumar, 2005; Hope et al., 2013), and since the use of tax havens may further increase the political sensitivity of public firms; therefore, they are less likely to engage in AEM when they use tax havens relative to private firms since AEM is more scrutinised by auditors and regulators and can be more costly (e.g., Cohen et al., 2008). This is also consistent with the notion that the UK's higher institutional quality may have a stronger impact than the low institutional quality of tax havens.

The second empirical chapter investigates whether a firm's ownership structure influences the relationship between the use of tax havens and AEM and REM and whether this impact is different between public and private firms. This chapter focuses on three important ownership structure variables most widely investigated in prior research: managerial ownership, ownership concentration, and institutional ownership. This chapter's main findings show that managerial ownership increases tax haven firms' reliance on AEM and sales manipulation relative to non-tax haven firms, while managerial ownership has no impact on the sensitivity of the remaining REM variables to using tax havens. This indicates that managers may exploit tax havens' low institutional environment quality to engage in more AEM and sales manipulation. This finding overall is against the incentive alignment effect of managerial ownership in constraining earnings management and supports the managerial entrenchment effect (Jensen and Meckling, 1976; Warfield et al., 1995; Claessens et al., 2002; Di Meo et al., 2017). This also suggests that the low institutional environment quality of tax havens may have a more substantial impact than the strong legal system in the UK, which exacerbates managers' incentives to manipulate earnings. In addition, this impact appears not sensitive to firms' listing status.

Secondly, ownership concentration appears to exacerbate AEM and sales manipulation but constrains manipulation of discretionary expenses and production levels in tax haven firms relative to non-tax haven firms; this indicates that while large shareholders may exploit the low institutional quality of tax havens to rely more on AEM (Kim and Yi, 2006) and sales manipulation to achieve their objectives, they may constrain manipulation of discretionary

expenses and production levels, potentially since the latter can be more value destroying. Overall, this finding is somewhat consistent with the incentive alignment hypothesis (Jung and Kwon, 2002; Wang, 2006). This impact appears not to be different between public and private firms in the cases of AEM and sales manipulation, while the constraining effect is more pronounced for public relative to private tax haven firms in the cases of discretionary expenses and production levels.

Thirdly, regarding institutional ownership – consistent with the active monitoring hypothesis (Bushee, 1998; Chung et al., 2002; Hadani et al., 2011) – findings indicate that institutional investors constrain AEM and sales manipulation for tax haven firms relative to non-tax haven firms. This may be especially the case due to the higher institutional quality in the UK. However, institutional ownership appears to have no impact on the sensitivity of manipulation of discretionary expenses and production levels to using tax havens, and these findings appear not to be different between public and private firms.

The third empirical chapter examines the impact of using tax havens on classification shifting and whether this impact is different between public and private firms. The min findings show that, firstly, both firms with and without tax haven operations engage in classification shifting; however, there is tentative evidence that the use of tax havens is associated with more classification shifting. This is overall consistent with prior research findings that the use of tax havens also exacerbates earnings management using AEM and REM due to secrecy policies and the low institutional environment quality in tax havens (Dyreng et al., 2012; Durnev et al., 2017). Alternatively, this may indicate that firms using tax havens may rely more on classification shifting due to its lower cost compared to AEM and REM since these firms are larger and more politically sensitive, especially within the UK due to its higher institutional quality which may constrain other earnings management practices (especially AEM).

Secondly, both public and private firms (unconditional on the status of using tax havens) engage in classification shifting; however, there is robust evidence that private firms rely more heavily on classification shifting. This is consistent with prior research suggesting that private firms generally engage more heavily in earnings management, mainly for tax planning or debt financing considerations, compared to public firms and that private firms overall exhibit lower financial reporting quality (e.g., Ball and Shivakumar, 2005; Burgstahler et al., 2006; Hope et al., 2013; Chung et al., 2021a; b).

Thirdly, conditional on the status of using tax havens, public firms appear to rely more on classification shifting when they use tax havens than when they do not. On the contrary, private firms' classification shifting behaviour appears to be not sensitive to the use of tax

havens. This is intuitive and indicates that public firms rely more on classification shifting than private firms to meet their financial reporting objectives when using tax havens. These findings are important as they indicate that as public firms operating in tax havens reduce their use of AEM (as established in Chapter 2), they switch to other forms of earnings management, including classification shifting. As discussed earlier, these firms are more politically sensitive and classification shifting can be a less costly alternative as it does not alter the bottom line earnings, does not involve the manipulation of accruals that are highly regulated by accounting standards, and does not alter the real activities of the firm or involve sacrificing investment opportunities (McVay, 2006). Overall, this suggests that due to the strong legal system in the UK, public firms reduce their reliance on AEM and increase their reliance on classifications shifting since it is less costly when they use tax havens. [93] On the other hand, since private firms are subject to less scrutiny, their reliance on classification shifting is not affected by the use of tax havens. Fourthly, regarding the incentives of classification shifting, public firms appear to classification shift more than private firms to report positive core earnings and before issuing new debt, while private firms classification shift to report increases in core earnings. In addition, the use of tax havens overall does not influence the incentives to meet or beat the core earnings benchmarks by public and private firms, while it reduces classification shifting by public firms seeking new debt.

5.2 Research implications

This thesis has several policy implications, including the following. Firstly, the findings of this thesis show that REM is used heavily by politically sensitive firms, such as public firms and firms using tax havens, while these firms engage less in AEM, suggesting that REM is less costly to the managers of these firms and is heavily adopted since it is harder to detect or prove in court compared to AEM, and this especially the case in strong legal systems like the UK (e.g., Francis et al., 2016). This is also consistent with the findings of previous studies suggesting that firms substitute between AEM and REM depending on their relative costliness (Cohen et al., 2008; Zang, 2012; Francis et al., 2016). As discussed in detail earlier in this thesis, REM can be value-destroying and has negative impact on the firm performance in the long run, for instance, due to cutting necessary expenditures or sacrificing investment

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[93] This finding is contradicting with prior research in that the use of tax havens by public firms exacerbates AEM due to secrecy policies and the low institutional environment quality (Dyreng et al., 2012; Durnev et al., 2017). However as discussed earlier, the current study focuses exclusively on the UK setting which has not been the focus of prior studies in this area, therefore, the results may be slightly different.

opportunities to achieve short-term objectives (Bushee, 1998; Roychowdhury, 2006). In addition, the prevalence of REM as a preferred strategy adopted by managers is also documented in prior research; survey evidence by Graham et al. (2005) suggests that most managers prefer REM to AEM, even if it has negative long-run consequences. Therefore, the findings of this thesis have important policy implications and suggest that regulatory intervention is important to constrain this costly form of earnings management.

Secondly, the findings also show that classification shifting is adopted heavily by both firms with and without tax haven operations and by both public and private firms, suggesting that classification shifting is a pervasive earnings management strategy in the UK. This may be due to its low cost compared to AEM and REM. The findings suggest that additional regulatory scrutiny may be required to constrain firms' ability to engage in classification shifting. Evidence also suggests the prevalence of classification shifting in other settings, such as in the US (McVay, 2006; Fan et al., 2010) and in East Asian countries (Haw et al., 2011; Chung et al., 2021a). Standard setters could also consider the presentation of income statement items in conjunction with measurement and recognition issues (Haw et al., 2011). Furthermore, there are grounds to suggest that auditors should ensure the appropriate classification of income statement items rather than only focusing on verifying the accuracy of bottom-line earnings.

Finally, the study sheds light on the extent to which earnings manipulation practices may not be limited to the context of public companies: private firms appear also to engage in each of the different forms of earnings manipulation studied. Private firms may manipulate earnings for tax strategy or debt financing incentives (e.g., Ball and Shivakumar, 2005; Jaafar and Thornton, 2015; Chung et al., 2021b). Findings in this regard support the call for policymakers to regulate private firms' financial reporting behaviour and not to focus exclusively on regulating reporting by public firms.

5.3 Limitations and suggestions for future research

This thesis is also subject to some limitations. Firstly, while analyses examine the impact of using tax havens by public and private firms using a broad range of earnings management proxies (AEM, REM, classification shifting), the findings are based on a sample of only UK companies; therefore, they may be limits to the extent they can be generalised to other settings. As discussed earlier, the institutional environment quality of a jurisdiction influences the intensity of earnings management and the techniques adopted (Leuz et al., 2003; Burgstahler et al., 2006; Dyreng et al., 2012; Francis et al., 2016). The UK setting is

characterised by high institutional environment quality, and the findings may differ from those observed in relation to low institutional environment countries. In addition, prior research in this area has focused almost exclusively on the behaviour of public firms or developed countries characterised by high institutional environment quality (e.g., Dyreng et al., 2012; Durnev et al., 2017). Future research in this area may focus on emerging economies or larger cross-country samples combining both advanced and emerging economies to examine how the variation in the institutional environment quality of jurisdictions influences the relationship between the use of tax havens and earnings management strategies by public and private firms.

Secondly, an important limitation of this thesis is that there are several corporate governance mechanisms and internal control procedures that are not examined in this thesis, while they are important monitors of the financial reporting system and play a crucial role in constraining earnings management (Dechow et al., 2010). Prior research documents that the characteristics of the board of directors (e.g., board size, board independence, the frequency of board meetings, board gender diversity) and the quality of internal audit committees (e.g., audit committee independence and meeting frequency) significantly improve financial reporting quality and constrain earnings management practices (e.g., Dechow et al., 2010; Walker, 2013; Hasan et al., 2022).[94] Most of these governance mechanisms are introduced to constrain earnings management, especially following the collapse of Enron and WorldCom, as discussed in Chapter (1) (Ashbaugh-Skaife et al., 2008; Cohen et al., 2008). Therefore, an interesting area for future research is by examining whether corporate governance mechanisms and internal control procedures moderate the impacts of using tax havens on earnings management by public and private firms.

Thirdly, another limitation is that annual time-series data on each firm's subsidiaries' locations is not available on Amadeus database; therefore, this study uses only three points of subsidiary data for the years 2010, 2014, and 2018.[95] As such, the findings of this study should be interpreted with some caution. Furthermore, a limited number of firms sampled may also be subject to regulations of other markets if they are cross-listed or have significant operations in a foreign country. Related to this point, future studies could explore whether results are sensitive to subsidiary-country effects or cross-listing activity, particularly where there is a substantive difference between home and host country institutional environment quality. Such

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[94] However, this evidence is also mixed (e.g., Dechow et al., 2010; Hasan et al., 2022).
[95] Subsidiary data for 2018 are collected from the online version of Amadeus database, whereas subsidiary data for 2010 and 2014 are collected from an older version of the database available on CD-ROMs. Data collected from these different sources are merged into the final dataset.

analyses would arguably require a broader cross-country dataset where sufficient variation in institution quality can be observed.

Fourthly, while analyses incorporate several proxies for alternative earnings management strategies that are among the most widely used in prior research, other earnings management proxies exist that are not employed in this thesis, such as those employed in Burgstahler et al. (2006) and Givoly et al. (2010). Furthermore, this thesis focuses only on earnings management because it is particularly responsive to firms' reporting incentives (Burgstahler et al., 2006); however, earnings management is only one dimension of financial reporting quality (FRQ), whereas FRQ is a multi-dimensional concept entailing several other dimensions, such as timely-loss recognition (conditional conservatism) and value relevance (Ball and Shivakumar, 2005; Givoly et al., 2010). Investigating these alternative proxies of earnings management and the alternative dimensions of FRQ is also left to future research.

Fifthly, this thesis examines whether ownership structure influences the relationship between the use of tax havens and AEM/REM by public and private firms. However, it does not examine how ownership structure influences tax haven firms' use of classification shifting. Hence, whether ownership structure affects classification shifting or alternative dimensions of FRQ (e.g., timely-loss recognition) of tax haven firms is also a potentially relevant question left to future research.

Sixthly, this thesis focuses on earnings management rather than tax avoidance, although tax avoidance is an important and interesting area for research due to its impact on several stakeholders (Hanlon and Heitzman, 2010). While the use of tax havens for tax avoidance can be beneficial to shareholders if it minimises their tax burden (e.g., Atwood and Lewellen, 2019), it can be detrimental to governments as it results in significant tax losses (Jaafar and Thornton, 2015; Atwood and Lewellen, 2019). Although previous studies in this area examine the tax implications of using tax havens (e.g., Jaafar and Thornton, 2015), the role of ownership structure has not been examined. Therefore, future research may investigate whether ownership structure influences the relationship between the use of tax havens and tax avoidance by public and private firms. Finally, future research could also investigate the relationship between the use of tax havens and the efficiency of capital allocation. According to Biddle et al. (2009) and Chen et al. (2011), a firm invests efficiently if it undertakes only projects with positive net present value (NPV), and both underinvestment and overinvestment are considered inefficient investments. To my knowledge, prior research has not examined whether the use of tax havens influences the efficiency of firms' capital investments, which is another interesting area for future research.

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