TAX AVOIDANCE AND ITS RELATION TO ACCOUNTING CONSERVATISM

by

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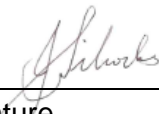
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ABSTRACT

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This thesis explores the relationship between tax avoidance and accounting conservatism for publicly listed corporate taxpayers, and whether the relationship differs for conditional and unconditional accounting conservatism. The start of the study followed an archival research design in that it reviewed the literature on research performed in the fields of tax avoidance and accounting conservatism and its two forms. These concepts, both grounded in agency theory, were considered with specific reference to the determinants, and consequences of both tax avoidance and accounting conservatism, as well as the measures used to quantify these phenomena.

Then, multivariate regression analyses were performed to explore the relation between tax avoidance and the two forms of accounting conservatism (conditional and unconditional conservatism). The analyses used data for publicly listed United States firms for a period of 26 years, available to the public from the *Datastream* database. Tax avoidance was measured using non-cash flow based and cash-flow based effective tax rate measures. Accounting conservatism was measured using the *NONACC* measure (an accruals-based measure) for unconditional conservatism, and the *CSCORE* measure (an

earnings/stock relation measure) for conditional conservatism. The augmented Basu model was also used to establish the relation between tax avoidance and conditional conservatism. The results suggest a negative relation between unconditional conservatism and tax avoidance, and a positive relation between conditional conservatism and tax avoidance. This research provides conceptual frameworks for, and advances the measures of, tax avoidance and accounting conservatism and improves the understanding of the relationship between these phenomena which could assist in identifying firms prone to tax avoidance.

Key words:

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LIST OF ACRONYMS AND ABBREVIATIONS

ACC/CFO	Accrual/cash flow relation
BTD	Book-tax differences
CEO	Chief executive officer
CFO	Chief financial officer
CR	Conservatism ratio
CSR	Corporate Social Responsibility
ESG	Environmental, Social and Governance
ETR	Effective tax rate
FASB	Financial Accounting Standards Board
FIN 48	Interpretation No. 48, Accounting for Uncertainty in Income Taxes
GAAP	Generally Accepted Accounting Principles
IASB	International Accounting Standards Board
IRS	Internal Revenue Service (United States)
MTB	Market-to-book
OECD	Organisation for Economic Co-operation and Development
SARS	South African Revenue Service
SCV	Spread of conditional variances
SEC	Securities Exchange Commission
SFAS	Statement of Financial Accounting Standards
UTB	Unrecognised tax benefits
VIF	Variable inflation factor

CHAPTER 1:
INTRODUCTION

1.1 BACKGROUND

In the past, tax researchers have already ventured into the fields of accounting, economics, finance and law – the multi-disciplinary nature of tax research makes such research challenging and interesting (Hanlon & Heitzman 2010:127). Thus far, none of the fields covered in tax research have explored tax in the same detail as the accounting field has, because tax and accounting share a number of principles (Balakrishnan, Blouin & Guay 2019:47). There is considerable complex interaction (Dyreng & Maydew 2018:311) and a close connection between these two fields, not only in respect of financial and tax reporting, but also of business and operational decision-making. This complex interaction between accounting and taxation contributes to the practical significance of combined research in these two fields (Hanlon & Heitzman 2010:127-128). Tax research relating to Accounting focuses on four main areas: information obtained from the disclosure of taxation in the financial statements, corporate tax avoidance, corporate decision-making, and the effect of taxes on the pricing of assets (Hanlon & Heitzman 2010:128).

A comprehensive review of prior tax research by Graham, Raedy and Shackelford (2012) focuses only on research on the disclosure of taxation in the financial statements; the two most prominent areas of research they noted are the role of tax accounts in earnings management, and the value that the market attaches to tax disclosures in the financial statements. Frank, Lynch and Rego (2009:468-469) report a strong positive relation between aggressive financial reporting[1] and aggressive tax reporting.[2] Later studies by Hanlon and Heitzman (2010) and by Atwood, Drake, Myers and Myers (2012:1832) confirm that reporting decisions made by managers, and managers' planning approaches often consider simultaneously the effect that these decisions and approaches have on financial earnings (earnings management) and on taxable income (tax avoidance[3]). It

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[1] Defined by Frank et al. (2009) as upward earnings management.

[2] Defined by Frank et al. (2009) as downward manipulation of taxable income through tax planning, which can sometimes be classified as tax evasion.

[3] The literature uses various terms to describe tax avoidance. Some examples in the literature are "aggressiveness", "sheltering", "evasion", and "noncompliance" (Atwood et al. 2012:1832; Hanlon & Heitzman 2010:137). In the current study, the broad term "tax avoidance" is used for the sake of consistency.

follows that corporate taxation reported to revenue services and financial information reported in the financial statements are closely related, especially regarding the manner in which the reporting is approached.

The association of tax avoidance with aggressive financial reporting has already been investigated (Frank et al. 2009), but little attention has so far been paid to the effect of conservative financial reporting (accounting conservatism) on tax avoidance. Tax avoidance and accounting conservatism are described below.

1.1.1 Tax avoidance

According to Hanlon and Heitzman (2010:137), there is a strong awareness of the importance of tax avoidance and tax aggressiveness by firms. They therefore call for research considering the determinants and consequences of such behaviour. Since this call in 2010, there has been a significant amount of research relating to the determinants and consequences of tax avoidance, and this literature is still developing (Guenther, Njoroge & Williams 2019:205). The interest of academics, policy-makers and news agencies in the mechanics of tax avoidance has been sparked by the connection between tax avoidance and tax equity and efficiency, both important issues relating to tax policy (Dyreng & Maydew 2018:311). In the United States, this interest in the mechanics of tax avoidance behaviour by firms has been further fuelled by the sheer magnitude of income taxes payable (Schwab, Stomberg & Williams 2022:415) and by the fact that tax avoidance is rapidly increasing globally (Li & Ma 2022:295). The enormity of tax avoidance is not yet well understood (McClure 2023:353). According to the Tax Justice Network's country profile of the United States, tax avoidance in that country is extensive – $178 billion is lost to global tax avoidance annually, of which $140 billion relates to tax avoidance committed by multinational firms. To put the amount lost into perspective: $178 billion is equal to 4.7% of the total tax revenue collected in the United States, 10.14% of the country's health budget and 17.68% of its spending on education (Tax Justice Network 2023).

Hanlon and Heitzman (2010:137) define tax avoidance as the reduction of explicit taxes. Several studies, including those by Atwood et al. (2012:1832), Badertscher, Katz, Rego and Wilson (2019:2), and Lisowsky, Robinson and Schmidt (2013:589), have adopted Hanlon and Heitzman's definition. Since tax avoidance in essence refers to tax planning activities which could range from a legal strategy to reduce tax, to aggressive or even

illegal tax evasive behaviour, the term tax avoidance is very broad and includes tax aggressiveness (Dyreng, Hanlon & Maydew 2008:62; Hanlon & Heitzman 2010:137; Li & Ma 2022:296; Lisowsky et al. 2013:590-591; Rego & Wilson 2012:778). In adopting the term "tax avoidance", some researchers, such as Hanlon and Heitzman (2010) and Agarwal, Chen and Mills (2021:6), do not distinguish between legal and illegal activities (tax evasion). In line with Dyreng et al. (2008:62), Hanlon and Heitzman (2010:137), Lisowsky et al. (2013:590-591), and Rego and Wilson (2012:778), for the purposes of this study (see Section 2.2.1), tax avoidance is defined as the reduction of explicit taxes as a result of a continuum of tax planning activities, which can range from legal strategies to illegal activities that amount to tax evasion.

Previous tax avoidance research has included the measurement of tax avoidance, determinants of such behaviour at the firm level (including the association between tax avoidance and aggressive financial reporting, as well as earnings management), the role of executives in tax avoidance, the interaction of tax avoidance with accounting, including the implications for disclosure, and the consequences of tax avoidance (Balakrishnan et al. 2019:45, Bradshaw, Liao & Ma 2019:255, Drake, Hamilton & Lusch 2020:1; Dyreng, Hanlon & Maydew 2010:1166; Dyreng & Maydew 2018:311; Guenther, Wilson & Wu 2019:229).

1.1.2 Accounting conservatism

Accounting conservatism has influenced the reporting of financial accounting information and the development of accounting theory for centuries (Basu 1997:8, 2005:313). Accounting conservatism comes about when accountants require a high degree of verification before recognising good news, as opposed to bad news. This has the effect that losses are anticipated in the reporting of earnings, whereas the reporting of gains is postponed until the gains are actually realised (Basu 1997:4). Hence, Watts (2003a:208) argues that "[c]onservatism is the asymmetrical verification requirements of gains and losses". For the purposes of my study, based on Watts's definition of accounting conservatism, I define accounting conservatism as the asymmetrical verification requirements regarding the reporting of gains and losses, in which a higher degree of verification is required to recognise gains (good news) than to recognise losses (bad

news). Basu (1997) theorises[4] that in an efficient market, share returns can be used to measure news, since share returns reflect any publicly available news quickly and symmetrically. Given that earnings is at least twice as sensitive to negative share returns than to positive share returns, earnings is more timely in reporting bad news that is publicly available and that relates to future cash flows (also called asymmetric timeliness).

The literature identifies two types of accounting conservatism, namely conditional and unconditional conservatism. Conditional conservatism reveals information as and when it is received. It requires a more thorough confirmation of good news than of bad news when there is news that is difficult to confirm. Conditional conservatism therefore results in an adjustment or writing down of a firm's book value under adverse conditions. However, the reverse is not true – the book value is not adjusted upwards under favourable conditions. This accounting treatment ultimately results in a downward adjustment of the equity book value, and in earnings management. By contrast, unconditional conservatism applies the information available at the beginning of an asset's lifecycle, which leads to understatement of the book value of net assets, because of the predetermined characteristics of the accounting process (Basu 1997, 2005; Beaver & Ryan 2005; Watts 2003a).

Watts (2003a:214-217) suggests that there are four determinants for accounting conservatism, namely regulation, litigation, contracting, and taxation. Francis, Hasan, Park and Wu (2015) have added gender to the list of explanatory factors. To decrease regulation, contracting and litigation costs, and to defer tax expenses, most firms lean towards conservative reporting. There is a significantly negative association between the two types of conservatism, suggesting that they fulfil interrelated but opposite roles, which implies that a trade-off between the two types of conservatism is necessary. Both play a common role in avoiding litigation. Conditional conservatism improves contracting efficiency, whereas unconditional conservatism assists in preventing regulation and allows for the deferral of taxes. An example of the trade-off between the two types of conservatism is sacrificing contracting efficiency by not employing conditional

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[4] By 1 February 2024, Basu's (1997) seminal article "The conservatism principle and the asymmetric timeliness of earnings", which was published in the *Journal of Accounting and Economics*, had 6 788 citations in Google Scholar and 1 959 citations in all databases included in the Social Sciences Citation Index. This makes it one of the most referenced papers in accounting research.

conservatism, in exchange for a tax decrease arising from employing unconditional conservatism (Qiang 2007:759-761).

Research in the area of accounting conservatism focuses primarily on the measurement of accounting conservatism (Banker, Basu, Byzalov & Chen 2016; Francis et al. 2015) and its significance for financial reporting purposes (Zhong & Li 2017:209), as well as on its impact on debt contracting (Donovan, Frankel & Martin 2015, Gong & Luo 2018), earnings (Heflin, Hsu & Jin 2015) and earnings management (Black, Chen & Cussatt 2018; García Lara, García Osma & Penalva 2020:15; Zhong & Li 2017:209). Thus far, less research has been done on taxation and accounting conservatism.

Based on previous research relating to taxation and accounting conservatism, the historical evidence suggests that unconditional conservatism arose primarily from a desire to defer taxation and to decrease regulation costs (Basu 2005:314). From a tax perspective, the asymmetric recognition of gains and losses implied by conservatism leads to a deferral of tax payments and increased firm value (Watts 2003a:209), for example, when depreciation methods are applied conservatively to ensure the maximum depreciation allowance (Basu 2005:314).

1.2   PROBLEM STATEMENT AND RATIONALE FOR THE STUDY

From the overview above and the analysis performed in Chapters 2 to 4 regarding tax avoidance and accounting conservatism, it is clear that research in both fields is well established and vigorous. Research in these fields is important for academics, and even more for businesses, as well as for policy and investment decisions (see Section 1.7).

The international tax system is entering a new era and faces major reform with the introduction of the OECD/G20 inclusive framework on Base Erosion and Profit Shifting (OECD 2023). Some see this as a once-in-a-lifetime opportunity to ensure that tax avoidance is curbed (Gurria 2021). The pursuit of this opportunity is part of the rationale of this study. Other reasons for undertaking this study include the understanding that tax planning can increase shareholder value (Bradshaw et al. 2019:258) and the renewed focus on tax avoidance research to enhance understanding of the different aspects affecting tax avoidance (Li & Ma 2022:295), including financial accounting and reporting. The study also addresses a gap in the literature regarding research on different aspects or determinants of tax avoidance (Bradshaw et al. 2019:258). Specifically, the study

investigates the relation between tax avoidance and accounting conservatism, and whether this relationship differs for conditional and unconditional accounting conservatism in publicly listed corporate taxpayers.

Earlier studies have established that there is a relationship between unconditional conservatism and the deferral of taxes (Basu 2005:314; Qiang 2007:760), and between accounting aggressiveness and tax avoidance (Frank et al. 2009), but the relationship between accounting conservatism and tax avoidance is relatively underexplored. It should be noted that tax deferral is not necessarily the same as tax avoidance – tax deferral merely shifts the payment of taxes to a later date, whereas tax avoidance implies a reduction of explicit taxes, using legal or illegal methods to avoid paying some or all tax completely (Hanlon & Heitzman 2010:137). Therefore, the relationship between accounting conservatism and tax avoidance still needs to be investigated.

Although the literature points out that unconditional conservatism is more likely to be induced by taxation planning activities, specifically relating to the deferral of taxation (Basu 2005:314; Qiang 2007:760), there is not enough evidence in the literature at present to exclude a possible link to conditional conservatism. It is therefore necessary to investigate the relationship between tax avoidance and both conditional and unconditional conservatism. The questions are then what the relationship or interaction between tax avoidance and accounting conservatism is, and whether the relationship differs for conditional and unconditional accounting conservatism.

1.3   AIM AND RESEARCH OBJECTIVES OF THE STUDY

The main aim of my study is to establish the relationship between tax avoidance and accounting conservatism, focusing on publicly listed corporate taxpayers. In order to achieve the aim of the study, three objectives have been set:

- to perform a literature review in order to clarify the theoretical framework that underpins this study and to identify the determinants and consequences of tax avoidance and accounting conservatism;
- to identify the different measures used in previous research for tax avoidance and conditional and unconditional conservatism, and the most relevant measures for the study; and

- to establish the relationship between tax avoidance and the two forms of accounting conservatism, namely conditional and unconditional conservatism, for publicly listed corporate taxpayers.

1.4 HYPOTHESES

At the heart of any financial decision lies the issue of the separation of ownership and control. This separation needs to be understood against the background of agency theory (Hanlon & Heitzman 2010:138), which considers the divergence between the interests of managers and those of shareholders. Before the hypotheses of this study are dealt with, it is necessary to provide an overview of agency theory, which underlies the relationship of both of the phenomena explored in this study, namely tax avoidance and accounting conservatism, focusing on publicly listed corporate taxpayers.

Agency theory is broadly defined as a theory that clarifies the relationship between a principal and an agent. The principal is the party that delegates work to another party, known as the agent, who is appointed to act on behalf of the principal. In the principal-agent relationship, the principal delegates or employs an agent to perform work for the principal, serving the best interests of the principal in all matters. In some instances, this delegation of decision-making authority can lead to a loss of efficiency (including profits) which can in turn lead to an increase in costs. These costs are referred to as the agency cost (Deegan 2014:65,273,279). The agency cost hypothesis predicts that individuals – in this case, managers – act in their own self-interest to maximise their own utility (this is also known as empire building or rent extraction) (Hanlon & Heitzman 2010:138). Agency cost can be defined as costs incurred by owners (principals) arising from a conflict of interests or information asymmetry between the principal and the agent (manager) (Deegan 2014:273). Agency cost is also seen as a consequence of tax avoidance behaviour (Balakrishnan et al. 2019:47). Other examples of agency cost are the use of the company resources or information for private gain (Deegan 2014:65) and rent extraction, which involves, for example, connected-party transactions or earnings management and the abuse of incentives provided by the firm to its employees (Chen et al. 2010:42,44). The principal-agent relationship can thus lead to conflict between shareholders and managers or lenders and managers. This implies that the agency costs of these potential conflicts need to be moderated by contracting (for example, regarding compensation) and related financial reporting (for example, the application of accounting

conservatism) (Deegan 2014:66). Agency theory thus provides the necessary explanation as to why a manager might select a particular accounting method (Deegan 2014:279). It also highlights the importance of accounting conservatism and its ability to moderate agency cost and facilitate corporate governance (Zhong & Li 2017:195,209). Accounting conservatism can minimise agency cost by monitoring the performance of managers, compliance with regulation, and managers' attitude towards risk (Deegan 2014:316; Francis et al. 2015:1285; Francis & Martin 2010:161; Watts 2003a:209). It is a tool to discipline managers (Khurana & Wang 2018:250), to address a manager's behaviour to prevent opportunism, and to influence the investment decisions that managers make to effect more profitable acquisitions and reduce risk. This tool is effective because accounting conservatism allows managers to detect economic losses earlier when they analyse potential acquisitions, and to identify current projects' poor performance earlier, preventing a reduction in compensation or even job losses for managers (Francis & Martin 2010:161-163,177; Hsu et al. 2017:81; Watts 2003a:219; Zhong & Li 2017:210).

Based on the assumption that both principals and agents act in their own self-interest to increase their welfare, it cannot be assumed that the agent acts in the best interests of the principal. Instead, agency theory posits that the fact that agents act in their own best interests may have a negative impact on the economic wellbeing of the principal(s). A manager may not work as hard as an owner, because a manager does not share directly in the growth or profits of a firm (Deegan 2014:273,280). Managers' decisions may thus not always be in the best interests of shareholders, which may decrease the value of the firm (Desai & Dharmapala 2009:538; Hope & Thomas 2008:591-592). Desai and Dharmapala (2009:537-539) suggest that one of the ways in which the agency perspective could lead to a decrease in value for shareholders is tax avoidance, since tax avoidance strategies could disguise, for example, rent (or value) extraction by managers who engage in tax sheltering activities.

The divergence of interests gives rise to the agency problem, which is the problem or difficulty of deciding how to motivate an agent to act in the best interests of the principal and also ensures that the principal's welfare is maximised. Agency problems usually arise because of inefficiencies or when incomplete information is made available (Deegan 2014:280). The need to incentivise the agent, which is also referred to as the incentive problem, is thus at the heart of agency theory. It is important to understand why there would be a conflict of interest between the principal and the agent. Typically, this conflict

arises from the agent's effort aversion, or the diversion of resources for the personal gain of the agent (Deegan 2014:280). Differences in risk aversion on the part of the agent (or manager) or differences in time horizons between the agent and the principal (for example, the agent does not see a future at the firm and therefore does not consider the future implications of the current decisions made) can also play a role (Deegan 2014:280).

According to agency theory, a well-functioning firm is one that can minimise its agency costs, usually by implementing incentives. Some of these are based on outputs of the accounting system, for example, profit sharing, to ensure that the agent acts in the best interests of the principal (Deegan 2014:273,280). The incentive structure for managers (see Section 2.2.2.4) is also one of the determinants of tax avoidance, and could also influence the tax avoidance strategy. Shareholders may want managers to engage in more aggressive tax avoidance to increase the value of the firm for the shareholders (Hanlon & Heitzman 2010:144). Management incentive structures are therefore often linked to after-tax earnings, or the effective tax rate of a firm. One outcome may be that the enforcement efforts of a country's revenue services against the firm are not effective in correcting tax avoidance behaviour, because the incentives that managers receive in fact remunerate them for accepting the risk (and costs involved if they are detected) of engaging in tax planning (Atwood et al. 2012:1836; Rego & Wilson 2012:777). Performance incentives based on after-tax amounts are thus likely to increase tax avoidance behaviour (Hanlon & Heitzman 2010:138; Rego & Wilson 2012:776).

Conservatism neutralises the effect of incentives for engaging in aggressive financial reporting given to managers, which then lowers the potential of losses for investors (and shareholders) who rely on the amounts in the financial records in drafting their contracts. Accounting conservatism, especially conditional conservatism, further enhances debt contracting efficiency; it benefits the borrower by resulting in reduced interest rates when there is a perception that less risk is involved (Deegan 2014:315-316; Iyengar & Zampelli 2010:122; Qiang 2007:759,763; Zhang 2008:27). Accounting conservatism can also reduce agency conflicts between managers and the shareholders of a firm (Francis & Martin 2010:162).

The relationship of tax avoidance to both unconditional and conditional conservatism was tested in the study. If a firm wishes to defer taxable income (a form of less aggressive tax avoidance behaviour), while still aiming for book-tax conformity, then accounting income

or net earnings must also be deferred. This is achieved by deferring revenue. At the same time, the recognition of expenses is accelerated in the financial records. The tendency to report more conservatively, which is referred to as tax-induced accounting conservatism (Hanlon et al. 2008:295), is brought about naturally by the interaction between financial accounting and taxation (Basu 2005:313; Qiang 2007:760; Watts 2003a:209,216,217). Tax-induced accounting conservatism results in the deferral of taxes because of the asymmetric recognition of gains and losses. Previous studies (Qiang 2007:765; Ruch & Taylor 2015:21) have indicated that unconditional conservatism in particular results in the deferral of taxes. Based on this, Hypothesis 1, stated in the alternative form, was the following:

H_1: *There is a positive relationship between tax avoidance and unconditional conservatism.*

Conditional conservatism, which relies heavily on economic news, requires a more thorough confirmation of good news than bad news, if there is news that is difficult to confirm (Basu 2005:313). As a result, conditional conservatism is more sensitive to a manager's attitude towards risk. Studies by Francis et al. (2014) and Francis et al. (2015) show that the level of a manager's risk aversion dictates the relation of the manager to both tax avoidance and accounting conservatism. Specifically, their two studies suggest that a female CFO is likely to engage in less tax avoidance and in more accounting conservatism. This implies a negative relation between tax avoidance and conditional conservatism, which is relevant for this study as managerial discretion affects both accounting conservatism and tax avoidance.

Evidence in the literature also indicates that there is a significant negative association between the two types of conservatism, suggesting that they fulfil interrelated roles, sometimes making a trade-off between the two types of conservatism necessary (Qiang 2007:760). It was therefore important to differentiate between the two types of conservatism, and to test the relation of each of the two types of conservatism to tax avoidance separately. Since some prior studies have reported a positive relation between tax avoidance and unconditional conservatism (Qiang 2007:765; Ruch & Taylor 2015:21), a negative association between the two types of accounting conservatism also seems to point towards a negative relation between tax avoidance and conditional conservatism. Since the literature suggests a negative relation, but does not provide strong support for

the direction of the relation between tax avoidance and conditional conservatism, Hypothesis 2 was stated in the null form:

H₂: There is no relationship between tax avoidance and conditional conservatism.

1.5   RESEARCH METHOD AND DESIGN

My study sets out to provide evidence on the relationship between tax avoidance and accounting conservatism, including its two components, conditional and unconditional conservatism, for publicly listed corporate taxpayers. Since it attempts to explain a relationship, the research falls within a positivist research paradigm. This implies that the research can be observed and measured in an objective manner (Welman, Kruger & Mitchell 2007:6) and does not attempt to prescribe behaviour, but predicts and/or explains a phenomenon or a relation (Deegan 2014:10; Welman et al. 2007:7).

To establish the relationship between tax avoidance and accounting conservatism, an archival research design was followed, starting with an extensive literature review to clarify the theoretical framework underpinning this study. The literature review identified the characteristics of both tax avoidance and accounting conservatism, including their definitions, determinants, consequences and measurement. The literature review was also used as starting point to develop the two hypotheses. Hypothesis 1 addresses the relation between tax avoidance and unconditional conservatism; it states that there is a positive relationship between tax avoidance and unconditional conservatism. Hypothesis 2 addresses the relation between tax avoidance and conditional conservatism; it states that there is no relationship between tax avoidance and conditional conservatism. The literature review was used to perform an analysis to determine the most suitable measures to be applied to measure these phenomena.

The Cash Flow Effective Tax Rate (ETR) Measure B (*CFM B*), calculated by dividing the total cash income taxes paid by the operating cash flow (Salihu et al. 2013:420) adjusted for cash taxes paid, and the long-run CASH ETR,[5] calculated by dividing the sum of cash income taxes paid over *n* years by the sum of the net income before taxation (pre-tax accounting income) after adjustment for any special items over *n* years, were the most

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[5] All measures are defined in Annexure A.

suitable to measure tax avoidance. Given the impact of accounting conservatism on the valuation and measurement of the amounts recorded in the financial records, combined with the importance of a manager's discretion in implementing accounting principles, a tax avoidance measure, namely CFM B, which is not affected by accrual accounting, had to be selected for the purposes of this study. In addition, the CFM B measure can be used to test for both conforming and non-conforming tax avoidance (Salihu et al. 2013:418,423).

A long-run version of the CFM B measure was also introduced in the study and was calculated over a five-year period (*LR_CFM_B5*) and a three-year period (*LR_CFM_B3*). The long-run versions were introduced to address the concerns raised regarding ETR measures calculated using annual data. The long-run CASH ETR was calculated over a five-year period (the current year plus the previous four years) (*LR_CASH_ETR5*), and a three-year period (the current year plus the previous two years) (*LR_CASH_ETR3*). Calculating the ETR measures over a longer period makes irrelevant any fluctuations, including those resulting from accruals, in the measure from year to year, limiting volatility in the measure.

A tax fraud controversies score (*TAX_FRAUD_SCORE*) was introduced for the first time in this study as a possible proxy for tax avoidance. The *TAX_FRAUD_SCORE* refers to the number of controversies published in the media linked to tax fraud, parallel imports or money laundering, as obtained from the *Datastream* database. It was, however, not significantly correlated to any of the established tax avoidance measures. This, combined with the fact that only a limited number of observations were available to use for testing, limited the usefulness of the measure. It meant that the validity of this measure for tax avoidance could not be confirmed.

Two measures[6] were identified to measure accounting conservatism. The Accruals (*NONACC*) measure was used to measure unconditional conservatism; the conservatism score (C-score) measure was chosen to measure conditional conservatism. All proxies used to measure accounting conservatism were adjusted to exclude tax-related expenses

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[6] All measures are defined in Annexure A.

and cash flows when calculated. This is done to ensure that the proxies for tax avoidance and accounting conservatism are not spuriously correlated (Frank et al. 2009:480).

The *NONACC* measure focuses on the non-operating accruals of a firm and is the only unconditional conservatism measure which is not affected by future economic rents or growth opportunities. The *NONACC* measure was calculated over a five-year period (*NONACC5*) and a three-year period (*NONACC3*) using the non-operating accruals before depreciation, deflated by the average total assets, averaged over *n* years (the current year and *n* - 1 years), multiplied by negative one.

The C-score measure (see Section 4.4.2 for an explanation of the calculation of the measure) was deemed suitable to measure conditional conservatism, because it is a firm-year level measure and helps to address endogeneity concerns relating to managerial discretion (Hsu et al. 2017:83). This is relevant for this study, as managerial discretion affects both accounting conservatism and tax avoidance. To calculate the C-score (*CSCORE*), the regressions for the Basu measure (see Section 4.4.1) were estimated annually, after three firm-specific characteristics (MTB, size and leverage, which have been connected to changes in conservatism across different firms) had been incorporated into the Basu measure (Khan & Watts 2009:133). The result was a collection of weights that could be used to construct the C-score measure (Brown et al. 2011:226) and that includes cross-sectional and time-series variations when measuring conditional conservatism for an individual firm (Khan & Watts 2009:133). This collection of weights is commonly referred to as the asymmetric timeliness coefficient. The higher the C-score, the higher the level of conditional conservatism (Black et al. 2018:141; Gong & Luo 2018:193; Khan & Watts 2009:136).

The measures used in the analysis for tax avoidance, conditional and unconditional conservatism were quantified and analysed by me, using inferential statistical data analysis techniques, as suggested by Welman et al. (2007:236). This procedure is indicative of a quantitative research strategy. I performed multivariate regression analyses to determine the relation between tax avoidance and the two types of accounting conservatism.

My sample included publicly listed firms in the United States for 26 years, from 1993 to 2018. I obtained the data from the *Datastream* database (including Worldscope), a global financial and macro-economic data platform provided by Refinitiv. Since publicly available

secondary data were used, all protocols and policies relating to research ethics were adhered to and data cleaning processes were performed. Only publicly listed firms were selected for the sample, because the proxy for conditional conservatism (the C-score) requires stock return data to measure the timeliness of news (see Section 4.4.2). The sample focused on United States firms for several reasons. One is the extensive tax avoidance experienced in that country – it is globally ranked number 25 among countries that enable tax avoidance (Tax Justice Network 2023). Another is the availability of large-scale data from publicly listed firms in the United States. The decision was made to limit the empirical design to one country to ensure that differences relating to regulations and legislation, in particular regulations and legislation applicable to taxation and accounting, as well as the regulators responsible for enforcing these regulations and differences in culture, were isolated, as recommended by Hasan et al. (2017:632) and Schwab et al. (2022:419). I excluded firms in the financial services (SIC codes 6000 to 6999) and utilities (SIC codes 4900 to 4999) from my sample because of their unique regulatory environment and reporting requirements (Basu & Liang 2019:899; Frank et al. 2009:472,479; García Lara et al. 2020:9).

The two hypotheses, as formulated above, were tested using multivariate regression analyses, based on the cleaned data obtained from the *Datastream* database. In the first set of tests, the relation between tax avoidance and the two types of accounting conservatism were tested – thus for both Hypothesis 1 and Hypothesis 2. The results of the regression model confirmed a relationship between tax avoidance and both unconditional and conditional conservatism. If the coefficient of interest is positive, it suggests that tax avoidance and the dependent variable (either unconditional conservatism or conditional conservatism) are positively associated, and that they increase or decrease in proportion to each other. Thus, they are complements. If the coefficient is negative, it suggests that they are negatively associated and that they move in opposite directions. Thus, if tax avoidance increases, the dependent variable (either unconditional conservatism or conditional conservatism) decreases, which suggests that they are substitutes for one another.

Various controls were introduced in the regression model to enhance the internal validity of the study. These controls differed, depending on whether the dependent variable was unconditional conservatism or conditional conservatism. I controlled for firm characteristics, such as firm size, the market-to-book (MTB) value, the capital structure

and debt service needs, operating cash flow and earnings. I also controlled for governance, litigation risk, regulation, executive effects and the managers' incentive structure, as well as for contracting (leverage). If conditional conservatism was included in the regression, unconditional conservatism was added as a control variable, because unconditional conservatism precedes conditional conservatism and can influence or limit the amount of adjustment that is made in the event of bad news (Beaver & Ryan 2005:270; Ruch & Taylor 2015:21).

A second regression model, the augmented Basu (1997) model, was included to test Hypothesis 2, which focused on the relation between tax avoidance and conditional conservatism. I estimated the standard Basu (1997) model, augmented with conditional conservatism, to establish the relation between tax avoidance and conditional conservatism (see Section 5.4.2). If the coefficient of interest is positive, it suggests that tax avoidance and conditional conservatism are positively associated, and that they increase or decrease in proportion to each other. However, if the coefficient is negative, it suggests that they are negatively associated and move in opposite directions. Thus, if tax avoidance increases, conservatism decreases, and they are substitutes. Similar controls were introduced as for the first regression model.

All regressions had industry fixed effects, based on the two-digit SIC code (see Annexure B for a list of the two-digit SIC codes), and year fixed effects to control for the possibility of variation in tax policies, as recommended by Bradshaw et al. (2019:266), and the macroeconomic environment, as recommended by Black et al. (2018:135) across different industries and years included in the study. All the continuous variables were winsorized at the top and bottom one per cent to limit the impact of outliers.

1.6   SUMMARY OF THE RESULTS

The relationship of tax avoidance to both unconditional and conditional conservatism was tested in the study. The results of my study indicate a significant negative relation between unconditional conservatism and tax avoidance, which contradicts Hypothesis 1. This is also contrary to the results of previous studies that suggested a positive relation between tax avoidance and unconditional conservatism (Qiang 2007:765; Ruch & Taylor 2015:21). My results further show that firms with higher levels of unconditional conservatism were

less highly leveraged; they were also smaller, with fewer growth opportunities and less profitable, and were more prone to litigation risk.

This change in direction from a proposed positive relationship to a negative relationship between tax avoidance and unconditional conservatism can be ascribed to specific changes made to the variables measuring tax avoidance and unconditional conservatism in my study. The change in direction can firstly be ascribed to the adjustment of all variables measuring accounting conservatism to exclude tax-related expenses and tax-related cash flows (to ensure that the proxies for tax avoidance and accounting conservatism were not spuriously correlated). Secondly, it may also arise from the use of long-run measures for tax avoidance, which implies that the deferral effect for tax purposes was not detected (measured), given the longer period over which the measures were calculated. In addition, the measures that I used for tax avoidance were all ETR measures (except for the *TAX_FRAUD_SCORE*). The previous study by Qiang (2007:761), which found that a rise in tax costs induces unconditional conservatism, used a book-tax differences measure, which captures only non-conforming tax avoidance aspects, and not the full range of tax avoidance activities, whereas the measures used in my study captured both non-conforming and conforming tax avoidance.

The negative relationship between unconditional conservatism and tax avoidance can further be explained considering the risks associated with accounting conservatism and tax avoidance. The studies by Francis et al. (2014) and Francis et al. (2015) indicate that the level of risk aversion of a manager dictates the relation of the manager to both tax avoidance (Francis et al. 2014:174) and accounting conservatism (Francis et al. 2015:1314). It follows in their studies that a risk averse manager (proxied by gender), tends to engage in less tax avoidance, and in more accounting conservatism. This implies a negative relation between tax avoidance and accounting conservatism. The results of my study may further indicate that risk averse managers engage more in unconditional accounting conservatism, as it is the more effective and manageable tool, to mitigate risk. Risk averse managers therefore increase their unconditional conservatism to manage their risk downwards; hence, a negative relation is established with tax avoidance.

The results of my study demonstrate a positive relation between tax avoidance and conditional conservatism, which contradicted my prediction in Hypothesis 2 that there was no relation between tax avoidance and conditional conservatism. This result confirms that

companies with higher levels of tax avoidance tend to report earnings more conservatively. In other words, the demand for conditional conservatism dominates in firms involved in more tax avoidance activities, because conditional conservatism results in asymmetric recognition of good and bad news, with the reporting of gains being postponed until they are realised, but anticipated losses being recognised in earnings, which results in a lower reported income for both tax and accounting.

From the data and analyses it is evident that firms with higher levels of conditional conservatism were smaller, with fewer growth opportunities, and less profitable, but they were more highly leveraged. Testing also confirmed that conditional conservatism was negatively related to unconditional conservatism, which supports prior research (Qiang 2007:760) and suggests that they fulfil interrelated roles. Since the results confirm a negative relation between tax avoidance and unconditional conservatism (see Section 6.4), a negative association between the two types of accounting conservatism would further support a positive relation between tax avoidance and conditional conservatism (see below).

The positive relation between conditional conservatism and tax avoidance can be explained by the behaviour of risk averse managers. Risk averse managers, who are also more conservative managers, tend to be prudent in making adjustments for accounting using unconditional conservatism. Since unconditional conservatism precedes (or pre-empts) conditional conservatism (Beaver & Ryan 2005:270; Ruch & Taylor 2015:21), it follows that less engagement with conditional conservatism is then necessary for the managers. In addition, the results of my testing of the hypotheses indicate that, in my sample, firms with higher levels of unconditional conservatism were more prone to litigation risk, whereas this was not the case for firms with high levels of conditional conservatism. These results might be an additional indication that unconditional conservatism was applied by the sample firms to mitigate risk, which was then no longer prevalent when conditional conservatism came into play. My results indicate that higher levels of unconditional conservatism result in lower levels of conditional conservatism, as well as a decrease in tax avoidance. This in turn means that conditional conservatism and tax avoidance decrease under similar circumstances, explaining the positive relationship.

1.7 IMPORTANCE AND CONTRIBUTION OF THE STUDY

This study contributes to an improved understanding of tax avoidance and the role of taxation in an organization (Hanlon & Heitzman 2010). It also answers the call for research on different aspects affecting tax avoidance. Specifically, it investigates the relation of tax avoidance and accounting conservatism, and whether this relationship differs for conditional and unconditional accounting conservatism for publicly listed corporate taxpayers. The results enrich and contribute to the growing research literature on these concepts and their relationship, enhancing understanding on these topics in both the taxation and the accounting fields, as previously requested by Beaver and Ryan (2005) and Hanlon and Heitzman (2010).

The exploration of the relation of tax avoidance to unconditional and conditional conservatism respectively, contributes to the body of knowledge relating to tax avoidance and accounting conservatism, as it identifies the determinants and consequences of tax avoidance and accounting conservatism and provides conceptual frameworks for both these phenomena. In this process, it addresses the broad call for a better understanding of the determinants and the consequences of tax avoidance by Schwab et al. (2022:434). The results of the study can assist in identifying firms that are likely to reflect higher levels of unconditional conservatism and conditional conservatism, respectively, which in turn can assist in identifying firms that are prone to tax avoidance. The results of the study are therefore important for policy-makers, accounting standard-setters, academics and other researchers, and various users of financial statements (Beaver & Ryan 2005:270) and will also assist managers and investors in making more informed business and investment decisions.

Although this was not the focus of my study, one important contribution of my study relates to the advancement of measures of tax avoidance and accounting conservatism in various ways. The study includes a comprehensive analysis and list of measures for both tax avoidance and accounting conservatism (unconditional and conditional conservatism). The study has adapted and extended a tax avoidance continuum developed by Lisowsky et al. (2013:583), by including the non-cash-based effective tax rate (ETR) measures, Cash Flow ETR Measure A (CFM A) and the Cash Flow ETR Measure B (CFM B) and the long-run version of the CFM B measure. The result is a comprehensive tax avoidance measure suitability instrument that summarises the levels of tax avoidance in the

continuum from least aggressive to most aggressive. This instrument can assist future researchers in identifying the most appropriate measure(s) to address a specific research question. The study also extended the limited empirical testing of the CFM B measure, which accounts for both conforming and non-conforming tax avoidance, and which is not affected by accrual accounting in either the nominator (total cash taxes paid) or the denominator (cash flow from operations). In addition, a long-run version of the CFM B measure, calculated over a three- and a five-year period was introduced, empirically tested and validated in this study for use in future tax avoidance research.

This is also the first study where all proxies were adapted by adjusting them to exclude tax-related expenses and cash flows to ensure that the proxies for tax avoidance and accounting conservatism were not spuriously correlated. This was done in calculating the proxies to measure accounting conservatism (the *NONACC* to measure unconditional conservatism and the *CSCORE* to measure conditional conservatism). This method of calculation can be applied in future research, in instances where the relation of accounting conservatism to earnings management, or similar topics, is investigated.

My study also offers further evidence in support of a negative relation between conditional conservatism and unconditional conservatism in support of the theory by Qiang (2007:760) that conditional conservatism and unconditional conservatism fulfil interrelated roles. Since accounting conservatism plays an important role in financial accounting, a better grasp of the interaction of conditional and unconditional conservatism will benefit accounting standard-setters, academics and other researchers, as well as users of financial statements in general (Beaver & Ryan 2005:270).

1.8 LIMITATIONS

This study has five limitations, discussed in more detail in Chapter 7.4, that should be considered in assessing the results and contribution of my study. The study was limited to one country, namely the United States. Using only one country in my testing limits the usefulness of extrapolating the results to firms in other countries. Moreover, the study focuses on publicly listed firms, which suggests that the results do not necessarily apply to other types of firms, including public firms that are not listed, private firms and family-owned firms.

The next limitation is that the study relied on secondary data available on the cross-country database *Datastream*. Given that the data needed to construct some proxies were not available on the database, or were only available for a limited period, the study could not control for two determinants of tax avoidance, namely corporate social responsibility (CSR) and social capital. In addition, the study could not control for the gender of the management of a firm for the purposes of determining accounting conservatism.

Another limitation is that the reduction in the sample size arising from the specific data requirements of the study should be considered when the results of my study are evaluated by other researchers. Finally, the study does not venture into exploring the tax avoidance landscape, or the ethical issues surrounding tax avoidance.

1.9   STRUCTURE OF THE THESIS

The remainder of my study is presented in the following format:

Chapter 2 identifies and defines the theoretical constructs relating to tax avoidance and accounting conservatism, taking into account the two types of accounting conservatism – conditional and unconditional conservatism – that are relevant to the study. The literature review analyses tax avoidance and accounting conservatism separately to establish the determinants of these practices, as well as the consequences of these practices. This literature review assists in the hypothesis development and ensures that the correct constructs and variables are identified for further analysis.

Chapter 3 provides an overview of the different measures of tax avoidance in the literature. For every measure discussed, the chapter includes a short description of the measure, how it is calculated, and its benefits or shortcomings. Reference is also made to specific prior studies using these measures. The chapter then identifies the most suitable measure(s) for the purposes of my study.

Chapter 4 provides an overview of the measures of accounting conservatism frequently mentioned in the literature. For every measure discussed, the chapter provides a short description of the measure, how it is calculated and its benefits or shortcomings. Reference is also made to specific prior studies using these measures. The chapter then identifies the most suitable measure(s) for the purposes of my study.

Chapter 5 discusses the research paradigm and research strategy followed in this study in detail. The sample and the data collection methods are presented. The research design applied to test the two hypotheses is covered in the remainder of this chapter, including an overview of the proxies and control variables that I included in the regressions.

Chapter 6 presents the results of the data analysis performed on the relation between tax avoidance and accounting conservatism. It outlines the descriptive statistics that I used, the regression results for the relation between tax avoidance and unconditional conservatism, and then for tax avoidance and conditional conservatism, using two regression models.

Chapter 7 summarises the results and conclusions of the study. It reflects on the contribution and limitations of the study, and it also makes suggestions for future research.

1.10 CONCLUSION

This chapter has set out some background to the study and the problem statement. It has clarified the research aim, namely to establish the relationship between tax avoidance and accounting conservatism, and the research objectives that are met to fulfil the research aim. The importance of the study for policy-makers, accounting standard-setters, academics and other researchers, and various users of financial statements has been shown, as well as the lacuna that the study fills. The limitations of the study have been named and the source of secondary data for the sample is identified as *Datastream*. An overview of the research design has been given, as well as the structure of the thesis. The next chapter reviews the tax avoidance and accounting conservatism literature to provide an overview of the possible relation between these two concepts.

CHAPTER 2:

THEORETICAL CONSTRUCTS AND HYPOTHESIS DEVELOPMENT

2.1 INTRODUCTION

The aim of this study is to establish the relationship between tax avoidance and accounting conservatism, as explained in Chapter 1. The starting point for the investigation was a review of the theoretical constructs relating to tax avoidance and accounting conservatism relevant to this study, including the two types of accounting conservatism, namely conditional and unconditional conservatism. For each construct (tax avoidance and accounting conservatism), the terms are defined in more detail in this chapter. In order to promote a fuller understanding of these complex concepts, the literature on their determinants and consequences was considered. This review helped to identify the constructs and variables that informed the selection of measures of tax avoidance (see Chapter 3) and accounting conservatism (see Chapter 4), as well as the specific variables that I included in the regression models used in this study to control for these determinants (as applicable) (see Chapter 5) for further analysis. The chapter ends with more details on the development of the hypotheses to be tested (see also Section 1.4), based on the review of the literature available on the relation between tax avoidance and accounting conservatism, and a brief conclusion.

2.2 TAX AVOIDANCE

When tax avoidance is mentioned, it is often assumed that this refers only to illegal or inappropriate activities undertaken by a firm. However, tax avoidance can also include the consequences of differences in the interpretation of tax legislation. As a result, some activities may be classified as tax avoidance, even though these activities fall within the letter of the law[7] (Hasan, Hoi, Wu & Zhang 2017:663). Many see the payment of an acceptable amount of tax as a firm's civic duty (Hoi, Wu & Zhang 2013:2030), and as the firm's contribution to the economy as a whole (Hasan et al. 2017:630). In addition, there has been an increase in the criticism launched at public firms that decrease their tax liability (Amiram, Bauer & Frank 2019:27). It is regarded as unethical if the taxes paid by

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[7] If a tax avoidance activity is legal, it causes less internal conflict for the individual taxpayer or manager involved in planning the activity. Policy-makers therefore rely on the likelihood that the legality of a tax activity will affect the decisions made by taxpayers (Blaufus, Hundsdoerfer, Jacob & Sünwoldt 2016:183).

a firm are minimal, relative to the size of the operations of the firm, even if the firm does not behave illegally. The opposing view is that all taxpayers have the right to arrange their affairs to minimise their tax liability, and that therefore legal tax avoidance cannot be classified as unethical (Law & Mills 2017:142). Corporate peers, including directors, executives (managers) and shareholders, usually regard minimisation of taxation or tax avoidance as an acceptable business practice, and firms actively focus on strategies to reduce the tax paid (Hasan et al. 2017:631). Tax avoidance thus refers to a continuum of tax planning activities, ranging from legal strategies to reduce tax, to illegal tax evasion behaviour (Dyreng et al. 2008:62; Hanlon & Heitzman 2010:137; Lisowsky et al. 2013:590-591; Rego & Wilson 2012:778).

Previous archival tax avoidance research has mainly investigated the measurement of tax avoidance, the determinants of such behaviour at the level of the firm (including the association of tax avoidance with aggressive financial reporting and earnings management), the role of executives in tax avoidance, and the consequences of tax avoidance (Dyreng et al. 2010:1166; Dyreng & Maydew 2018:311).

2.2.1 Defining tax avoidance

There is no universally accepted definition of tax avoidance. This fact has led to uncertainty and differences in the measurement of tax avoidance (Blouin 2014:875; Hanlon & Heitzman 2010:137). The literature uses different terms to refer to tax avoidance, including sheltering, tax aggressiveness, non-compliance, tax planning, and tax evasion (Atwood et al. 2012:1832; Hanlon & Heitzman 2010:137). For the purposes of this study, the broad term tax avoidance is used in a general sense to refer to any and all the above concepts. Below, I discuss various definitions of tax avoidance used in the literature, and, based on this discussion, I formulate a specific definition of tax avoidance for the purposes of this study.

In simple terms, tax avoidance can be defined as any action that decreases the taxes payable by a firm, relative to the firm's net income before any tax payable is taken into account (Chen, El Ghoul, Guedhami, Wang, & Yang 2022:54; Dyreng et al. 2008:62; 2010:1164; Hasan et al. 2017:638). This simple conception of tax avoidance (the reduction of taxes payable, relative to net income) is elucidated further by Hanlon and Heitzman (2010:137), who define tax avoidance as the reduction of explicit taxes, without making a distinction between legal activities and illegal ones (in other words, tax evasion).

Many studies have since adopted Hanlon and Heitzman's definition (Atwood et al. 2012:1832; Badertscher et al. 2019:2; Lisowsky et al. 2013:589). In this study, I refer to tax avoidance activities, as stated above, not necessarily to refer to illegal or inappropriate activities, but to include legal strategies, in line with Hasan et al. (2017:663).

Aggressive tax behaviour, also referred to as tax aggressiveness or tax sheltering, should not be equated to illegal behaviour; after all, a court of law is often required to determine whether an action or transaction is illegal (Lisowsky et al. 2013:590). Blouin (2014:878,888) argues that the level of aggressiveness of a firm's tax avoidance behaviour depends on the risk that the firm is willing to take in the course of its tax planning activities, given that the legality of a scheme is often uncertain. This uncertainty is the result of the broadness of the anti-avoidance clauses often included in tax legislation.

For the purposes of this study, I thus define tax avoidance as the reduction of explicit taxes as a result of a continuum of tax planning activities (see Figure 2.1), which could range from legal strategies to illegal activities, which amount to tax evasion, in line with Dyreng et al. (2008:62), Hanlon and Heitzman (2010:137), Lisowsky et al. (2013:590-591), and Rego and Wilson (2012:778). Tax avoidance (and its definition) form the centre of the conceptual framework for the determinants and consequences of tax avoidance depicted in Figure 2.2 (see Section 2.2.4). Determinants on the left-hand side of the framework influence tax avoidance behaviour, whereas the consequences of tax avoidance flowing from tax avoidance are shown on the right-hand side of the framework.

TAX AVOIDANCE CONTINUUM
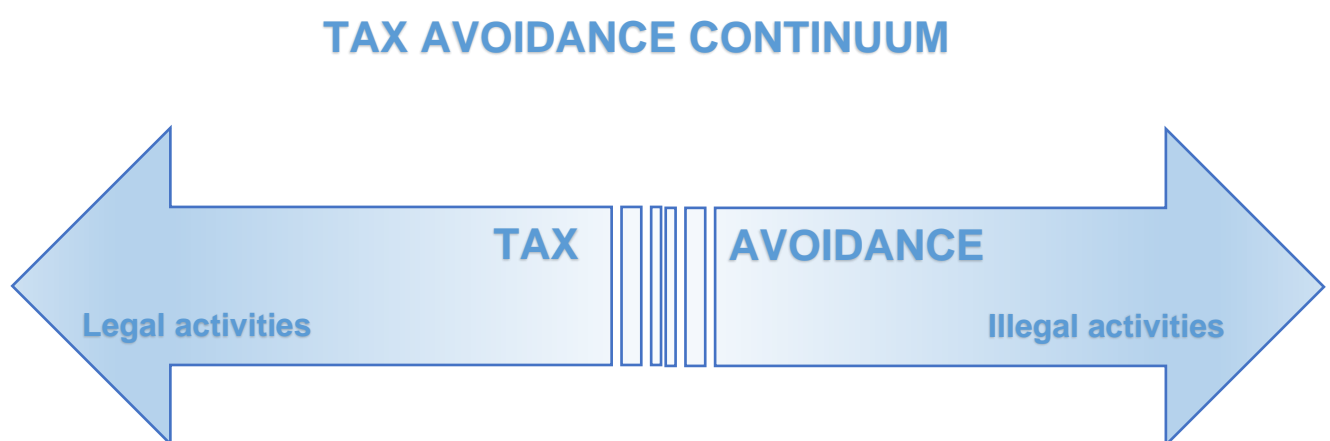
Figure 2.1: Defining the tax avoidance continuum

Source: Adapted from Lisowsky et al. (2013:591)

The South African Revenue Service (SARS), in a discussion paper on tax avoidance, states that tax avoidance activities are usually employed to achieve one of four objectives: to defer a tax liability, to eliminate a tax liability, to change the nature of an item (for example, from taxable to exempt or non-taxable), or to shift the income to a taxpayer with a more favourable income tax position (SARS 2005:16). It is admittedly only possible to achieve these objectives because of the inconsistencies and discontinuities present in all tax systems. To understand tax avoidance better, as well as how these four objectives are achieved, it is important to explore the determinants and consequences of tax avoidance.

2.2.2 Determinants of tax avoidance

The determinants of tax avoidance for an individual taxpayer include the prevailing tax rates, the probability of detection and punishment by the revenue service concerned, the individual's risk-aversion, the penalties imposed (Allingham & Sandmo 1972:324-332), as well as a taxpayer's intrinsic motivation, for example, the individual's sense of civic duty (Hanlon & Heitzman 2010:138). Several of these determinants, for example, the tax rates and penalties imposed, also apply to corporate taxpayers, who are the focus of this study.

There are some determinants that arise from the separation of ownership from control, which lays the theoretical foundation for an understanding of corporate tax avoidance in an agency theory framework (Hanlon & Heitzman 2010:138). Other corporate determinants include firm-level characteristics (Atwood et al. 2012), the firm's ownership structure (Chen, Chen, Cheng & Shevlin 2010), its incentive structures (Chi, Huang & Sanchez 2017; Hope & Thomas 2008; Powers, Robinson & Stomberg 2016), and executive effects (Dyreng et al. 2010; Law & Mills 2017). The governance (Desai & Dharmapala 2009) and corporate social responsibility (Davis, Guenther, Krull & Williams 2016; Hoi et al. 2013) of the firm, the attributes of the resident tax system (Atwood et al. 2012), and social capital (Hasan et al. 2017) also play a role. These determinants are discussed below. The specific variables in my regression models that control for these determinants (if applicable) are also mentioned here, although they are discussed in more detail in Chapter 5, as part of the discussion of the research design.

2.2.2.1 Firm-level characteristics

Prior research by Atwood et al. (2012:1833) and Rego and Wilson (2012:780) has documented considerable cross-sectional variation in tax avoidance, in terms of the

effective tax rate and other measures used. The literature identifies various firm-level characteristics that explain this variation: the extent of the business venture (firm size), profitability (performance), the extent of losses carried forward, the extent to which a firm uses tax shelters, the scope of its foreign business activities, its type of industry, the availability of cash (liquidity), debt financing ratios (leverage), the market-to-book ratio, operating costs, the age of the firm, the cost structure of the firm, the extent of its research and development activities, its tangible versus intangible assets, growth opportunities, and tax planning activities (Atwood et al. 2012:1831; Chen et al. 2010:43; Hoi et al. 2013:2033; Lisowsky et al. 2013:584; McGuire, Rane & Weaver 2023:436). These characteristics, systematically associated with tax avoidance in the literature, are just some of the determinants of tax avoidance linked to characteristics at the firm level (Dyreng et al. 2010:1166; Rego & Wilson 2012:776). Each of these firm-level characteristics has a specific impact on the tax avoidance measures chosen. For example, firms with a tax loss have a lower effective tax rate than firms without a tax loss; firms that earn more foreign income on average also have lower effective tax rates (Chen et al. 2010:43).

Firm-level characteristics must be included as control variables in regression analyses to check that the differences documented in a study cannot be explained by such firm-specific fundamentals or omitted variables (Chen et al. 2010:43). I control for several of the firm-level characteristics mentioned above in my regression analyses, based on prior studies (see Section 5.4.2), including the extent of the business venture (*SIZE*), its profitability (*OPER_CF* and *EARNINGS*), the type of industry (the industry fixed effect reflected by the two-digit SIC codes), debt financing ratios (*LEVERAGE*) and growth opportunities (*MTB*).

2.2.2.2 Ownership structure

Different ownership structures have an important effect on a firm's tax planning activities (Hanlon & Heitzman 2010:144; Rego & Wilson 2012:780). For example, private firms are likely to be more tax aggressive than public firms (Chen et al. 2010:43). According to Hanlon and Heitzman (2010:144), firms with what has been called concentrated ownership or shareholding, such as family-owned firms, are more likely to engage in aggressive tax avoidance activities, because such controlling owners have more to gain from tax savings. However, the opposite may also be true: because such owners face a longer period in which they would prospectively be involved with the firm, they may be

more focused on keeping their non-tax-related costs, for example, possible reputational damage, to a minimum. In that case, they are less likely to engage in tax avoidance behaviour. This type of risk aversion can also be attributed to the fact that a family-owned firm is really owned and managed by individuals. Their tax avoidance activities are therefore influenced by the determinants of tax avoidance relating to individuals, namely risk-aversion and the intrinsic motivation of the individuals. The cost and benefits of the tax avoidance activities of family-owned firms are also higher than those of other firms (Chen et al. 2010:45).

Chen et al. (2010:42,43,60), whose study focused on firms in the United States, found that family-owned firms, defined as a firm "where members of the founding family continue to hold positions in top management, are on the board, or are blockholders of the firm", engage in fewer tax avoidance activities[8] than non-family-owned firms. They attributed this finding to these owner managers' being more concerned about the non-tax related costs incurred if they engaged in tax avoidance behaviour than with the possible benefits of the tax avoidance activities. These non-tax costs, arising as a result of the agency conflict between the large and small shareholders and not between managers and owners, as is usually the case, include minority shareholders perceiving tax avoidance activities as rent extraction[9] by the family owners from the firm, leading to decreases in share value, an increase in the likelihood of penalties being imposed by the revenue services, and damage to the reputation of the family (and thus the firm). In their additional analysis, Chen et al. (2010:43,60) compared the tax avoidance behaviour of private banks, one of the only types of private firms for which financial data are readily available, to public family banks and public non-family banks. They found that private banks engaged in the most tax avoidance activities, followed by public non-family banks. Public family banks engaged in the least tax avoidance activities. This confirms that private firms cannot be evaluated for tax avoidance purposes in the same manner as public family-owned firms. Since my study is limited to publicly listed firms in the United States, I did not control for the ownership structure in my regression model (see Chapter 5).

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[8] Illustrated by lower effective tax rates and book-tax differences (Chen et al. 2010:43).

[9] Rent extraction is defined as "non-value maximizing activities decision makers pursue at the expense of shareholders" and can take forms such as connected-party transactions or earnings management (Chen et al. 2010:42,44).

2.2.2.3 Executive (managers') effects

Managers and their management style, as well as the business decisions they make, affect the extent of the taxes paid and tax avoidance behaviour (Davis et al. 2016:50). Dyreng et al. (2010:1165) were amongst the first to acknowledge that individuals in executive positions, although they may not be directly involved in a firm's tax planning activities, do have an impact on the level of tax avoidance in the firm. Their study added the executive effect as a determinant of tax avoidance. It established that the individual executive, although almost never directly involved in the firm's tax planning activities and usually not a tax specialist, can have a major impact on tax avoidance.

Although most executives, such as the chief executive officer (CEO) and the chief financial officer (CFO), are not directly involved in the tax activities, they have an indirect effect on these activities, and this effect depends on their management style. This effect derives from the extent of the focus that they place on different activities in the firm, including the importance they attach to different sections in the firm (for example, to the tax division or tax department), the inclination of the executives to use the services of specialists or advisors, and their involvement in the structuring of the incentive packages for those employees in the firm who are responsible for taxation issues (Dyreng et al. 2010:1163-1164). Thus executives affect a firm's tax avoidance behaviour, since they are able to steer tax avoidance activities, as these fall within their ambit.

In a study investigating the impact of individual executives on the behaviour and performance of a firm, Dyreng et al. (2010:1165) used a method developed by Bertrand and Schoar (2003:1169) to measure the effect of individual executives on tax avoidance decisions. The method involves tracking individual executives as they move from one firm to another. Tracking their performance when executives move from one firm to another made it possible to measure the effect of the individual, including CFOs, CEOs and other top executives, on the tax avoidance behaviour of the firms involved, by isolating the effect of the executives from factors in the firm (Dyreng et al. 2010:1185). Dyreng et al. (2010:1165) concluded that "the executive effects on tax avoidance appear to be idiosyncratic". The executive effect could not be explained by whether the executive moved alone or as part of a team. Furthermore, no strong evidence could be found that moving to a company in the same industry versus another industry explained the executive effect; no effect was found on the Generally Accepted Accounting Principles

effective tax rate (GAAP ETR) and there was only a slight increase in the cash effective tax rate (CASH ETR) if an executive moved to a company in the same industry. The study found only weak evidence that if an executive is more optimistic it could lead to a decrease in the CASH ETR. Dyreng et al. (2010:1185) also found no significant association between the structure of the compensation received and the executive fixed effect.

Various studies have acknowledged or established that an individual executive has an effect on tax avoidance, but were unable to link this effect to specific characteristics (Law & Mills 2017:144) including management styles, or biographical factors such as the extent and type of financial education of the individual executive (Dyreng et al. 2010:1165; Powers et al. 2016:673; Rego & Wilson 2012:804).

Francis, Hasan, Wu and Yan (2014:171,173) have found that a higher level of risk aversion among female managers, especially CFOs, makes female managers less willing to pursue more aggressive tax strategies, but their study did not find any gender-specific difference between the ways in which managers engaged in broad tax avoidance (Francis et al. 2014:174). In a more recent study, Law and Mills (2017:142,144) were the first to associate the demographic trait of military experience with lower levels of tax avoidance. Their study found that executives with military experience engaged in less tax avoidance than executives with no military experience. The firms that employed managers with military experience had smaller tax reserves, paid more taxes per firm year (on average between $1 and $2 million per year), did business in fewer tax havens and were less forceful when doing their tax planning (Law & Mills 2017:141). They attributed this lower level of tax avoidance to these executives' being more ethical and patriotic. The study also established that more than 50% of the variation in a firm's ETR could be attributed to CEO-specific diversity ("heterogeneity"). The limited research available into the specific characteristics that determine the effect of individual executives on tax avoidance clearly calls for more research, such as my study, into this phenomenon.

I control for the executive effect in my research design (see Chapter 5). As no data is available in *Datastream* to track the movement of managers from one firm to another, I controlled for the executive effect by using a proxy for earnings management. The market-to-book (*MTB*) value was used as proxy, in line with Frank et al. (2009:485). It was calculated as the market value of equity at the end of the year, deflated by the book value of equity.

2.2.2.4 Managers' incentive structures

Since ownership and control are usually separated, managers need an incentive to align their outlook with that of the shareholders and their interests (Hanlon & Heitzman 2010:144). Given the risks involved for both the firm and the executives when a firm engages in tax avoidance behaviour, individual executives have to be incentivised or compensated to undertake precarious tax planning activities (Chi et al. 2017:843; Rego & Wilson 2012:775). Only limited research has been done on the relation between tax avoidance and managers' incentive structures (Rego & Wilson 2012:780).

The separation of ownership and control needs to be understood against the background of agency theory (Hanlon & Heitzman 2010:138), which refers to the divergence of the interests of managers and shareholders. This divergence occurs naturally, but it results in additional costs for the firm, known as agency costs. The agency cost hypothesis predicts that individuals – in this case, managers – act in their own self-interest to maximise their own utility (also known as empire building or rent extraction). Managers' decisions may not always be in the best interests of shareholders, which may decrease the value of the firm (Desai & Dharmapala 2009:538; Hope & Thomas 2008:591-592).

Shareholders may want managers to engage in more aggressive tax avoidance to increase the value of the firm for the shareholders (Hanlon & Heitzman 2010:144). Management incentive structures are therefore often linked to after-tax earnings, or the effective tax rate of a firm. A possible result of such incentives is that enforcement efforts by a country's revenue services against the firm are not effective in correcting tax avoidance behaviour, because the incentives that managers receive in fact remunerate them for the risks they take, and for the significant costs that may result if managers' actions whilst engaging in tax planning are detected (Atwood et al. 2012:1836; Rego & Wilson 2012:777). In particular, performance incentives based on after-tax amounts are likely to increase tax avoidance behaviour (Hanlon & Heitzman 2010:138; Rego & Wilson 2012:776). Phillips (2003:847) reports that firms with departmental managers who receive incentives based on after-tax amounts have lower effective tax rates. However, this finding does not extend to CEOs, because of the divergent impact of different incentive structures on the tax avoidance behaviour that managers are willing to engage in, as well as differences in the elements of compensation packages received by different levels of management. It is therefore important to evaluate the effect of each individual component

of a compensation package on a firm's tax avoidance and its strategy or planning to that end (Chi et al. 2017:842). This discussion therefore includes references to studies relating to three types of incentives – incentives based on earnings measures (Phillips 2003:847; Powers et al. 2016:672), equity risk incentives (Rego & Wilson 2012:775), and inside debt holdings (Chi et al. 2017:837) – and to their impact on tax avoidance behaviour.

The impact of the incentives received by CEOs on tax planning activities and on the reporting of income taxes in the financial records has been investigated by Powers et al. (2016:672). They focused on the effect on tax planning and the financial reporting of taxes of the use of cash, pre- and after-tax earnings measures to calculate short-term bonuses for CEOs. Their results indicate that firms that used cash flow measures to calculate CEO incentives reported lower GAAP ETRs and CASH ETRs than firms using an earnings-based (pre-tax or after-tax) measure. Powers et al. (2016:679-680) also compared the effect of CEO incentives calculated using an earnings measure. They concluded that firms using pre- and after-tax earnings measures to calculate CEO incentives engage in the same level of tax planning, but that firms using after-tax earnings measures to calculate CEO incentives appear to be motivated to make different financial reporting decisions.

A study by Rego and Wilson (2012:804) attempted to extend the limited literature available on the relation between tax avoidance and the incentive structure of top executives. Their study did not focus on executive incentives calculated on the basis of earnings measures. Instead, they looked at the compensation of top executives (CEOs and CFOs) with equity risk incentives, and on the impact of these incentives on executives' tax avoidance behaviour. Tax avoidance was measured using ETRs, discretionary book-tax differences and tax shelter prediction scores. The estimated unrecognised tax benefits that accrued under FIN 48[10] were used as a fourth measure of tax risk (Rego & Wilson 2012:804). Equity risk incentives reveal how a manager's wealth is affected by changes in stock prices ("stock return volatility")[11] (Rego & Wilson 2012:776). The manager's wealth here

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[10] The Financial Accounting Standards Board (FASB) Interpretation No. 48, Accounting for Uncertainty in Income Taxes (FIN 48) was issued in 2006. See Chapter 3 under the heading "Unrecognised tax benefits (UTBs)" for more details.

[11] The "slope effect", also known as manager's pay-for performance sensitivity (*delta*) is the slope of the graph depicting the relation between stock prices and a manager's wealth. The "risk incentive effect", also known as the sensitivity of a manager's wealth to stock return volatility (*vega*), refers to the convexity of the relation between stock prices and the manager's wealth. The slope effect motivates managers to undertake projects with a positive net present value, whereas the risk incentive effect encourages them to undertake

refers specifically to stock options, since the value of a stock option increases when stock prices rise ("the slope effect") and when stock return volatility increases ("the risk incentive effect") (Rego & Wilson 2012:782).

Equity risk incentives lead to (risky) tax decisions that increase the net present value of the firm and are thus beneficial for managers, since it increases managers' personal wealth (Chi et al. 2017:842). Rego and Wilson (2012:775,778,804,806) conclude that managers receiving equity risk incentives are motivated to engage in risky tax planning behaviour by the fact that such behaviour increases the value of their equity risk incentives (option portfolio values). Thus equity risk incentives are an important determinant of tax avoidance. These results were more robust for CEOs and are consistent with the perception that CEOs have a bigger influence on tax decisions and risk-taking strategies of firms than CFOs do. Additional testing indicated that corporate governance strength does not affect this relationship.

Chi et al. (2017:837,839,841,843-844) supplemented Rego and Wilson's (2012) results when they explored the impact of another component of the incentive structure of managers, namely total inside debt incentives or holdings (specifically the combination of pension plans and deferred compensation),[12] on tax avoidance strategies (particularly tax sheltering[13]) undertaken by CEOs. Chi et al. (2017) focused on CEOs, who are responsible for executing the strategic plans of a firm. They explored the constraints created by this debt-like compensation that discourage tax aggressive behaviour by managers,[14] since these types of incentive really imply a promised compensation that is only paid once an executive retires. Since inside debt incentives are not secured and are unfunded liabilities, these incentives expose managers (especially CEOs) to the same risks as other creditors of the firm, and "internalise the cost" of taking risky or aggressive

risky projects which increase stock return volatility. If the slope effect is constant, larger equity risk incentives (*vega*) result in managers' undertaking riskier activities to increase the value of stock options, since the value of stock options increases if stock return volatility increases (Rego & Wilson 2012:782).

[12] Pension benefits, for the purposes of this study, including supplemental executive retirement plans (SERPs), are defined benefit plans. These plans pay managers an annual fixed amount after they retire. By contrast, deferred compensation refers to defined contribution plans. These plans refer to an arrangement where set contributions are made to a plan for retirement. These contributions can be either employer contributions or employee compensation that is deferred and then contributed (Chi et al. 2017:837).

[13] Tax sheltering is used as proxy for tax avoidance because it is likely to lead to high cash flow instability in years to come (Chi et al. 2017:837).

[14] It is only from the 2006 fiscal year-ends that the Securities Exchange Commission (SEC) in the United States required the disclosure of inside debt incentives or holdings of executives; this includes a valuation by an actuary, as well as the net present value of the holdings (Chi et al. 2017:839).

decisions. This may inhibit managers' desire to engage in high-risk activities such as tax sheltering. These researchers found a negative association between CEOs' inside debt holdings and tax avoidance (represented by tax sheltering), since such strategies have a negative impact on the certainty of future cash flows. The impact of the inside debt incentive on tax avoidance was less if a manager had a cash-out option as part of the manager's pension package (Chi et al. 2017:837,841,845). In summary, an inside debt incentive paid to an executive reduces a firm's tax avoidance behaviour (Chi et al. 2017:869).

It is clear from the discussion that managers' incentives are an important determinant of tax avoidance at the firm level. The next important step would be to establish who is responsible for linking the remuneration package of a manager to effective tax planning, or, more specifically, to the effective tax rate of the firm. This link is just a first step in establishing the executive effect (discussed in the previous section), especially if the firm's tax division is treated as a profit centre and the performance of the manager or director of the division is evaluated using tax-related performance measures (Rego & Wilson 2012:784).

To control for managers' incentive structures in my research design (see Chapter 5), I used the same proxy to measure incentives to manage earnings, namely *MTB*, in line with Frank et al. (2009:485), which I used to control for the executive effect (see Section 2.2.2.3).

2.2.2.5 Governance

Prior research (Chen et al. 2022:50,72; Desai & Dharmapala 2009:538; Rego & Wilson 2012:802) suggests that the strength of a firm's governance may be a determinant of tax avoidance. Desai and Dharmapala (2009:537-539) investigated the effect of firm governance strength[15] on firm tax avoidance strategies, as tax avoidance is usually linked to an increase in shareholder value. They argue that the agency perspective could lead

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[15] Corporate governance is measured by Desai and Dharmapala using the Institutional Ownership (IO) proxy, which was also used in a study by Hoi et al. (2013:2033). This measure is the percentage or fraction of a firm's shares that is owned by institutional investors. The data were obtained from Schedule 13F filings by large institutional investors with the Securities Exchange Commission (SEC), available on the CDA Spectrum database. This proxy was used to reflect governance strength, since institutional investors have more incentives and a larger capacity to monitor the performance of the management of a firm (Desai & Dharmapala 2009:539).

to a decrease in value for shareholders as a result of tax avoidance, since such strategies could disguise, for example, rent extraction by managers using tax sheltering activities. They propose that the strength of the governance exercised in a firm has an effect on the value added by tax avoidance activities. They argue that the effect could arise from the fact that the benefits of tax avoidance in terms of share value increases could potentially be offset by poor governance practices in the firm, and by undetected losses from agency costs. They refer to this effect as the "mediating role of governance" on tax avoidance activities (Desai & Dharmapala 2009:545). Rego and Wilson (2012:803) describe this effect as the moderating role of the strength of governance on tax avoidance activities.

To control for governance in my research design (see Chapter 5), I included a proxy that measures governance (*GOV*) using the level of management ownership by identifying closely held shares (defined as shares held by the CEO) divided by the total number of shares outstanding, in line with Ahmed and Duellman (2007:420), Bradshaw et al. (2019:266) and Hsu, Novoselov and Wang (2017:83,85). During initial testing, an additional control variable, the Sarbanes-Oxley indicator (*SOX*),[16] was included to control for governance (and regulation – see Section 2.3.2.3). When the variable inflation factor (VIF) for each regression model was calculated (see Section 6.3), the VIF for *SOX* was at an unacceptably high level (more than 120 for all models), indicating multicollinearity concerns. To address these concerns, this control variable was removed from the regression models, because the models already contained another control variable for governance, namely closely held shares (*GOV*).

2.2.2.6 Corporate social responsibility

Corporate social responsibility (CSR) is defined by Mackey, Mackey, and Barney (2007:818) as corporate social actions undertaken by firms to improve social and environmental conditions. Both tax avoidance activities and corporate social responsibility have increased in recent years, especially in firms in the United States (Hoi et al. 2013:2026). Previous studies could not provide consistent evidence regarding the relation between tax avoidance and corporate social responsibility – indeed, these two behaviours

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[16] Defined in Annexure A.

seem to be contradictory, since some theorists regard paying tax as socially responsible (Hoi et al. 2013:2030). Others believe that there is no relation (Davis et al. 2016:47).

A study by Davis et al. (2016:47-68) investigated in detail the relation between corporate social responsibility on the one hand, and tax payments by firms by using the amount of tax paid, but also the amount paid towards tax lobbying activities on the other, in order to establish whether they are complements or substitutes. By investigating how firms engage in both corporate socially responsible behaviour and the level of taxes paid, Davis et al. (2016:47-68) provided an indication of the effect of these two practices on each other. If a firm sees the two as complements (a positive relation), the firm tends to pay taxes as part of its corporate social responsibility, although paying taxes might not lead to economic benefits or maximise these benefits. For a firm that regards tax payments and corporate social responsibility as substitutes (a negative relation), the opposite would be true. The firm would prefer to use resources for economic growth instead of for paying taxes, because the firm feels that such resources could, in the hands of a private institution, still lead to greater social benefits than in the hands of the government. Some firms that engaged in tax avoidance behaviour even increased corporate social responsibility activities and spending to preserve a positive public image.

Davis et al. (2016:47-68) tested the relation for a sample of United States public corporations by constructing a corporate social responsibility index that excluded corporate governance measures from 2002 to 2011. They used the MSCI annual dataset[17] of Environmental, Social, and Governance (ESG) ratings for publicly trading firms in the United States as a proxy for corporate social responsibility[18] and a long-run (five-year) cash ETR as a proxy for tax avoidance (Davis et al. 2016:48). The aim of their study was to evaluate the relation by focusing on the extent to which firms engaged in these two activities jointly, since their cost and benefits would affect each other (Davis et al. 2016:49). Their study indicated that there was a negative relation between corporate social responsibility and corporate tax payments and that corporate social responsibility

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[17] Previously referred to as the KLD database, the dataset includes seven areas, namely product quality, governance, human rights, community, employee relations, diversity, safety and environment (Davis et al. 2016:53). In their study, Davis et al. (2016:53,61) excluded two areas, namely human rights and governance, since they argued that their results were not sensitive to the inclusion of these two areas.

[18] The corporate governance category was excluded from this proxy given differences in the relation of tax avoidance to corporate governance, versus corporate social responsibility, as stressed by Davis et al. (2016).

and tax lobbying activities were positively related. This evidence supported Davis et al.'s findings that the management of firms in the United States view the payment of taxes and corporate social responsibility as substitutes. Interestingly, their study also reported that socially responsible firms did not pay more taxes than their counterparts (Davis et al. 2016:49,64,65).

By contrast, Hoi et al. (2013:2025,2027) claim that "corporate culture affects tax avoidance". They regard corporate social responsibility as an element of corporate culture. They found that firms with a very poor corporate social responsibility footprint are also more likely to engage in tax avoidance activities, which they identified in the form of an increase in tax-sheltering and permanent book-tax differences.[19] However, their study included only firms with an "irresponsible" corporate social responsibility profile,[20] which was revealed in the fact that these firms engaged in activities that affect a firm's stakeholders negatively. Hoi et al. (2013) also used measures that highlighted very aggressive tax avoidance, whereas the study by Davis et al. (2016) included a sample of firms with varying levels of corporate social responsibility activities and used standard proxies (the cash ETR) to measure tax avoidance.

The inclusion of corporate social responsibility (which relates to non-financial information) as a determinant of tax avoidance enhances the accuracy of the models used to predict tax avoidance activities, including tax sheltering (Hoi et al. 2013:2028). Since the *Datastream* database used for my study includes Environmental, Social and Governance (ESG) scores only from 2002, it does not cover the full period of my study. Therefore, I did not include this determinant. This is noted as a limitation of the study in Chapter 7, and as an area for possible future research if the testing is replicated, but for a shorter period (from 2002 when the data are available to control for corporate social responsibility), to

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[19] Permanent book-tax differences arise from differences in the treatment of an item for tax and accounting purposes, which lead to permanent differences in taxable and accounting income that are never reversed (Graham et al. 2012:416). See Section 3.4 for more detail.

[20] In Hoi et al.'s (2013:2026) study, irresponsible corporate social responsibility activities included activities undertaken that are "damaging to corporate governance, employee relations, communities, public health, human rights, diversity, the environment, etc." Their study also used the KLD database (now the MSCI annual dataset of ESG ratings for public trading firms in the United States) as a proxy for corporate social responsibility (Hoi et al. 2013:2032), but they included all seven areas in the proxy to calculate a negative corporate social responsibility score, unlike Davis et al. (2016:53), who excluded human rights and governance.

enable the inclusion of corporate social responsibility as a control variable for tax avoidance.

2.2.2.7 Attributes of the resident tax system

Most previous studies have investigated tax avoidance in a single country setting, ensuring that a single, stable tax system applied (although irregular amendments did occur). However, Atwood et al. (2012:1832) examined tax avoidance[21] across different countries, focusing on three specific attributes of a country's tax system: whether residents were taxed using a worldwide or source-based (territorial) tax system,[22] the level of book-tax conformity prevalent in a country, and the perceived strength of the enforcement of tax laws by the government in a particular country. Atwood et al. (2012:1831-1860) found that firms are less inclined to avoid tax in a country where the worldwide approach of taxation is used, the book-tax conformity required is higher, and tax enforcement is perceived to be stronger. Nevertheless, they also link these results back to the incentive structure for managers as a tax avoidance determinant: they argue that the relationship of tax avoidance to each of the three tested resident tax system characteristics was contextual, since the strength of the relationship to tax avoidance also depended on the portion of the compensation paid to managers based on variable pay, be it in the form of bonuses or equity incentives (Atwood et al. 2012:1831). The higher the portion of variable pay, the more likely it was that managers would engage in more aggressive tax avoidance behaviour to reduce taxes, since they had higher incentives to do so (Atwood et al. 2012:1833). Since my study is limited to publicly listed firms in the United States, I do not control for attributes of the resident tax system in my regression model (see Chapter 5).

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[21] Tax avoidance was measured as the difference between firm's managed tax amount (current taxes paid) and unmanaged tax amount (calculated as the statutory tax rate of the resident country, multiplied by pre-tax earnings before any exceptional items). This difference represents how aggressive a manager was in pursuing tax avoidance planning and strategies (Atwood et al. 2012:1832).

[22] A worldwide system implies that a taxpayer is taxed in the country of residence on worldwide income. Source-based tax refers to being taxed on all income deemed to be from a source in the country where the taxpayer is a resident.

2.2.2.8 Social capital

A United States study by Hasan et al. (2017:662) investigated the relation of social capital as a determinant of tax avoidance activities.[23] Social capital consists of the robustness (strength) of civic norms and the concentration (density) of social networks in the different counties in the United States. They are of the opinion that there should be a natural link between tax avoidance and social capital, since it is seen as every citizen's duty to pay taxes, making it the civic duty of every taxpayer to do so in terms of the social network (Hasan et al. 2017:631). Their results indicate a strong negative and systematic relation between tax avoidance and social capital (Hasan et al. 2017:634). Firms with headquarters in United States counties with higher levels of social capital, represented by robust civic norms and concentrated social networks, displayed lower levels of tax avoidance, represented by lower book-tax differences and higher effective tax rates. Their study concludes that social capital could assist in creating an environment in which firms engage in less tax avoidance. It can also limit business procedures that fall outside the acceptable norms set by society (Hasan et al. 2017:662-663). In addition, social capital, which is an environmental factor, may illuminate the "undersheltering puzzle" (Hanlon & Heitzman 2010:137), explaining why some firms do not exploit tax sheltering opportunities and voluntarily pay more taxes than other similar firms (Hasan et al. 2017:634).

Although social capital is recognised as a determinant of tax avoidance, the *Datastream* database used in my study does not include the necessary data to construct a proxy to control for social capital in my regression model (see Chapter 5). This is noted as a limitation of the study in Chapter 7.

2.2.2.9 Commentary

In this section, I have identified eight determinants of tax avoidance activities from the literature, namely firm-level characteristics, ownership structure, executive effects, managers' incentive structures, governance, corporate social responsibility, attributes of the resident tax system, and social capital. It is important for the validity of the study to

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[23] The social capital measure was constructed using data from the Northeast Regional Center for Rural Development (NRCRD) at Pennsylvania State University. The data capture civic norms and social networks in United States counties. The NRCRD provides data on "voter turnouts in presidential elections (Pvote), response rates in U.S. census surveys (Respn), the total numbers of non-profit organizations (Nccs), and the total numbers of 10 types of social organizations for all U.S. counties (Assn) in the years of 1990, 1997, 2005, and 2009" (Hasan et al. 2017:665).

consider these determinants carefully in order to select appropriate constructs or variables to address the research question (Hanlon & Heitzman 2010:129; Lisowsky et al. 2013:619). Hanlon and Heitzman (2010:140) maintain that any model is only as good as the variables that are included as determinants. In Chapter 5, which focuses on the research design and methodology, each determinant is considered and controlled for, if applicable.

The determinants of tax avoidance influence the tax avoidance behaviour of taxpayers, as can be seen from the conceptual framework for the determinants and consequences of tax avoidance depicted in Figure 2.2 (see Section 2.2.4). The eight determinants of tax avoidance are depicted on the left-hand side of the conceptual framework, as these determinants influence tax avoidance behaviour, which in turn leads to certain consequences of tax avoidance. The next section explores the consequences of tax avoidance to address the need identified by Bauckloh, Hardeck, Inger, Wittenstein and Zwergel (2021:51) for a more comprehensive understanding of the costs and advantages of tax avoidance.

2.2.3   Consequences of tax avoidance

Tax avoidance may include aggressive tax planning strategies. Such strategies can involve high levels of uncertainty and additional expenses for the firm, but conversely, aggressive tax strategies can also generate added value for a firm and its shareholders (McClure 2023:353; Rego & Wilson 2012:775). Aggressive tax avoidance strategies can even assist firms in building political connections (Chen, Tang, Wu & Yang 2021:159). This section addresses these consequences, whether harmful or beneficial.

The extent of the tax avoidance behaviour in which a firm engages is determined by a trade-off between the marginal costs and the marginal benefits of such tax avoidance activities. The marginal benefits are measured as savings in terms of the taxes payable by the firm. These savings improve cash flows, the after-tax net income and firm value, all of which benefit shareholders directly. Such savings also benefit managers if their incentives are based on earnings measures, or they receive equity incentives. Marginal costs include the cost of implementing tax planning strategies, which requires time and effort from the individuals involved; it may even involve fees payable to specialists, banks, attorneys and accountants (Balakrishnan et al. 2019:47; Kim, Lin, Mao & Wang 2023:217). These fees arise because many firms need these specialists' services to set up complex

organisational structures to appear less like overly aggressive avoiders of tax (De Simone & Olbert 2022:226). The marginal costs also include penalties and interest imposed by the revenue services, and additional costs incurred if the revenue services audit the firm (Balakrishnan et al. 2019:47).

Tax sheltering activities are classified as the most aggressive form of tax avoidance. It is a high-risk type of tax avoidance, since it does not have any economic substance other than to avoid paying taxes. This type of tax avoidance is heavily penalised if the revenue service identifies it, which can then lead to liquidity problems (Chi et al. 2017:840,844). Agency costs, which are a direct consequence of tax avoidance behaviour (Balakrishnan et al. 2019:47) and which could take the form of rent extraction, is another example of a cost that can be incurred. Rent extraction involves, for example, connected-party transactions or earnings management (by implementing aggressive financial reporting strategies) and abuse of incentives provided by the firm to its employees (Chen et al. 2010:42,44). If shareholders perceive tax avoidance behaviour by managers as resulting in rent extraction, these practices could also lead to a decrease in share value (Chen et al. 2010:42,44). If tax avoidance becomes public knowledge, it could damage the reputation of the firm (Blouin 2014:875; Chen et al. 2010:42,44; Hoi et al. 2013:2026; Rego & Wilson 2012:777,806). It could affect employees' perceptions of both the firm and its management negatively (Lee, Ng, Shevlin & Venkat 2021:343). It can also draw unwanted negative attention from credit rating agencies (Chi et al. 2017:840,844). However, it is difficult to measure some of the costs of tax avoidance, such as agency and reputational cost, which McClure (2023:354) describes as nontax costs, because these costs are difficult to observe.

Tax-induced conservatism, and more specifically unconditional conservatism (see Section 2.3.2.4), can be another consequence of tax avoidance. This happens if a firm wants to defer taxable income but still aims for book-tax conformity, with the result that accounting income is also deferred (Hanlon, Maydew & Shevlin 2008:295).

Tax avoidance results in revenue losses for revenue services, as well as in additional regulation expenses for revenue services and other enforcement agencies (Chen et al. 2010:44) when they have to implement and enforce regulations to reduce innovative tax avoidance behaviour by firms (Li, Ma & Shevlin 2021:3).

The above are the consequences, whether harmful or beneficial, of tax avoidance. These are depicted schematically in the conceptual framework for the determinants and consequences of tax avoidance in Figure 2.2 (see Section 2.2.4). The nine consequences of tax avoidance are depicted on the right-hand side of the conceptual framework, as these consequences flow from tax avoidance behaviour.

2.2.4 Summary

This section has identified and defined the theoretical constructs of tax avoidance relevant to the objectives of my study, including determinants and consequences of tax avoidance. Figure 2.2 presents a conceptual framework for the determinants and consequences of tax avoidance. The soon-to-be-introduced international tax system reform (OECD 2023), provides the unique opportunity to curb tax avoidance (Gurria 2021). This impending change, together with a renewed focus on tax avoidance research to enhance understanding of the different aspects affecting tax avoidance (Li & Ma 2022:295), provided a gap for further research. My study, which explores the relation of tax avoidance to accounting conservatism, helps to address this lacuna. The next section reviews the literature available on accounting conservatism in order to establish its determinants and consequences.

Determinants:

1. Firm-level characteristics (e.g. firm size, performance, liquidity, leverage, market-to-book ratio, industry type, operating cost);
2. Ownership structure (e.g. private versus public firms and family-owned versus non-family-owned);
3. Executive (managers') effects;
4. Managers' incentive structures (e.g. earnings-based incentives, equity risk incentives and inside debt holdings);
5. Governance;
6. Corporate social responsibility;
7. Attributes of the resident tax system:
   o world-wide versus source-based,
   o level of book-tax conformity, and
   o perceived strength of enforcement; and
8. Social capital (e.g. robustness of civic norms and concentration of social networks).

Tax Avoidance:
The reduction of explicit taxes resulting from a continuum of tax planning activities ranging from legal to illegal activities.

Consequences:

1. Deferral or elimination of tax liability resulting in savings in taxes;
2. Increased cash flow;
3. Increased after-tax net income;
4. Increased net present value and share value of a firm;
5. Increased expenses (including the cost to implement tax-avoidance strategies and penalties, which can lead to liquidity problems);
6. Agency costs, including rent-extraction that can lead to a reduction of share value;
7. Reputational damage (including uncertainty among shareholders and negative attention from credit-rating agencies);
8. Tax-induced unconditional conservatism; and
9. Increased revenue losses and regulation expenses for regulators.

Figure 2.2: Conceptual framework for the determinants and consequences of tax avoidance

Source: Own compilation

2.3 ACCOUNTING CONSERVATISM

A literature review by Zhong and Li (2017:195-213)[24] found that accounting conservatism research primarily looks at determinants ("explanations") for conservatism. A second strand in the research considers the measurement of accounting conservatism (Zhong & Li 2017:208). According to Zhong and Li (2017:209), researchers have focused on the relation of accounting conservatism to corporate governance and earnings management, variations in accounting conservatism across different international markets, the impact of conservatism on investment efficiency and its mitigating role in information asymmetry. Zhong and Li's (2017:195,209) review stresses the importance of accounting conservatism, especially its ability to moderate agency cost and facilitate corporate governance. Their review shows that although research in the accounting conservatism field has flourished since the publication of the seminal paper by Basu (1997), further research is still required.

2.3.1 Defining accounting conservatism

Accounting conservatism, also referred to as timely loss recognition (Francis & Martin 2010:161) or prudence (Zhong & Li 2017:195), has conventionally been defined as following the motto "anticipate no profits and provide for all probable losses" (Bliss 1924:110). It occurs when accountants call for a high degree of verification before recognising good news, as opposed to bad news. The effect is that firms postpone reporting gains until the gains are actually realised, but anticipate losses in reporting earnings (Basu 1997:4). Anticipation refers to the recognition of a loss or gain before the amount is verifiable and before there is a legal claim (Watts 2003a:208). As already indicated in Section 1.1.2, Watts (2003a:208) condenses his understanding of accounting conservatism into the following definition: "Conservatism is the asymmetrical verification requirements of gains and losses."

According to Basu (1997:3,33), in an efficient market, share returns can be used to measure news, since they reflect any publicly available news quickly and symmetrically.

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[24] Their review includes more than fifty papers on the topic of accounting conservatism published in the *Review of Accounting Studies*, *The Accounting Review*, *Contemporary Accounting Research*, the *Australian Accounting Review*, the *Journal of Accounting and Economics*, the *Journal of Business Finance & Accounting*, and the *Journal of Accounting Research* between January 1998 and March 2015 (Zhong & Li 2017:209).

Earnings is "two to six times more sensitive to negative share returns than to positive share returns" (Basu 1997:3), with negative share returns resulting from bad news, and positive share returns resulting from good news. Hence, earnings is more timely in reporting bad news that is publicly available and that relates to future cash flows (also called asymmetric timeliness) than in reporting good news (Basu 1997:33,34). This asymmetry in the financial recognition of good (gains) and bad (losses) news results in differences in earnings, particularly as far as timeliness and persistence are concerned (Basu 1997:4).

Differences in the *timeliness* of earnings occur because earnings respond faster or more completely to publicly available bad news than to good news, as good news requires more verification before it can be accounted for (Basu 1997:5-6,11,13): "More timeliness means that more current value relevant news is recognized contemporaneously in earnings, leaving less current value relevant news to be recognized in future earnings" (Basu 1997:19). The differences in the *persistence* of earnings can be ascribed to the fact that bad news only has a temporary effect on earnings. Earnings displays a high propensity to reverse in the next period. Good news is more persistent – Basu (1997:19) explains that "[m]ore persistence means that less current value relevant news is reported in current earnings, and more of it will be reported in future earnings" (Basu 1997:19). This difference arises because the capitalised value of good news is only partly reflected in current earnings. Good news is then, once it has been verified, reported again in subsequent earnings (Basu 1997:6,20). In other words, good news that is anticipated in previous periods, but that is not realised because of conservatism, is accounted for in the current and future financial periods, although it does not correlate with current news.

Timeliness and persistence can thus be seen as the same occurrence, but explained from a different perspective. In summary, conservatism leads to higher timeliness (lower persistence) of earnings in bad news periods than in good news periods. Current bad news results in an immediate temporary shock to earnings, whereas current good news results in a series of future (positive) shocks to earnings when the expected gains are realised (Basu 1997:19,20). Conservatism is characteristic of an inclination towards a more guarded approach in measuring items for inclusion in the financial records. This also acts as a coping mechanism for uncertain future events (Deegan 2014:141) and it builds trust and long-term connections (Glover & Xue 2023:2).

2.3.1.1 Classifications of conservatism

After the seminal research article by Basu (1997), researchers began to distinguish between two broad types of conservatism, namely conditional and unconditional conservatism.[25] This distinction enables focused research in the field of accounting conservatism (Ruch & Taylor 2015:20; Zhong & Li 2017:196). The difference between the two types of conservatism lies in their relation to economic news. Conditional conservatism depends on economic news, whereas unconditional conservatism does not (Cziffra, Fortin & Singer 2023:1037). Both types result in an understatement of the book value of net assets, compared to their economic net asset value or market value (Ball, Kothari & Nikolaev 2013b:1072; García Lara, García Osma & Penalva 2009b:344; Ruch & Taylor 2015:20; Zhong & Li 2017:197). Unconditional conservatism is induced by the nature of the accounting standards, whereas conditional conservatism is induced by the principles of accounting.

Conditional conservatism reveals information as and when it is received, and requires more thorough confirmation of good news than bad news. When news is difficult to confirm, it results in asymmetric recognition of good and bad news (Cheng, Fang & Myers 2023:97).[26] Common examples of conditional conservatism, mostly induced by accounting principles (Beaver 2015:872), include inventory being recognised at the lower of cost or market value, goodwill and long-lived asset impairment, and asymmetric treatment of gain and loss contingencies. Conditional conservatism then results in the adjustment or writing down of book value under particular adverse conditions, but the converse is not true; in other words, book value is not adjusted upwards under favourable conditions. This treatment ultimately results in the adjustment of equity book value and downward earnings management (Basu 1997:4, 2005:313; Beaver & Ryan 2005:269-270; Ruch & Taylor 2015:20-21; Ryan 2006:511; Zhong & Li 2017:197).

Unconditional conservatism applies the information available at the beginning of an asset's lifecycle. This means that the book value of net assets is understated[27] because

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[25] Some studies also refer to conditional conservatism as income statement, earnings, news-dependent or *ex post* conservatism, and to unconditional conservatism as balance sheet, news-independent or *ex ante* conservatism (Basu 1997:8; Beaver & Ryan 2005:269,305; Zhong & Li 2017:197).

[26] García Lara et al. (2009b:344) describe conditional conservatism as the sensitivity of the accounting system to changes in wealth.

[27] Some define unconditional conservatism as persistent understatement of assets (García Lara et al. 2009b:344).

of the predetermined characteristics of the accounting process; this is why it can be said to be induced by the nature of the accounting standards (Beaver 2015:872). Examples of unconditional conservatism include methods that accelerate depreciation, expensing research and development (internally generated intangible assets) and advertising costs, last in, first out (LIFO) treatment of inventory, and accumulated reserves that are excessive compared to future costs (warranty allowance and allowance for doubtful debts) (Basu 2005:313; Beaver 2015:872; Beaver & Ryan 2005:269; Ruch & Taylor 2015:20-21; Ryan 2006:511; Zhong & Li 2017:197).

Since unconditional conservatism precedes conditional conservatism, unconditional conservatism creates unrecorded goodwill that anticipates the application of conditional conservatism. Stated differently, the understatement of assets resulting from unconditional conservatism limits the amount of adjustment in the event of bad news, and also affects the reliability of measurements of the asymmetric timeliness in earnings (Beaver & Ryan 2005:270; Ruch & Taylor 2015:21). There is a significantly negative association between conditional and unconditional conservatism, suggesting that they fulfil interrelated roles and are therefore closely connected and influence each other. It also emphasises the necessity for a trade-off between the two types of conservatism (Qiang 2007:760). It is therefore important to differentiate between the two types of conservatism, since the determinants of the two types may differ (see Section 2.3.2.6), they are interrelated (Qiang 2007:760), and their impact on the financial statements is different. The effect of unconditional conservatism is more consistent from one year or period to the next than that of conditional conservatism, because of the dependence of conditional conservatism on economic news, which affects the timing of recognition of amounts in the financial records (Ruch & Taylor 2015:20-21). Accounting conservatism and its two broad categories (unconditional and conditional conservatism) form the centre of the conceptual framework for the determinants and consequences of accounting conservatism depicted in Figure 2.3 (see Section 2.3.4). The determinants shown on the left-hand side of the framework influence accounting conservatism. The consequences of accounting conservatism flowing from accounting conservatism are shown on the right-hand side of the framework.

In the last five years, researchers have tended to focus more on conditional conservatism than on unconditional conservatism (Barth, Landsman, Raval & Wang 2020; Basu & Liang 2019; Black et al. 2018; García Lara et al. 2020). One explanation to this trend is that

conditional conservatism provides information about uncertain events, and is thus of more interest to researchers who would like to study contracting or valuation issues (Ruch & Taylor 2015:21). Research in the field of unconditional conservatism is already well established (Beaver & Ryan 2005:269). By contrast, research in the field of conditional conservatism is still relatively new, although the literature has evolved significantly since Basu's (1997) ground-breaking article (Ball et al. 2013b:1071; Beaver & Ryan 2005:301). Basu (1997) focused mainly on empirical research that investigates conditional conservatism (Beaver & Ryan 2005:270), and how it is determined by institutional, political and market constructs (Ball et al. 2013b:1071).

2.3.1.2 Conservatism and financial reporting according to Generally Accepted Accounting Principles

As far back as 1970, Sterling (1970:256,279) claimed that there are two groups of accountants: conservative accountants and anti-conservatives. Conservative accountants classify their approach to accounting measurement as a good quality or virtue, whilst their counterparts, the anti-conservatives, consider the actions of conservative accountants unethical. Anti-conservatives see measurement using conservative accounting principles as an intentional understatement of assets and revenue that leads to secrecy, incorrect financial information and, at worst, misrepresentation. Conservative accountants defend their actions by arguing that they ensure that they at least report an asset's true value. If there is uncertainty as to the true measure of an amount, but the range in which the true measure falls is known, a conservative accountant deems it appropriate to report at the lower end of the range. Sterling (1970:280) argues that the principle of conservatism in fact disregards the standard of reality or truth, and that, as a result, all assets in financial reports are valued at less than their cash cost (their "objective" value), given depreciation and other allowances, valuation at the lesser of cost or the market value, or amortisation. One possible exception is land. He has accused accountants that apply the principles of conservatism of using a value other than cost (a "subjective" value) if it is a lower value (Sterling 1970:302).

Accounting conservatism has for centuries influenced the reporting of financial accounting information, as well as the development of accounting theory and practice (Basu 1997:8, 2005:313; Zhong & Li 2017:209). It has therefore been one of the most significant characteristics of valuation and measurement for financial reporting (Sterling 1970:256).

The significance of accounting conservatism in financial reporting was strongly highlighted by the introduction of the 2010 FASB and International Accounting Standards Board (IASB) *Conceptual Framework*. The *Conceptual Framework* requires relevance and faithful representation as the fundamental qualitative characteristics[28] of useful financial information. Information is *relevant* if it affects the decisions made by a person (IASB 2018b:2.6), as well as the manner in which the person allocates resources (Deegan 2014:235). *Faithful* representation requires financial information to have three characteristics: it may contain no errors, it must be neutral, and it must be complete (IASB 2018b:2.13). Some parties were not in agreement with the exclusion of accounting conservatism from the *Conceptual Framework* (IASB 2010:BC3.27), because traditional financial accounting practices relied heavily on accounting conservatism. Accounting conservatism (prudence) was excluded from the *Conceptual Framework* (IASB 2010:BC3.27) based on the argument that it was biased towards undervaluation of the net assets of a firm, which undermines one of the three characteristics of faithful representation, namely neutrality, which requires financial information to be free from any bias (IASB 2010:BC3.27-BC3.29; see also Barker & McGeachin 2015:181; Deegan 2014:236,607).

On 29 March 2018, the revised IASB *Conceptual Framework for Financial Reporting* was issued. The 2018 IASB *Conceptual Framework* was effective immediately for the IASB and Interpretations Committee (IASB 2018a:BC0.27), but it was only applicable for financial years beginning on or after 1 January 2020 for other standard setters that developed accounting policies using this framework (Ernst & Young 2018:1). This new framework is not applicable to the FASB, as the 2010 FASB *Conceptual Framework* still applies in the United States.

In its revised format, the 2018 IASB *Conceptual Framework* reintroduced the concept of prudence, which is no longer used interchangeably with the term conservatism, as it was in the 2010 *Conceptual Framework for Financial Reporting* (IASB 2010:BC3.19, BC3.27-BC3.29). Prudence is now specifically defined as exercising caution when decisions that include the exercise of judgment need to be made under uncertain conditions. The construct was reintroduced as a component to support the concept of neutrality. Although

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[28] The 2010 and the 2018 IASB *Conceptual Framework* identifies timeliness, verifiability, comparability and understandability as the four enhancing characteristics of useful financial information (IASB 2010:QC19-QC32, 2018b:2.23-2.36).

the IASB acknowledges that some users do define prudence as applying systematic asymmetry (conservatism), this interpretation is not included for the purposes of the 2018 IASB *Conceptual Framework* (IASB 2018a:BC2.37-BD2.39). The reintroduction of the concept of prudence was necessary because the exclusion of this concept led to confusion amongst users of the IASB *Conceptual Framework* (Ernst & Young 2018:3).

Although conservatism is no longer included in the 2010 FASB and IASB *Conceptual Framework*, nor in the 2018 IASB *Conceptual Framework*, it still has a productive role to play in financial reporting and is still predominant in accounting standards (Barker & McGeachin 2015:202; Beaver 2015:872; Black et al. 2018:119; García Lara et al. 2020:1-2). It increases firm value by neutralising managerial bias (Watts 2003a:209-210). Conservatism understates net assets,[29] but it also defers earnings and understates cumulative earnings, which enhances the effectiveness of earnings as a measure of performance. It defers taxes and can reduce the likelihood that excessive dividends have to be paid. These combined benefits continue to make conservatism an effective and indispensable financial reporting mechanism (Iyengar & Zampelli 2010:122; Watts 2003a:218; Zhong & Li 2017:195,199).

2.3.2   Determinants of accounting conservatism

Zhong and Li (2017:198,200) argue that there are four groups that demand conservatism in financial reporting. These groups are shareholders, auditors, bondholders (or debtholders), and regulators. These groups have different reasons for demanding accounting conservatism, which can also be seen or interpreted as determinants of accounting conservatism. In turn these four groups' demand for conservatism puts pressure on managers to apply accounting conservatism, since a manager's discretion plays an important role in the implementation of accounting principles. Managers can either use this discretion to increase reporting quality, but they can also use it to increase their own compensation, by reporting accounting information that enhances their incentives, which amounts to managerial opportunism.[30]

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[29] This creates net asset bias (Watts 2003a:209).

[30] Managerial opportunism is defined by Zhong and Li (2017:200) as "managers (that)…exploit their discretion to report accounting numbers that are in line with their own incentives and reduce firms' value". This behaviour is monitored by a firm's levels of governance and the natural workings of the labour market, where good performance and wealth creation increase the value of a manager in the market (Zhong & Li 2017:200-201).

To help ensure that managers use their discretion to increase reporting quality, there is now a renewed focus on the stewardship role of managers in financial reporting. The 2018 IASB *Conceptual Framework* acknowledges the usefulness of information in the financial statements regarding effective and efficient application by management of the resources of a firm to assist users to measure their stewardship of these resources, as well as their possible future use of these resources (IASB 2018b:1.22-1.23). Users can expect management to protect these resources from negative economic influences, for example, changes in prices or technology, and to ensure proper governance of these resources, which includes complying with all the relevant regulations, laws and contractual stipulations.

The four groups that demand conservatism can be linked to one or more of the four determinants of accounting conservatism that are commonly referred to in the literature, namely contracting, litigation, regulation, and income tax (Basu 1997:9; Watts 2003a:209). As already indicated, Francis et al. (2015:1285) have added gender to the list of determinants. Ultimately, the applicability of a determinant of accounting conservatism should be measured by whether it can account for the trademark of conservative accounting, namely systematic understatement of net assets (Watts 2003a:210). Each of these five determinants is discussed below, and the specific variables in my regression models that control for these determinants (if applicable) are mentioned here, although they are discussed in more detail in Chapter 5 as part of the research design and methodology.

2.3.2.1 Contracting

Contracting, especially debt contracting, has been identified as one of the originating determinants of accounting conservatism (Basu 1997:9; Watts 2003a:210): an increase in contracting cost induces conservatism (Qiang 2007:793). Conservatism neutralises the effect of any incentives for aggressive financial reporting, which then lowers the potential of losses for investors who rely on the amounts in the financial records in drafting their contracts. Conservatism, especially conditional conservatism, further enhances debt contracting efficiency, because it addresses timeously the risk of default by the borrower in cases where debt covenant violations are triggered earlier, and it benefits the borrower by resulting in reduced interest rates when there is a perception that less risk is involved

(Deegan 2014:315-316; Iyengar & Zampelli 2010:122; Qiang 2007:759,763; Zhang 2008:27).

Watts (2003a:208,210) has studied contracting as a determinant of conditional conservatism, showing that it is not only formal contracts such as debt and management remuneration contracts that can induce accounting conservatism, but also the arrangements that a firm has in place as part of its day-to-day control and monitoring structure. Accounting conservatism therefore serves as an effective contracting mechanism (Basu 1997:9; Watts 2003a:214) that ensures the enforcement of corporate governance.[31] This includes minimising agency costs by monitoring managers' performance, regulation and attitude towards risk (Deegan 2014:316; Francis et al. 2015:1285; Francis & Martin 2010:161; Watts 2003a:209). It can also reduce agency conflicts between managers and the shareholders of the firm (Francis & Martin 2010:162) and protect shareholders' option to exercise their property rights (Watts 2003a:214).

Watts (2003a:209,214) maintains that, in practice, conservatism increases firm value when it neutralises managerial bias. If managers engage in behaviour that is resourceful but opportunistic because of limited tenure and liability, conservatism addresses this behaviour (Watts 2003a:219). The benefits of contracting efficiency lead to an increase in firm value for all stakeholders in society, not only those in a contracting relationship with the firm. The net asset and net earnings bias that conservatism generates can also be seen as an efficient financial reporting mechanism, since it neutralises managerial bias and assists in restricting opportunistic payments to the contracting parties or management (Watts 2003a:209,214).

Conditional conservatism also influences the investment decisions made by managers by positively affecting more profitable acquisitions, ensuring that projects with a negative net present value are avoided and risk is reduced. Conservatism thus assists managers to detect potential economic losses earlier when they analyse possible investment acquisitions, and to identify current poor performing projects that could lead to reduced compensation and even job losses for managers (Ahmed, Chen, Duellman & Sun 2023:8; Francis & Martin 2010:161-163,177; Watts 2003a:219; Zhong & Li 2017:210).

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[31] In conjunction with other governance controls (for example, the appointment of reputable auditors) implemented by the firm (Francis & Martin 2010:177).

Conservatism, particularly conditional conservatism, therefore improves debt contracting, as well as the efficiency of equity contracting (Qiang 2007:763).

My research design (see Chapter 5) controls for the capital structure and debt service needs (Balakrishnan et al. 2019:50) of a firm (*LEVERAGE*), calculated as the total debt, deflated by the market value of equity (Balakrishnan et al. 2019:50).

2.3.2.2 Litigation

Litigation, including shareholder litigation[32] and litigation against auditors, has been identified as another determinant of accounting conservatism. In particular, overstatement of assets and net earnings increases the likelihood of an increase in the litigation costs incurred by a firm. By contrast, the understatement of assets and net earnings which typifies accounting conservatism decreases the chances that a firm will incur litigation costs, and thus also decreases the related costs. This asymmetry occurs because the legal system puts measures in place to counteract opportunistic payments to managers and other parties – this asymmetric effect is prized by parties both related to and not related to a firm (Basu 1997:7; Watts 2003a:209,216).

The anticipated litigation cost of the overstatement of assets and net earnings is higher than that of understatement; hence, the possibility of litigation acts as a mechanism to oppose opportunistic behaviour (Watts 2003a:216). Increased litigation and liability exposure for both managers and auditors tend to result in an increase in accounting conservatism (Basu 1997:7,33; Qiang 2007:759). Both conditional and unconditional conservatism increase in order to lower the risk of or to avoid litigation costs or lawsuits (Qiang 2007:760,764,793). It was therefore important to control for litigation risk in my research design (see Chapter 5). I used a dummy variable (*LITIGATION*), set to 1 if a firm is in a high-litigation risk industry and 0 otherwise (Baloria 2022:54; Francis et al. 2015:1295; Hsu et al. 2017:84).

2.3.2.3 Regulation

Regulation is another determinant of conservatism. It acts as an incentive for conservative financial reporting (Watts 2003a:217). Those who enforce regulations, including

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[32] In terms of the *Securities Act* in the United States.

regulators and standard-setters, face higher levels of criticism if firms overstate their assets and earnings than if they understate assets and earnings. Hence, those who enforce regulation benefit from implementing conservative accounting because of the asymmetry in regulation costs (also referred to as political costs), such as costs incurred by firms as a result of restatements in financial statements or investigations by the Securities Exchange Commission (Qiang 2007:764). Those who enforce regulations also use increases in regulation costs to induce conservative reporting practices, because conservative reporting reduces the regulation costs for firms. In addition to litigation and contracting, as mentioned above, regulation is valued by contracting and non-contracting parties (for example, voters) as a mechanism to induce accounting conservatism to assist in curbing opportunistic payments to managers and other parties (Watts 2003a:209,210,217). An increased level of accounting conservatism, especially unconditional conservatism, therefore decreases regulation costs; the possibility of criticism by regulators also reduces economic instability and helps to prevent increases in future regulation (Beaver & Ryan 2005:269; Qiang 2007:759-760,793). Regulators prefer the use of unconditional conservatism because it has a smoothing effect on earnings and net assets, unlike conditional conservatism, which can lead to a significant negative shock to income, which in turn can lead to the need to enforce additional regulation. This is the case whether explicit or implicit rate of return regulations are in use (Qiang 2007:764-765).

In its revised format, the 2018 IASB *Conceptual Framework* reintroduced the concept of prudence, but not conservatism, as a component of faithful representation in order to support the concept of neutrality (IASB 2018a:BC2.39, 2018b:2.16). If the benefits of conservative accounting for contracting, litigation and regulation are taken into account, it is difficult to see why standard setters decided to exclude conservatism from the IASB *Conceptual Framework for Financial Reporting* issued in March 2018. One reason is that the IASB took the view that accounting conservatism led to a bias towards the undervaluation of firms' net assets, which undermines the neutrality criterion for faithful representation (IASB 2018a:BC2.34-BC2.36).

I controlled for regulation in my research design (see Chapter 5) by including a control variable for the extent of the business venture(s) (*SIZE*) of a firm. Calculated as the natural log of the market value of equity, *SIZE* acts as a control variable for regulation, since regulation increases when the extent of a firm's business ventures increases (Ahmed & Duellman 2007:420). As indicated in Section 2.2.2, in initial testing, an additional control

variable, the Sarbanes-Oxley indicator (*SOX*), was included to control for regulation. When the VIFs of the regression models were calculated (see Section 6.3), the VIF for *SOX* was unacceptably high (more than 120 for all models), indicating multicollinearity concerns. To address these concerns, this control variable was removed from the regression models, because the models already contained another control variable for regulation, namely firm size (*SIZE*).

2.3.2.4 Income tax

The calculation of taxable income is closely linked to the calculation of earnings. This close connection can provide an incentive to defer net earnings to reduce the current payment of taxes. Revenue is deferred, but the recognition of expense is accelerated in the financial records, which results in lower earnings, and in turn also lowers the reported taxable income. This tendency to report more conservatively leads to a deferral of taxes because of the asymmetric recognition of gains and losses, which increases firm value. A lower reported taxable income also leads to understatement of the net assets (Basu 2005:313; Qiang 2007:760; Watts 2003a:209,216,217).

Book-tax differences are used as a measure of tax avoidance activities (Chen et al. 2010:42; Lisowsky et al. 2013:588), so firms aim to align their taxable and accounting income. If a firm wishes to defer taxable income, but still aims for book-tax conformity, the accounting income also has to be deferred. This phenomenon is called tax-induced accounting conservatism (Hanlon, Maydew & Shevlin 2008:295). The application of unconditional conservatism results in a deferral of taxes, as tax deductions are based on actual realised values (reported under unconditional conservatism), rather than on expected changes in market values that have not yet been realised (reported under conditional conservatism). As part of a comprehensive analysis of the determinants of accounting conservatism, Qiang (2007:759-760) tested whether tax cost induces accounting conservatism. Her testing included both conditional and unconditional conservatism, but conditional conservatism was later excluded after additional testing had been done, as it was too unstable and unmanageable (Qiang 2007:790). Qiang therefore included only unconditional conservatism to test whether accounting conservatism would be induced as a result of a rise in tax costs (Qiang 2007:765,793). This decision was supported by the fact that a firm is more likely to use unconditional conservatism to reduce its book value, because it recognises losses earlier, it is inexpensive to implement, it

results in fewer shocks to earnings, and it does not depend on news. Qiang's (2007:761) study found that a rise in tax costs induces unconditional conservatism, or stated differently, unconditional conservatism defers tax cost.

Income tax is already a variable of interest in my study, as tax avoidance (*TA*) is the independent variable in all my regressions, so an additional control variable was not introduced in my research design (see Chapter 5).

2.3.2.5 Gender

The gender of executives affects decisions made by firms, and firm performance, earnings quality and corporate governance (Francis et al. 2015:1285,1288). Women's higher level of risk aversion is one specific factor that drives these differences, according to Francis et al. (2015:1289), who found evidence that the gender of individuals in executive positions affects the level of accounting conservatism in a firm's financial records. Their study thus added gender as a determinant of accounting conservatism (Francis et al. 2015:1314).

They investigated the effect of the gender of the CFO on the decisions made for financial reporting purposes in an accounting conservatism context, since accounting conservatism is an indicator of a manager's approach towards risk (Francis et al. 2015:1285,1289,1314). Their study focused on CFOs, rather than CEOs, because CFOs are responsible for implementing financial policies (Francis et al. 2015:1289). They hypothesised that the higher risk aversion of female CFOs would make them more vigilant in recognising good news than in recognising bad news, as well as in measuring income and assets. Such vigilance reduces the risk of overstatement and increases conservative reporting by firms. They confirmed their hypothesis by investigating the levels of accounting conservatism at firms following a male to female (or female to male) CFO transition, using a sample of Standard and Poor's (S&P) 1500 firms for the period from 1988 to 2007, wherever a change of CFO occurred. They identified 92 cases of male to female transitions (Francis et al. 2015:1286,1291), and used firms with male to male CFO transitions as a control group. The positive relation between female CFOs and accounting conservatism (both conditional and unconditional) was more distinct in higher risk firms, which are firms that face "higher litigation risk, default risk, systematic risk, or management turnover risk" (Francis et al. 2015:1314).

Although gender is known to be a determinant of accounting conservatism, the data from the *Datastream* database used in my study do not include any information on the gender of the management, or directors, of firms. It was therefore not possible to control for this determinant in my regression model (see Chapter 5). This is noted as a limitation of the study in Chapter 7.

2.3.2.6 Interaction between the determinants of accounting conservatism

To decrease contracting, litigation and regulation costs and to defer tax expenses, firms are inclined to lean towards conservative reporting. As discussed in Section 2.3.1.1, conditional and unconditional conservatism are significantly negatively associated, which suggests that it is sometimes necessary to choose a trade-off between the two types of conservatism. The trade-off between these two types of conservatism can be illustrated by using the example of the sacrifice of contracting efficiency (by employing conditional conservatism) in return for a tax deferral (by employing unconditional conservatism) (Qiang 2007:759-761).

Conditional conservatism improves contracting efficiency, because it carries new information and does not add noise (distorted or meaningless inputs). In this, it differs from unconditional conservatism, which does not react to new information and can add noise, especially relating to payoffs to contracting parties, which can decrease contract efficiency. Both conditional and unconditional conservatism play a similar role in avoiding litigation, as litigation sometimes provides an incentive for the early recognition of expenses and losses, resulting in unconditional conservatism. However, it can also result in conditional conservatism, if a potential plaintiff requests conditional conservatism for the purposes of a contract. Unconditional conservatism assists in preventing regulation and deferring taxes because of the earlier recognition of losses, compared to conditional conservatism. The last determinant, gender, induces both types of conservatism (Qiang 2007:759-761,763).

The five determinants above do have some aims in common. Firstly, conservatism that is induced by contracting, litigation and regulation reflects an aversion to opportunistic behaviour by managers and other parties. Secondly, the verifiability of the amounts in the accounting records is central to all the determinants; for example, for legal contracts, amounts need to be verifiable to be enforceable, and verifiability is equally crucial to prove fraud during a litigation procedure, or to enforce tax laws (Watts 2003a:210).

Other possible determinants of accounting conservatism, such as earnings management and managers' inclination to abandon unprofitable projects, can explain only some consequences of conservatism. These explanations do not account for the trademark of conservative accounting: systematic understatement of net assets (Watts 2003a:210).

2.3.2.7 Commentary

This section has identified five determinants of accounting conservatism from the literature. These determinants influence the accounting conservatism behaviour of firms, as can be seen from the conceptual framework for the determinants and consequences of accounting conservatism depicted in Figure 2.3 (see Section 2.3.4). The five determinants of accounting conservatism are depicted on the left-hand side of the conceptual framework, as these determinants influence accounting conservatism behaviour, which in turn leads to certain consequences of accounting conservatism. It is important to note that the determinants were divided into three categories. The first category is the determinants of both unconditional and conditional conservatism (thus affecting accounting conservatism in general), namely litigation and gender. The second category is those determinants that affect only unconditional conservatism, namely regulation and income tax payments. The third category is contracting, which affects only conditional conservatism.

Hanlon and Heitzman (2010:140) point out that any model used to answer a research question is only as good as the variables included as the determinants in the model. It was thus important for the validity of my study to consider these determinants carefully to select the appropriate construct(s) or variable(s) to answer the research questions stated in Chapter 1, namely what the relationship or interaction between tax avoidance and accounting conservatism is, and whether the relationship differs for conditional and unconditional accounting conservatism. Before an appropriate construct can be identified, it is important also to consider the consequences of accounting conservatism identified in the literature.

2.3.3 Consequences of accounting conservatism

One of the most valuable consequences of, or contributions made by, accounting conservatism is that it serves as an effective contracting mechanism (Basu 1997:9). This is displayed in three different contracting environments, namely debt contracting,

managerial compensation contracting, and corporate governance. Firstly, accounting conservatism enhances debt contracting efficiency in two ways: it results in the earlier identification of debt covenant violations, which addresses the risk of default by the borrower timeously, and it results in reduced interest rates in an environment with perceived lower risk (Deegan 2014:315-316; Iyengar & Zampelli 2010:122; Zhang 2008:27). Hou, Liang and Basu (2023:248) report that banks demand more conservatism from their clients for "self-protection". Secondly, in practice, conservatism increases firm value by neutralising managerial bias, since it moderates the likelihood that managers will overstate assets and earnings to increase their personal bonuses. Accounting conservatism helps to channel these energies into profitable projects for the firm (Watts 2003a:209,214). Thirdly, accounting conservatism ensures that corporate governance is enforced, including minimising agency cost by monitoring the performance, regulation, and managers' attitude towards risk (Deegan 2014:316; Francis et al. 2015:1285; Francis & Martin 2010:161; Watts 2003a:209). Not only does it address managers' behaviour to prevent opportunism, it also influences the investment decisions that managers make to effect more profitable acquisitions and reduce risk. These outcomes are possible because accounting conservatism allows managers to detect economic losses earlier when they analyse potential acquisitions, and also to identify current projects' poor performance earlier, preventing a reduction in compensation or even job losses for managers (Francis & Martin 2010:161-163,177; Hsu et al. 2017:81; Watts 2003a:219; Zhong & Li 2017:210). It is therefore important to identify the optimal level of accounting conservatism (Zhong & Li 2017:209) where the contracting benefits of conservatism balance the advantages of relevant information using current values (Deegan 2014:316).

Several studies show that accounting conservatism is valuable for financial reporting and its users, and is also a vital element of financial reporting (Black et al. 2018:123; Watts 2003a:209; Zhong & Li 2017:210). Conservatism understates net assets – what Watts (2003a:209) calls the net asset bias – and on average it also defers earnings and understates cumulative earnings. In brief, conservatism restrains the upward manipulation of amounts (D'Augusta & DeAngelis, 2020a:2313). This enhances the effectiveness of earnings as a measure of performance, defers taxes, and can reduce the possibility of the payment of excessive dividends, all of which affect both the contracting and the non-contracting parties in relation to a specific firm. These characteristics also make

accounting conservatism an effective financial reporting mechanism (Iyengar & Zampelli 2010:122; Watts 2003a:218; Zhong & Li 2017:199).

Nevertheless, some regulators, standard-setters and even academics still criticise accounting conservatism for its asymmetric timeliness quality. According to these critics, this quality implies continuous undervaluation of net asset values, which can result in overstatement of earnings in future periods, and ultimately affects the neutrality of financial records. These characteristics also make this accounting method inappropriate for equity valuations, but it can assist investors to evaluate the accuracy of forecasts received from other parties, such as analysts, and can improve investment effectiveness and reduce investment risk (Heflin et al. 2015:674; Watts 2003a:208,214; Zhong & Li 2017:209).

If accounting conservatism, especially unconditional conservatism, increases, it decreases regulation costs, as well as the possibility of criticism from regulators. It also reduces economic instability and helps to prevent increases in future regulation (Beaver & Ryan 2005:269; Qiang 2007:759-760,793).

These consequences of accounting conservatism are schematically included in the conceptual framework for the determinants and consequences of accounting conservatism depicted in Figure 2.3 (see Section 2.3.4). The ten consequences of accounting conservatism are depicted on the right-hand side of the conceptual framework, as these consequences flow from conservative accounting behaviour. It is important to note that the consequences were divided into three categories. The first category is those consequences that can result from both unconditional and conditional conservatism (thus affecting accounting conservatism in general). The second is those consequences that occur only as a result of the implementation of unconditional conservatism. The third is those consequences that occur only after conditional conservatism practices have been implemented.

2.3.4 Summary

This section has identified and defined the theoretical constructs for accounting conservatism that are relevant to the objectives of the study. It analysed accounting conservatism and established the determinants and consequences of accounting conservatism. Figure 2.3 provides a conceptual framework for the determinants and consequences of accounting conservatism. This conceptual framework assists in

identifying the constructs and variables for further analysis. The specific variables in my regression models that I used to control for the determinants (if applicable) of accounting conservatism are discussed in more detail in Chapter 5 as part of the research design and methodology.

From the above review of the literature on accounting conservatism, it is clear that accounting conservatism is one of the most significant aspects of valuation and measurement for financial reporting (Sterling 1970:256). Logically, it cannot be excluded from or ignored in financial reporting standards (Zhong & Li 2017:209). It is also clear that further research is necessary (Zhong & Li 2017:209) to ensure a better understanding of the driving forces behind accounting conservatism. This study of the relation between tax avoidance and accounting conservatism helps to address this gap. The next section reviews the literature available on the relation between tax avoidance and accounting conservatism in order to assist with hypothesis development.

Determinants:

1. Regulation
2. Income tax payments

3. Litigation
4. Gender

5. Contracting

Unconditional conservatism

Accounting conservatism

Conditional conservatism

Consequences:

1. Decreased regulation cost and criticism reduces economic instability and helps prevent increases in future regulation
2. Deferral of tax expenses

3. Lower litigation costs and fewer lawsuits
4. Mechanism for effective financial reporting
5. Increased risk of inappropriate equity valuations since undervaluation of net assets can lead to overstatement of earnings and ultimately affect the neutrality of the financial records
6. Reduced risk of overstatement and an increase in conservative reporting by female managers, who tend to display higher levels of risk aversion

7. Enhanced debt contracting efficiency
8. Increased firm value from neutralising management bias
9. Increased enforcement of corporate governance
10. Improved investment effectiveness and reduced investment risk

Figure 2.3: Conceptual framework for the determinants and consequences of accounting conservatism
Source: Own compilation

2.4 HYPOTHESIS DEVELOPMENT: TAX AVOIDANCE AND ITS RELATION TO ACCOUNTING CONSERVATISM

Financial accounting and taxation are different disciplines, each with its own unique language, perspective and objective (Hanlon & Heitzman 2010:127). The unique language of *financial accounting* is prescribed by the accounting standards. The objective of financial reporting, according to the 2018 IASB *Conceptual Framework* (2018b:1.2), is to provide useful financial information regarding an entity to current and possible future investors, financiers and creditors. This information assists these parties to decide on the allocation of resources to that entity. Financial statements reflect the entity's economic position (Zhong & Li 2017:195). The unique language of *taxation* is prescribed by statute. The objective of taxation is to raise revenue through obligatory payments levied on citizens by the government of a country to fund general expenditure (for example, relating to health and education expenditure) that benefits the whole community, in other words, the public (Steyn, Franzsen & Stiglingh 2013:241-242).

Many countries, including the United States, have dual reporting systems for taxation and accounting, so there are many differences between their taxation reporting systems and their accounting reporting systems, as well as between book and tax values (Hanlon & Heitzman 2010:135). Although the language and the perspectives of financial accounting and taxation differ, the calculation of taxable income and accounting earnings has always been closely connected, since the starting point used by firms in calculating their taxable income is usually the amount recorded for accounting purposes, although in some cases the net income before tax is used (Deegan 2014:130). Previous studies agree that managers' reporting decisions simultaneously consider both the effect on financial earnings and taxable income (Atwood et al. 2012:1832; Frank et al. 2009:468; Hanlon & Heitzman 2010:135). Managers are generally careful not to inflate earnings, since doing so results in more taxes being payable; they are also careful not to deflate earnings to save taxes, which could disconcert stakeholders (Hanlon & Heitzman 2010:135). Moreover, their incentive structure affects both their financial reporting and their tax reporting decisions (Atwood et al. 2012:1831; Powers et al. 2016:672). It can therefore be concluded that the corporate taxation reported to the revenue services and the financial information reported in the financial statements are closely related, including the manner in which the reporting is approached. Hence, an attempt by a firm to reduce its current tax

payments (in other words, to engage in a form of tax avoidance), could also affect the firm's net earnings (Watts 2003a:209).

Given that book-tax differences, calculated as the total difference between net income before taxation and taxable income (Hanlon & Heitzman 2010:140), are used as a measure for tax avoidance activities (Chen et al. 2010:42; Lisowsky et al. 2013:588; see Chapter 3), firms aim to align their taxable income with their accounting income. If a firm wants to defer taxable income (a form of tax avoidance) and still aims for book-tax conformity, then accounting income or net earnings also has to be deferred by deferring revenue, but the recognition of expense must be accelerated in the financial records. This is a more conservative way of reporting, which is referred to as tax-induced accounting conservatism (Hanlon et al. 2008:295). It results in a deferral of taxes because of the asymmetric recognition of gains and losses. Therefore, accounting conservatism can be brought about naturally by the interaction between financial accounting and taxation (Basu 2005:313; Qiang 2007:760; Watts 2003a:209,216,217), since it understates net assets, but it also defers earnings and understates cumulative earnings, which in turn defers taxes (Iyengar & Zampelli 2010:122; Watts 2003a:218; Zhong & Li 2017:195,199).

Previous studies have indicated that it is specifically the application of unconditional conservatism that results in a deferral of taxes (Qiang 2007:765; Ruch & Taylor 2015:21). This effect arises because tax deductions are based on actual realised values (which result from unconditional conservatism), rather than on expected changes in market values that have not yet been realised (and that result from conditional conservatism). As stated previously, firms also prefer engaging in unconditional conservatism to engaging in conditional conservatism in order to reduce the book value of a firm, since doing so recognises losses earlier, is inexpensive to implement, results in fewer shocks to earnings and does not depend on news (Qiang 2007:765,793).

Based on the above discussion, Hypothesis 1, stated in the alternative form, is the following:

H_1: *There is a positive relationship between tax avoidance and unconditional conservatism.*

Conditional conservatism relies on economic news. It results in an adjustment or writing down of book value under adverse conditions. The book value is not adjusted upwards

under favourable conditions, resulting in a downward adjustment of equity book value and earnings management (Basu 1997:4, 2005:313; Beaver & Ryan 2005:269-270; Ruch & Taylor 2015:20-21; Ryan 2006:511; Zhong & Li 2017:197). Unconditional conservatism also results in the understatement of both book values and earnings, but the effect occurs from the start of the life cycle of an asset, and does not rely on later economic news or events.

Since unconditional conservatism precedes conditional conservatism, the accounting methods applied at the start of the life cycle of the asset may already account for some of the bad news that could result from future economic events. Unconditional conservatism therefore protects the accounting system against the effect of some future bad news, or news that is difficult to verify before it occurs (Qiang 2007:760). Stated differently, unconditional conservatism creates unrecorded goodwill that anticipates the application of conditional conservatism, and it limits the amount of the adjustment made in the event of bad news (Beaver & Ryan 2005:270; Ruch & Taylor 2015:21).

From the above discussion, it follows that there is a significantly negative association between the two types of conservatism, suggesting that they fulfil interrelated roles. This emphasises the necessity of a trade-off between the two types of conservatism. An example would be expensing research and development costs, where there is no possibility of future write-downs in reaction to adverse economic events (Qiang 2007:760). It is therefore important to differentiate between the two types of conservatism. The determinants of the two types of conservatism differ historically (see Section 2.3.2.6), but they are also interrelated (Qiang 2007:760), and their impact on the financial statements is different. Unconditional conservatism has a more consistent impact from one year or period to the next, whereas conditional conservatism, given its dependence on economic news, has a more sporadic effect on the financial statements (Ruch & Taylor 2015:20-21). The fact that their impact on the financial statements differs in turn affects the net income before tax and the amounts recorded in the financial statements on which the tax calculation is based (Deegan 2014:130).

Zhong and Li (2017:198,200) argue that there are four groups, namely the shareholders, auditors, bondholders (or debtholder) and regulators, that call for conservatism in financial reporting. These groups pressurise managers to apply accounting conservatism, because a manager's discretion plays an important role in the implementation of accounting

principles. Managers can either use this discretion to increase reporting quality, or they can aim to increase their own compensation, by reporting accounting information that enhances their incentives. To help ensure that managers use their discretion to increase reporting quality, there is a strong focus on the stewardship role of managers in financial reporting. They are required to protect resources from negative economic influences and ensure proper governance of these resources, which includes complying with the relevant regulations, laws and contractual stipulations (IASB 2018b:1.22-1.23). Furthermore, managers and their management style, as well as the business decisions they make, affect the amount of taxes paid and tax avoidance behaviour (Davis et al. 2016:50). Managers and their management styles are therefore important because these influence the way in which financial information is recorded, as well as tax payment or tax avoidance behaviour.

In addition, as agency theory points out, both shareholders/owners (the principals) and managers (the agents) tend to act in their own self-interest to increase their welfare. This implies that managers' decisions are not always in the best interests of shareholders, which may decrease the value of the firm (Deegan 2014:273,280; Desai & Dharmapala 2009:538; Hope & Thomas 2008:591-592). This divergence of interests results in the agency problem, which usually arises because of inefficiencies or when incomplete information is made available (Deegan 2014:280). It is therefore important to understand why there would be a conflict of interest between the shareholder or owner and the manager. Typically, this is due to the manager's effort aversion, the diverting of resources for the manager's personal gain, differences in time horizons between the manager and the owner/shareholder, or differences in risk aversion on the part of a manager (Deegan 2014:280).

As already discussed in Section 2.2.2.3, Francis et al. (2014:171,173) found that female managers' (especially female CFOs') higher level of risk aversion made them less willing to pursue more aggressive tax strategies, but their study did not find any difference between the ways in which male and female managers engage in broad tax avoidance (Francis et al. 2014:174). Similarly, as discussed in Section 2.3.2.5, the gender of individuals in executive positions also has an impact on the level of accounting conservatism in a firm's financial records (Francis et al. 2015:1314). There is a positive relation between female CFOs and accounting conservatism (both conditional and unconditional) because of the higher risk aversion of female CFOs. This was observed

more distinctly in higher risk firms (Francis et al. 2015:1314). In the two studies by Francis et al. (2014) and Francis et al. (2015), the level of risk aversion dictated the relation of the manager to both tax avoidance and accounting conservatism, underlined by the gender of the CFO. It follows that female CFOs engage in less tax avoidance but more accounting conservatism, resulting in a negative relation between the two concepts.

Conditional conservatism, which relies on economic news and requires more thorough confirmation of good news than bad news, if there is news that is difficult to confirm (Basu 2005:313), is more sensitive to managers' level of risk aversion. It can therefore be suggested that, for firms with a female CFO, there is a negative relation between tax avoidance and conditional conservatism. One might infer that this negative relation between tax avoidance and conditional conservatism is strengthened by a significantly negative association between unconditional and conditional conservatism (Qiang 2007:760). Since previous studies have reported a positive relation between tax avoidance and unconditional conservatism (Qiang 2007:765; Ruch & Taylor 2015:21), a negative association between the two types of accounting conservatism suggests a negative relation between tax avoidance and conditional conservatism. However, as the results of the study by Francis et al. (2015:1314) mentioned in the previous paragraph show, where a positive relation is established between female CFOs and both conditional and unconditional conservatism, because of the higher risk aversion of female CFOs, it cannot be assumed that there is a relation to a third variable solely based on the significantly negative association between unconditional and conditional conservatism. Since the literature review merely suggests a negative relation, but has not provided strong support for the direction of the relation of tax avoidance and conditional conservatism, the direction of the relation remains a question to be resolved by empirical research. The second hypothesis tested in my study is therefore stated in the null form.

Hypothesis 2, stated in the null form, is the following:

H2: There is no relationship between tax avoidance and conditional conservatism.

2.5 CONCLUSION

This chapter has reviewed the literature on tax avoidance and accounting conservatism and has defined the theoretical constructs for these concepts that are relevant to the objectives of the current study. Further research is necessary to ensure a better

understanding of the driving forces behind tax avoidance (Rego & Wilson 2012:780), and accounting conservatism (Zhong & Li 2017:209). This study helps to address these two lacunae.

Based on the review, I predicted that if there is an increase in tax avoidance, unconditional conservatism also increases, or, as stated in Hypothesis 1, that there is a positive relationship between tax avoidance and unconditional conservatism. This is brought about by the natural interaction between taxation and financial accounting, which can be explained in two ways. Firstly, if a firm employs unconditional conservatism, it understates its net assets and defers earnings; it understates cumulative earnings, which defers taxes (increasing tax avoidance). Secondly, if a firm wishes to defer taxable income (increasing tax avoidance), while still aiming for book-tax conformity, then accounting income or net earnings also has to be deferred, by deferring revenue, while the recognition of expense is accelerated in the financial records.

Since there is no strong support in the literature for the direction of the relation between tax avoidance and conditional conservatism, I predict that there is no relation between tax avoidance and conditional conservatism. The results of the study should provide further information on the direction, if any.

The next chapter, Chapter 3, discusses the measures available in the literature to measure tax avoidance, and then Chapter 4 addresses the measures available to measure the two types of accounting conservatism, namely conditional and unconditional conservatism.

CHAPTER 3:
TAX AVOIDANCE MEASURES

3.1 INTRODUCTION

The aim of this study is to explore the relationship between tax avoidance and accounting conservatism. In this chapter, more detail is provided regarding the measures that can be used to measure tax avoidance in order to achieve this aim. The chapter starts by giving some background on the tax avoidance measures that are available. It then provides a detailed discussion of the different measures of tax avoidance. Reference is also made to prior studies that used these measures. The chapter ends with a summary of the most suitable measures for the purposes of this study and a brief conclusion.

3.2 BACKGROUND TO TAX AVOIDANCE MEASURES

Not all measures are appropriate to answer all research questions. Hence, it is important to understand the different measures, how to calculate each, and its benefits, but also its limitations or shortcomings, in order to select the most appropriate measures of tax avoidance for a particular study (Hanlon & Heitzman 2010:129,139). The tax avoidance measures discussed are analysed using the same layout as that used by Hanlon and Heitzman (2010:137-144) to review tax avoidance as part of their comprehensive overview of tax research. An overview of the different measures of tax avoidance is provided, including a short description of each measure, its calculation, and the benefits or shortcomings (limitations), with reference to previous studies that have used the measure concerned.

It is challenging to obtain access to tax return information, so most tax avoidance measures rely on information disclosed in firms' financial statements (Hanlon & Heitzman 2010:139). Hence, most of the measures currently used account only for non-conforming tax avoidance, which refers to avoidance activities that are accounted for differently for tax and for accounting purposes. This implies that most of the commonly used measures do not capture conforming tax avoidance (Badertscher et al. 2019:1), which refers to avoidance activities that result in a reduction of financial accounting income (Hanlon & Heitzman 2010:137). In analysing a firm's tax avoidance activities, several measures should be used for testing to enhance the validity and robustness of the results, because

no single measure perfectly captures the properties of tax avoidance activities (Chen et al. 2010:42; Rego & Wilson 2012:784). Below, I discuss the measures of tax avoidance activities used in the literature.

3.3 EFFECTIVE TAX RATE (ETR) MEASURES

The first five measures discussed are based on the ETR. The ETR is, in essence, the average of the tax rate that a firm pays on the net income before tax, calculated using a measure that represents the tax expense or liability as the numerator, and another measure that represents the net income before tax as the denominator. They capture the average rate of tax per monetary unit of income or cash flow (Hanlon & Heitzman 2010:139). The ETR that is calculated is then compared to the statutory tax rate. If the ETR is less than the statutory tax rate, the difference might signal tax avoidance (Gebhart 2017:45).

The five measures discussed below, namely the GAAP ETR (see Section 3.3.1.1), the CASH ETR (see Section 3.3.1.2), the long-run ETR (see Section 3.3.1.3) and the two Cash Flow ETR measures – the Cash Flow ETR Measure A (CFM A) (see Section 3.3.2.1) and the Cash Flow ETR Measure B (CFM B) (see Section 3.3.2.2) – can be classified as either annual or long-run measures, and as either non-cash flow or cash flow measures. Annual measures are calculated using annual data, whereas the long-run measure is calculated using data for longer periods, varying from three to ten years. The cash-flow measures differ from the non-cash flow measures in that a cash amount is used in both the numerator and the denominator to calculate the ETR. Table 3.1 summarises these different classifications.

Table 3.1: Classification of ETR measures

Measure	Annual (A) or long-run (L) measure	Non-cash flow (NCF)- or cash flow (CF)-based measure
GAAP ETR (see Section 3.3.1.1)	A	NCF
CASH ETR (see Section 3.3.1.2)	A	NCF
Long-run CASH ETR (see Section 3.3.1.3)	L	NCF
Cash Flow ETR Measure A (CFM A) (see Section 3.3.2.1)	A	CF
Cash Flow ETR Measure B (CFM B) (see Section 3.3.2.2)	A	CF

Source: Own compilation

Below, I discuss the calculation of and the benefits or shortcomings of the non-cash flow-based measures (the GAAP ETR, CASH ETR and long-run CASH ETR – see Section 3.3.1) and the cash flow-based measures (CFM A and CFM B – see Section 3.3.2).

3.3.1   Non-cash flow-based effective tax rate measures

As stated above, there are three non-cash flow-based ETR measures: the GAAP ETR (see Section 3.3.1.1), the CASH ETR (see Section 3.3.1.2) and the long-run CASH ETR (see Section 3.3.1.3). The CASH and GAAP ETR measures are widely used (Hasan et al. 2017:632), and many consider them to be the standard measures of tax avoidance. These two measures capture the effect of tax planning activities where tax avoidance leads to a reduction of the tax expense for accounting purposes (using the GAAP ETR), but also a reduction of the cash taxes paid (using the CASH ETR) (Dyreng et al. 2010:1164).

Dyreng et al. (2010:1164) stress the importance of using both these ETR measures to evaluate tax avoidance, as tax avoidance is made possible by reducing the total tax expense without any effect on the total cash taxes paid;[33] the converse is also true. A decision to increase the depreciation (wear and tear) allowance for taxation, relative to the accounting depreciation (which is included in the net income before tax), is an example of a tax planning activity that affects (reduces) only the CASH ETR, but not the GAAP ETR, because of the increase in deferred tax (Dyreng et al. 2010:1164; Hanlon & Heitzman 2010:139).

The benefits of these ETR measures are their simplicity and ease of use, and the fact that they cover a wide range of tax avoidance strategies. They cannot be used effectively to measure instances of tax sheltering, tax risk or evasion (Dyreng et al. 2010:1164; Hasan et al. 2017:632; Lisowsky et al. 2013:591). Even a small change in the definition of the ETR can have a considerable impact on the level of the ETR measure (Blouin 2014:885). These non-Cash Flow ETR measures use the pre-tax accounting (GAAP) income as the denominator, so they can capture only non-conforming tax avoidance activities (Agarwal et al. 2021:8; Badertscher et al. 2019:4) where tax avoidance activities are accounted for differently for tax and accounting purposes. Tax avoidance strategies that lower the

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[33] Hanlon and Heitzman (2010:139) use the example of a change in a firm's tax contingency reserve or valuation allowance, which affects the GAAP ETR, but not the CASH ETR.

accounting income *and* the taxable income are not captured by the non-Cash Flow ETR measures, which are conforming tax avoidance strategies (Hanlon & Heitzman 2010:139,141; Lisowsky et al. 2013:591). These measures can also not provide information regarding the uncertainty of a tax position, as they are based on quantitative, rather than on qualitative data (Lisowsky et al. 2013:591).

3.3.1.1 GAAP ETR

The first of the three non-cash flow-based ETR measures is the effective tax rate in terms of GAAP, referred to as the GAAP ETR. This measure has been used in studies by Chen et al. (2010:42), Dyreng et al. (2010:1164), Hassan et al. (2017:632) and Lisowsky et al. (2013:588). It was also used by Lennox, Lisowsky and Pittman (2013:739,752-753) to investigate the relation of aggressive tax reporting to the occurrence of suspected accounting fraud. Lennox et al. (2013) chose the measure because it includes the consequences of non-conforming transactions.

The measure is calculated by dividing the total income tax expense (which includes both the current and the deferred tax expenses[34]) by the net income before taxation (the pre-tax accounting income) after adjustment for any special items[35] (Dyreng et al. 2008:65, 2010:1164). Special items are excluded because of the size of the amounts involved, the volatility effect they have on the measure, and the fact that in many instances a special item is accrued in one year but paid only in a following year (Blouin 2014:880; Dyreng et al. 2008:66). The following formula is therefore used to calculate GAAP ETR:

$$\frac{Total\ income\ tax\ expense}{Net\ income\ before\ tax\ (after\ adjustments\ for\ special\ items)}$$

This measure identifies tax avoidance by means of permanent book-tax differences.[36] An example of this type of tax avoidance behaviour is investments in tax-exempt assets or in

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[34] Deferred taxes consist of taxes that are paid or that are refunded when temporary book-tax differences are reversed at a later stage (Dyreng et al. 2008:65).

[35] Examples of special items are "restructuring charges, severance pay, any significant nonrecurring item, goodwill impairments, inventory write-downs when in a separate line item or specifically called nonrecurring, litigation reserves, nonrecurring gains and losses on the sale of assets, securities, and investments, charges related to floods, fire, and other natural disasters. Write-downs of goodwill and other assets are GAAP-only items that have no effect on taxes" (Dyreng et al. 2008:66).

[36] Permanent book-tax differences arise from differences in the treatment of an item for tax and accounting purposes, which leads to permanent differences in taxable and accounting income that are never reversed (Graham et al. 2012:416). See Section 3.4 for more detail.

tax havens with tax rates lower than those of the resident country[37] (Chen et al. 2010:46). Firms that are more aggressive in their tax avoidance strategies tend to have lower GAAP ETRs than other firms. (Chen et al. 2010:42).

In addition to the limitations of the ETR measures already listed in Section 3.3.1, three more limitations need to be considered. Firstly, this measure is based on annual data, which can lead to variations in the ETRs from one year to the next. The measure is undefined in years when the firm has a net loss before taxation (which leads to a negative denominator). Secondly, the income tax expense for accounting purposes includes both the current and the deferred tax expenses. This implies that this measure does not reflect tax avoidance involving a strategy where income is deferred or deductions are accelerated for tax purposes, with the effect that deferred tax increases and that current taxes are reduced (Dyreng et al. 2008:65). A third limitation is that the total income tax expense, as well as the net income before tax, is accounted for on the accrual basis. This implies that this measure does not contain information regarding the current year's taxes as reported on the tax return. In essence, it actually measures taxes that relate to the net income before tax reported for accounting purposes for the current year (Blouin 2014:880).

3.3.1.2 CASH ETR

The second of the three non-Cash Flow ETR measures is referred to as the CASH ETR. This measure was developed in a study by Dyreng et al. (2008: 65-67). It captures the effect of a reduction of the actual cash paid by a firm as income tax (Dyreng et al. 2010:1164). This measure has been used in studies by Chen et al. (2010:42), Dyreng et al. (2010:1164), Hasan et al. (2017:663), Hoi et al. (2013:2027), Lennox et al. (2013:739,752-753), Lisowsky et al. (2013:588) and Yost and Shu (2022:7). Rego and Wilson (2012:778) have also used the CASH ETR measure to investigate the relation between aggressive tax reporting and the occurrence of suspected accounting fraud. They selected it as a proxy for tax avoidance because it captures the effects of non-conforming transactions.

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[37] This results in a permanent book-tax difference only if the income from the foreign source is classified as permanently reinvested (Chen et al. 2010:46).

The CASH ETR is calculated by dividing the cash income taxes paid by the net income before taxation (pre-tax accounting income), after adjustment for any special items[38] (Dyreng et al. 2010:1164; Hasan et al. 2017:663). The following formula is used to calculate the CASH ETR:

$$\frac{Total\ cash\ taxes\ paid}{Net\ income\ before\ tax\ (after\ adjustments\ for\ special\ items)}$$

Firms that are more aggressive in their tax avoidance strategies tend to have lower CASH ETRs than other firms (Chen et al. 2010:42). This measure identifies tax avoidance by looking at both permanent and temporary book-tax differences (Chen et al. 2010:48; Rego & Wilson 2012:784). Temporary book-tax differences are reversed in future; they relate to differences in the tax and the book base of an asset or liability (Graham et al. 2012:415). Permanent differences arise, based on differences in the treatment of an item for tax and for accounting purposes. That then leads to permanent differences in taxable and accounting income which are never reversed and which result in differences between the effective tax rate and the statutory tax rate (Graham et al. 2012:416).[39] The non-cash flow-based ETR measures that identify tax avoidance by means of temporary and/or permanent book-tax differences account only for non-conforming tax avoidance (Badertscher et al. 2019:4).

In addition to the general limitations of the ETR measures already listed above, three more limitations need to considered. Firstly, this measure is based on annual data. Cash taxes paid over a short period are not a perfect measure of tax avoidance activities, because they are a combination of current tax payments and of payments (or refunds) for tax disputes accrued previously but only settled in the current year, which can distort the measure. For this reason, an annual CASH ETR measure should not be used to make inferences regarding a firm's long-term tax avoidance behaviour (Blouin 2014:880; Dyreng et al. 2008:67,79). Secondly, because the net income before tax (a GAAP measure) is used as the denominator in the formula, the measure is affected by actions to manage accounting accruals that have no effect for tax purposes, although the numerator is based on a cash measure (Blouin 2014:880; Dyreng et al. 2008:66). Thirdly, there is an extreme

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[38] See the discussion of the GAAP ETR in Section 3.3.1.1 for a detailed description of special items, and the reasons for excluding these items from net income.

[39] See Section 3.4 for more details on book-tax differences.

effect on this measure when large numbers of stock options are exercised: this results in a very low CASH ETR (Blouin 2014:880).

3.3.1.3 Long-run CASH ETR

The third of the three non-Cash Flow ETR measures is the long-run CASH ETR measure. The long-run CASH ETR measure, which is still an ETR measure, was developed in a study by Dyreng et al. (2008:65-67). It results in an ETR that tracks a firm's tax avoidance behaviour better over the long run. This measure has been used in studies by Davis et al. (2016:48) and Rego and Wilson (2012:784). It focuses on a wider spectrum of tax avoidance (especially legal tax avoidance) than, for example, measures that relate to tax shelter firms, as discussed in Section 3.6 (Davis et al. 2016:49).

The long-run CASH ETR is calculated by dividing the sum of cash income taxes paid over *n* years by the sum of net income before taxation (the pre-tax accounting income) after adjustment for any special items over *n* years. Dyreng et al. (2008:66) used a ten-year period, whereas Davis et al. (2016:48), Drake et al. (2020:12) and Rego and Wilson (2012:784) used a five-year period, and Drake et al. (2020:15) used a three-year period. The following formula is used to calculate the long-run CASH ETR:

$$\frac{\sum_{t=1}^{N}(Total\ cash\ taxes\ paid)}{\sum_{t=1}^{N}(Net\ income\ before\ tax\ (after\ adjustments\ for\ special\ items))}$$

This measure identifies tax avoidance by using both permanent and temporary book-tax differences (Chen et al. 2010:48; Rego & Wilson 2012:784). Firms which are more aggressive in their tax avoidance strategies tend to have lower long-run CASH ETRs than other firms (Chen et al. 2010:42).

The measure addresses many of the limitations that arise from using the CASH ETR as a measure of tax avoidance. The most important advantage of this measure is that using cash taxes paid and net income before tax over a longer period excludes year-to-year fluctuations, which could create volatility in the measure. It also eliminates most of the mismatching arising from using a monetary (cash taxes paid) numerator and a GAAP denominator (earnings), because the income and taxes that relate to each other should be included in the same ratio. Timing differences are therefore eliminated, or at least limited. Moreover, the measure is then less affected by accruals management, since the long-run CASH ETR measure should capture both the accrual and its reversal (Dyreng et

al. 2008:66-67; Hanlon & Heitzman 2010:141). The use of this measure is thus beneficial, because it assists in mitigating the effects of changes in the ETR relating to profitability, isolated events or instances, and variations in accounting (Davis et al. 2016:65). However, the other limitations listed for ETRs (see Section 3.2.1) and the CASH ETR (see Section 3.2.1.1) still hold – the long-run CASH ETR also accounts only for non-conforming tax avoidance behaviour (Badertscher et al. 2019:4; Hanlon & Heitzman 2010:141).

3.3.2 Cash flow-based effective tax rate measures

The two cash flow-based ETR measures have been less frequently used in prior studies. They differ from the GAAP ETR, CASH ETR and long-run CASH ETR measures discussed above in that the denominator is represented by operating cash flow, rather than by net income before tax (Gebhart 2017:46).

3.3.2.1 Cash Flow ETR Measure A (CFM A)

The first of the two Cash Flow ETR measures is the Cash Flow ETR Measure A (CFM A). Zimmerman (1983:122) was one of the first to use this measure as a measure of tax avoidance. Its results are not consistent with the more commonly used non-Cash Flow ETR measures, and it excludes the influence of "accrual accounting" by including operating cash flows, rather than net income (earnings) in the calculation. The CFM A was also used in later studies by Gebhart (2017:51), Lanis and Richardson (2012:92) and Salihu, Obid and Annuar (2013:419-420). Lennox et al. (2013:739,752-753) used the CFM A as a measure to investigate the relation of aggressive tax reporting to the occurrence of suspected accounting fraud; they selected CFM A as a proxy for tax avoidance because it captures the effects of non-conforming transactions.

CFM A is calculated by dividing the total income tax expense by the operating cash flow (Zimmerman 1983:122-123). The following formula is used to calculate CFM A:

$$\frac{Total\ income\ tax\ expense}{Operating\ cash\ flow}$$

Firms with more aggressive tax avoidance strategies tend to have lower CFM A ETRs than other firms (Gebhart 2017:45). As with the other annual measures, there could be large variations in the ETR from one year to another. As with the GAAP ETR, given that the income tax expense for accounting purposes includes the current and the deferred tax

expenses, this measure does not reflect tax avoidance involving a strategy where income is deferred or deductions are accelerated for tax purposes, with the effect that deferred tax increases and that current taxes are reduced (Dyreng et al. 2008:65). Although this measure does not use a denominator that is accounted for on the accrual basis, the nominator (total income tax expense) is still accounted for on the accrual basis. This measure therefore reflects only non-conforming tax avoidance (Salihu et al. 2013:418). This implies that CFM A, like the GAAP ETR, does not reflect information regarding the current year's taxes reported on the tax return, but it does measure taxes that relate to the net income before tax reported for accounting purposes for the current year (Blouin 2014:880).

3.3.2.2 *Cash Flow ETR Measure B (CFM B)*

The second of the two Cash Flow ETR measures is referred to as the Cash Flow ETR Measure B (CFM B). In their review of tax research, Hanlon and Heitzman (2010:144) propose this measure as an ETR measure that could possibly capture both conforming and non-conforming tax avoidance behaviour. This measure has been empirically tested by Salihu et al. (2013:419-420,423), who concluded that it resulted in a lower mean than the GAAP ETR, CASH ETR and CFM A measures, which suggests that it reflects the true nature of tax avoidance, including both conforming and non-conforming tax avoidance. In an analysis of how closely related the different measures are in measuring tax avoidance, Gebhart (2017:51) confirms the inclusion of both conforming and non-conforming elements in the CFM B when empirically testing and comparing all the tax avoidance measures. The CFM B has recently been used in additional testing by Badertscher et al. (2019:23) to confirm their results when they tested the relation of conforming tax avoidance and capital market pressure. They mention that CFM B includes conforming tax avoidance, which is a more aggressive type of tax avoidance.

CFM B is calculated by dividing the total cash taxes paid by the operating cash flow (Salihu et al. 2013:420). The following formula is used to calculate CFM B:

$$\frac{Total\ cash\ taxes\ paid}{Operating\ cash\ flow}$$

Firms that are more aggressive in their tax avoidance strategies tend to have lower CFM B ETRs than other firms (Gebhart 2017:45).

CFM B is the only ETR measure that is not affected by accrual accounting, neither in the nominator, nor in the denominator (Salihu et al. 2013:418). However, this measure is based on annual data, and, as already mentioned, cash taxes paid over a short period are not a perfect measure of tax avoidance activities, because they are a combination of current and previous tax payments (or refunds) settled in the current year, which can distort the measure. This makes the measure unreliable in making inferences regarding a firm's long-term tax avoidance behaviour (Blouin 2014:880; Dyreng et al. 2008:67,79).

In addition to the various ETR measures, it is important also to examine non-ETR measures, because, as Blouin (2014:894) points out, "relying on a simple ETR measure may result in incorrectly inferring the presence of tax aggressiveness".

3.4 BOOK-TAX DIFFERENCES

Book-tax differences provide some information regarding tax avoidance activities, since this measure is closely related to the ETR measures discussed above (Hanlon & Heitzman 2010:141). Book-tax differences refer to the difference between financial income and taxable income, whereas ETR measures indicate the portion of income used for taxes (either as taxes paid or as a tax expense). Lennox et al. (2013:753) explain that the difference between the two categories of measures is that book-tax differences capture the *income* effects of tax avoidance strategies, whereas ETRs capture the *tax* effects of such strategies.

The rules that apply to financial accounting and taxation vary, so income is measured differently for tax and accounting purposes, resulting in different values for taxable income and book income. These different rules also result in different valuations for assets, liabilities and equity (Graham et al. 2012:415). Book-tax differences have been used as a measure for tax avoidance activities in studies by Chen et al. (2010:42), and Lisowsky et al. (2013:588). Lennox et al. (2013:739,752-753) used them when they investigated the relation between aggressive tax reporting and the occurrence of suspected accounting fraud. They specifically chose book-tax differences as a proxy for tax avoidance, because it captures the effects of non-conforming transactions.

3.4.1 Book-tax differences measure

This measure is calculated as the total difference between net income before taxation and taxable income. The following formula is used to calculate book-tax differences (*BTD*s):

$$Net\ income\ before\ tax$$

$$LESS$$

$$\left\{ \frac{Current\ tax\ expense^{40}\ (CTE)(local\ and\ foreign)}{Statutory\ tax\ rate\ (STR)} - (NOL\ current\ year - NOL\ previous\ year) \right\}$$

In this equation, *NOL* represents the net operating loss, taking into account the change in the net operating loss from the previous to the current year. Including the change in the net operating loss in the measure ensures that all changes in taxable income are captured in the measure, even if a firm is in a loss position, and there is no taxable income to report. Caution should be exercised in calculating this measure, because calculating the taxable income by using the taxes payable and the statutory tax rate and working backwards can result in measurement errors.

Firms that are more aggressive in their tax avoidance strategies tend to have higher book-tax differences than other firms (Chen et al. 2010:42). This measure also reflects tax avoidance activities that are not aggressive, for example, differences between the tax and accounting depreciation methods that firms use (Lisowsky et al. 2013:591).

This measure cannot be used effectively to measure instances of tax sheltering, although a study by Wilson (2009:969) has used it successfully as an indication of tax sheltering (since book-tax differences are larger for firms accused of using tax shelters). Nor can it be used to compare tax avoidance behaviour across firms if these firms attach different levels of importance to their financial accounting earnings (Hanlon & Heitzman 2010:141; Lisowsky et al. 2013:591). Tax avoidance strategies that lower both the accounting income and the taxable income are not captured by the book-tax differences measure, since such strategies constitute conforming tax avoidance behaviour. This measure can also provide no information regarding the uncertainty of a particular tax position, since it is based on quantitative data, not qualitative data (Lisowsky et al. 2013:591). Book-tax differences can be the result of tax avoidance activities or of earnings management (Chen

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[40] Current tax expense will exclude deferred tax.

et al. 2010:48). Increased book-tax conformity is therefore seen by many as an answer to curbing both tax avoidance behaviour and aggressive financial reporting (earnings management). However, an increase in book-tax conformity leads to changes in financial reporting behaviour, which in turn result in a loss of information in earnings, which is "an unintended consequence" (Hanlon et al. 2008:294,309).

As mentioned before, there are two categories of book-tax differences: temporary (see below) and permanent book-tax differences (see Section 3.4.2.2). Temporary book-tax differences are reversed in future. They refer to differences in the tax and the book base of an asset or liability (Graham et al. 2012:415). Permanent differences arise from differences in the treatment of an item for tax and accounting purposes. For example, interest exempt from tax but included in income for accounting purposes leads to permanent differences in the taxable and accounting income that are never reversed. Permanent differences do not, unlike temporary differences, create deferred tax assets or liabilities, but result in differences between the effective tax rate and the statutory tax rate (Graham et al. 2012:416). Below, I show the calculation of temporary book-tax differences as a measure (permanent book-tax differences are discussed in Section 3.4.2.2).

Temporary book-tax differences are calculated as the total of the deferred tax expenses divided by the statutory tax rate. The following formula, in line with Hanlon and Heitzman (2010:140), is used to calculate a temporary book-tax difference (*TEMPBTD*):

$$\frac{Deferred\ tax\ expenses}{Statutory\ tax\ rate}$$

3.4.2 Discretionary/ abnormal measures

Discretionary or abnormal measures share a discretionary component intended to remove any determinants from the measure that do not relate to tax avoidance activities, in order to enhance the ability of the measure used in order to measure tax avoidance activities. Three of these discretionary or abnormal measures, frequently used in the literature (Chen et al. 2010:42; Hasan et al. 2017:632; Hoi et al. 2013:2026,2027; Lennox et al. 2013: 739,752-754; Rego & Wilson 2012:784), are discussed briefly: the abnormal total book-tax difference (*BTD*) measure, the permanent book-tax differences (*PERMDIFF*) measure and the discretionary permanent book-tax differences (*DTAX*) measure.

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3.4.2.1 Abnormal total book-tax differences

The abnormal total book-tax difference measure was developed by Desai and Dharmapala (2009:537). It is calculated by regressing the book-tax difference while controlling for accruals and other measures of earnings management. The residual is then used as a measure of tax avoidance. This measure of tax avoidance thus controls for the effect of earnings management to ensure a cleaner measure of tax avoidance activities (Chen et al. 2010:42; Hanlon & Heitzman 2010:141-142). The measure has been used in studies by Chen et al. (2010:42) and Hoi et al. (2013:2026).

3.4.2.2 Permanent book-tax differences (PERMDIFF)

It has been argued that a tax avoidance activity that results in a permanent difference reflects more aggressive tax avoidance than one that results in a temporary difference, but there is little empirical evidence to support this claim (Hanlon & Heitzman 2010:143). The permanent book-tax differences (*PERMDIFF*) measure takes the book-tax differences measure (see Section 3.4) and isolates the permanent portion of total book-tax differences, using this portion to measure tax avoidance. Isolating permanent book-tax differences ensures that the focus is on instances that reduce the ETR, but that increase financial earnings and earnings per share as a measure for tax aggressiveness (Lennox et al. 2013:753).

The permanent book-tax differences measure is calculated as the difference between the statutory tax rate and the GAAP effective tax rate (GAAP ETR), multiplied by the net income before tax. GAAP ETR is calculated to encapsulate both current and deferred tax positions, whilst permanent book-tax differences do not include any tax avoidance that relates to deferred tax positions (Lennox et al. 2013:754). Lennox et al. (2013:739,752-753) used this measure to investigate the relation between aggressive tax reporting and the occurrence of suspected accounting fraud and was selected by them as proxy for tax avoidance because it captures the effects of non-conforming transactions. The following formula is used to calculate the *PERMDIFF* measure:

$$(Statutory\ tax\ rate - GAAP\ effective\ tax\ rate\ (ETR)) \times Net\ income\ before\ tax$$

This measure captures tax avoidance activities that change or reduce the GAAP ETR and in turn increase earnings, but does not capture tax avoidance that creates temporary

differences. This measure also does not capture conforming tax avoidance (Hanlon & Heitzman 2010:141-142; Lisowsky et al. 2013:591). It is not an effective measure for instances of tax sheltering and cannot provide information regarding the uncertainty of a tax position, as it is based on quantitative, not qualitative, data (Lisowsky et al. 2013:591).

3.4.2.3 Discretionary permanent book-tax differences (DTAX)

The discretionary permanent book-tax difference measure (DTAX) was developed by Frank et al. (2009:472). It is calculated by estimating the discretionary portion of the permanent difference measure (PERMDIFF). It has been used by Hasan et al. (2017:632), Hoi et al. (2013:2027), and Lennox et al. (2013:739,752-753). Moreover, Rego and Wilson (2012:784) used DTAX to investigate the relation between aggressive tax reporting and the occurrence of suspected accounting fraud. They selected it as a proxy for tax avoidance because it reflects the implications of non-conforming transactions. It is highly likely that this measure captures deliberate tax avoidance activities (Hasan et al. 2017:638). The following formula is used to calculate the DTAX measure (Frank et al. 2009:472-473; Hoi et al. 2013:2055):

$$PERMDIFF_{it} = \beta_0 + \beta_1 INTANG_{it} + \beta_2 UNCON_{it} + \beta_3 MI_{it} + \beta_4 CSTE_{it} +$$

$$\beta_5 \Delta NOL_{it} + \beta_6 LAGPERM_{it} + \varepsilon_{it}$$

Where the variables, all scaled by beginning-of-year total assets, are defined as follows:

$PERMDIFF_{it}$	= total book-tax differences less temporary book-tax differences for firm i in year t = $\{BI_{it} – [(CFTE_{it} + CFOR_{it})/STR_{it}]\} – (DTE_{it}/STR_{it})$;
BI_{it}	= the pre-tax book income for firm i in year t;
$CFTE_{it}$	= the current federal tax expense for firm i in year t;
$CFOR_{it}$	= the current foreign tax expense for firm i in year t;
DTE_{it}	= the deferred tax expense for firm i in year t;
$INTANG_{it}$	= goodwill and other intangibles for firm i in year t;
$UNCON_{it}$	= income (loss) reported under the equity method for firm i in year t;
MI_{it}	= income (loss) attributable to minority interest for firm i in year t;
$CSTE_{it}$	= current state income tax expense for firm i in year t;
ΔNOL_{it}	= change in net operating loss carryforwards for firm i in year t;
$LAGPERM_{it}$	= change in net operating loss carryforwards for firm i in year t; and
ε_{it}	= DTAX for firm i in year t.

DTAX is the residuals (ε) from the regression above, estimated by two-digit SIC code and fiscal year. The higher DTAX, the higher the level of tax avoidance (Hasan et al. 2017:638).

3.5 UNRECOGNISED TAX BENEFITS

The unrecognised tax benefits (UTB) measure is not based on a formula, but on a contingent (tax) liability: the unrecognised tax benefit (or position) (UTB)[41] accrued in the financial accounts under United States Generally Accepted Accounting Principles (US GAAP) for taxes not yet paid on uncertain tax positions. Any UTBs are disclosed in a footnote in financial statements (Hanlon & Heitzman 2010:140,143; Lisowsky et al. 2013:594).

This proxy is measured based on the levels and/ or changes in the UTB,[42] where higher UTBs indicate higher levels of tax avoidance behaviour, since higher UTBs represent more uncertain tax positions held by a firm (Hanlon & Heitzman 2010:140,143). This measure has previously been used in studies by Lisowsky et al. (2013:583) and Rego and Wilson (2012:784). The study by Lisowsky et al. (2013:584) specifically investigated and confirmed that UTBs (FIN 48 reserves) could be used as a measure of tax shelter activity and therefore as a measure of the extent or aggressiveness of any tax avoidance activity.

Variances in UTBs can be explained by two constructs. The first is taxes, which is why researchers use this measure for tax avoidance activities. The second is financial accounting incentives, and thus possibly earnings management (Hanlon & Heitzman 2010:143). Since the UTB is an accrual, affecting earnings calculated based on the judgment (and thus the level of accounting conservatism) of managers and their perception of the likelihood that additional tax assessments will be issued for the firm

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[41] UTBs are disclosed by firms in terms of the Financial Accounting Standards Board (FASB) Interpretation No. 48, Accounting for Uncertainty in Income Taxes (FIN 48) issued in 2006. The aim of FIN 48 is to improve and standardise financial statement information available for UTBs (tax contingencies) (Hanlon & Heitzman 2010:143; Lisowsky et al. 2013:589).

[42] Also referred to as the accounting reserve for future tax contingencies, which is an accounting accrual for possible future assessments that can be received for taxation based on tax avoidance activities (open tax positions) that are disallowed. A firm in the United States files a return with the Internal Revenue Service (IRS) indicating how the firm has calculated its tax liability. This is a self-assessment and is known as a tax position. If there is a reduction in the tax liability because of the tax position, it is a tax benefit (for example, a tax-deductible amount). If a firm is of the opinion that it is very likely that the IRS will not allow a position after the IRS has audited the position, the firm takes an uncertain tax position or UTB (Hanlon & Heitzman 2010:143; Lisowsky et al. 2013:589).

(Blouin 2014:881). Given that these conflicting constructs both have an effect on the UTB measure, this measure cannot be seen as a pure measure of tax avoidance or as one that captures the whole scope of tax avoidance activities. These caveats must be considered carefully at the research design stage of a study, when the optimal measures are chosen. However, the UTB measure, when it is used in conjunction with other measures of tax avoidance, may still offer significant insights (Hanlon & Heitzman 2010:143; Rego & Wilson 2012:784). Another consideration is that, because FIN 48, which regulates the disclosure of UTBs under US GAAP, was only issued in 2006, this measure can only be calculated for a limited number of years (Balakrishnan et al. 2019:48).

3.6 TAX SHELTERING ACTIVITY (REPORTABLE TRANSACTION (RT) MEASURE)

Tax sheltering is classified as the most aggressive and high-risk type of tax avoidance, since there is no economic reason to engage in this behaviour other than to avoid paying taxes. This practice has significant implications for the United States federal government, because it leads to a revenue loss of billions of dollars (Chi et al. 2017:839-840; Hanlon & Heitzman 2010:137; Lisowsky 2010:1694). In 2000, the United States' IRS established a dedicated office, the Office of Tax Shelter Analysis (OTSA), to assist in detecting and tracking the rapidly growing number of tax shelters (Chi et al. 2017:840).

According to Lisowsky (2010:1698), tax sheltering can be achieved in three different ways: by deferring income (when the taxable income is understated), by overstating or accelerating expenditure (when the taxable income is decreased), and by shifting or artificially overstating assets to other parties in a better tax position through the sale of these assets (the taxable gains are decreased or the tax base is shifted to a jurisdiction with lower tax rates or a taxpayer in a better tax position).

In his study, Wilson (2009:979-986) developed a tax shelter prediction score which was subsequently successfully used in studies by Hoi et al. (2013:2026) and Rego and Wilson (2012:784). He developed this score using actual incidents of tax sheltering and then establishing various empirical models. These models or predictions (prediction score) allows researchers to estimate the probability of tax sheltering activities by using publicly available financial information (Hoi et al. 2013:2031). Wilson found evidence that tax sheltering was positively associated with profitability, foreign income, size, book-tax differences and accruals based on performance (Wilson 2009:993).

In Lisowsky's (2010:1696) study on the United States, she built on the prediction score developed by Wilson in 2009 to construct a tax sheltering score, also called a reportable transaction (RT) measure or "shelter score" (Lisowsky et al. 2013:591; see also Chi et al. 2017:871). The score is based on a confidential dataset obtained from the Office of Tax Shelter Analysis and on confidential tax return data obtained from the IRS to predict the likelihood that a firm is engaging in tax shelter activity. Lisowsky (2010) used logistic regressions to regress her variable for involvement in tax sheltering activities, "TaxShelter",[43] against a set of firm-level characteristics,[44] and year and industry fixed effects likely to affect tax sheltering activities, to compute a tax shelter score to predict the probability of a firm engaging in tax sheltering activities (Lisowsky 2010:1708-1711). She found that some firm-level characteristics, particularly subsidiaries situated in a tax haven, income from foreign sources, litigation losses, profitability, firm size, inconsistencies in accounting and taxation treatment (book-tax differences), and involvement with parties that promote tax sheltering transactions (for example, marketers, suppliers and financiers of these sheltering transactions), were positively related to the use of tax sheltering, and might be an indication of tax sheltering activities by a firm, whereas leverage was negatively related to the use of tax sheltering (Lisowsky 2010:1695). Since actual tax shelter information, particularly information disclosed in confidential tax returns (Lisowsky 2010:1696), is not available to the public, several researchers have adopted this measure in their research (Chi et al. 2017:871; Lisowsky et al. 2013:587).

3.7   TAX FRAUD CONTROVERSIES SCORE

The tax fraud controversies score (*TAX_FRAUD_SCORE*) is a firm-year level score (field *SOCODP060*) in the *Datastream* database. It refers to the number of controversies for a firm published in a specific year in the media, linked to tax fraud, parallel imports or money

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[43] TaxShelter provides an indication of a firm's involvement in tax sheltering activities. If a firm is involved in a listed transaction (19 specifically identified tax sheltering transactions are illegal) or in non-listed transactions (other reportable transactions), these transactions are recorded by the Office of Tax Shelter Analysis (Lisowsky 2010:1704).

[44] These firm-level characteristics were identified from constructs used in Wilson's (2009) study and factors identified in a 1999 White Paper of the United States Department of Treasury, *The problem of corporate tax shelters: Discussions, analysis and legislative proposals* (Lisowsky 2010:1696). She included the following firm-level characteristics in her analysis: firm size, use of a Big 5 auditor, involvement in litigation or settlements from insurance firms, research and development expenditure, mezzanine financing, a net operating loss carry-forward, return on assets (performance), effective tax rates reported in the previous year, the existence of equity-based incentives, book-tax differences, leverage, performance-based abnormal accruals, foreign income and subsidiaries located in a tax haven (Lisowsky 2010:1704).

laundering. Since the score is directly linked to tax fraud, albeit through media coverage of such controversies, I decided to introduce this score and test it in this study as a possible measure for tax avoidance.

If the tax fraud score can be used as a measure for tax avoidance, it may have several benefits. It is easily available, is not affected by accrual accounting, and reflects both non-conforming and conforming tax avoidance. In addition, it should cover a wide spectrum of the tax avoidance continuum, since media coverage usually implies a newsworthy or sensational event. The tax fraud controversies score does also have some limitations. Limited data are available for the score: data are only available from 2003, and data are only available for a limited number of firms. In addition, the score includes references to parallel imports and/or money laundering, which raises the question of whether the tax fraud controversies score (*TAX_FRAUD_SCORE*) is a pure measure of tax avoidance, as it refers to the number of controversies published in the media linked to possible tax fraud. However, given that both parallel imports and money laundering indicate the willingness of a firm to engage in illegal activities, the score should still be a viable option to measure tax avoidance, and should be investigated further. Lastly, since media coverage of possible tax avoidance usually only occurs after the tax assessment process has been completed and possibly further legal action has been implemented, the score might reflect lagged information on tax avoidance.

3.8 SUMMARY OF THE SUITABILITY OF THE TAX AVOIDANCE MEASURES CHOSEN

As mentioned in Section 2.2.1, tax avoidance refers to tax planning activities which could range, or could be placed on a continuum (see Figure 2.1) from a legal strategy to reduce tax to aggressive behaviour (referred to as tax aggressiveness or tax sheltering, which does not necessarily imply illegal activities) or even tax evasion behaviour (Dyreng et al. 2008:62; Hanlon & Heitzman 2010:137; Lisowsky et al. 2013:590-591; Rego & Wilson 2012:778). To summarise the measures discussed in this chapter, see Figure 3.1, which is an extension of Figure 2.1 (the tax avoidance continuum). Figure 3.1 illustrates the tax avoidance continuum, including the measures of tax avoidance, adapted from the study by Lisowsky et al. (2013:591), who investigated whether UTBs ("public disclosed tax reserves") under FIN 48 could be used as a determinant of tax sheltering activities.

TAX AVOIDANCE MEASURE SUITABILITY INSTRUMENT

TAX AVOIDANCE CONTINUUM

TAX **AVOIDANCE**

Legal activities (e.g. deferral of tax)

Illegal activities (e.g. tax evasion)

Wide scope of tax avoidance

| GAAP ETR | CASH ETR | LR CASH ETR | CFM A | CFM B |

Tax aggressiveness

Measures:	
GAAP ETR	GAAP effective tax rate
CASH ETR	CASH effective tax rate
LR CASH ETR	Long-run CASH effective tax rate
CFM A	Cash flow-based effective tax rate measure A
CFM B	Cash flow-based effective tax rate measure B
BTD	Total book-tax differences
PermBTD	Permanent book-tax differences
DTAX	Discretionary permanent book-tax differences
UTBs	Unrecognised tax benefits
RT	Reportable transactions

BTD **PermBTD** **DTAX**

Tax sheltering

RT

Low ← **Level of uncertainty regarding the ability to sustain tax benefits claimed** → High

UTBs

Figure 3.1: Tax avoidance measure suitability instrument

Source: Adapted and extended from the tax avoidance continuum by Lisowsky et al. (2013:591)

In Figure 3.1, the various measures of tax avoidance (identified from the literature[45]) are placed on a continuum. These measures provide information on the extent of tax avoidance, as well as the type of tax benefit generated by tax avoidance activities, but they fail to divulge clarity on the legality (aggressiveness) of the activities, which is what Figure 3.1 sets out to do. The continuum in the figure is structured to indicate the level of aggressiveness of various tax positions from the least aggressive, on the left (quite legal) to the most aggressive (tax sheltering transactions) on the right (Lisowsky et al. 2013:583,590).

The figure acts as a tax avoidance suitability instrument that summarises the levels of tax avoidance (from legal or least aggressive to illegal or most aggressive) and indicates which measure of tax avoidance is best suited to evaluate each of these levels of tax avoidance. Tax avoidance is defined very broadly, and covers the full continuum of tax positions. It is therefore necessary to use a measure that covers, or measures that cover, a wide range of tax avoidance behaviours (Dyreng et al. 2010:1164). The best suited measures for this purpose are the GAAP ETR and the CASH ETR (see Sections 3.3.1.1 to 3.3.1.2, and Lisowsky et al. 2013:591), CFM A and CFM B (see Section 3.3.2). Lisowsky et al. (2013:590) placed the CASH ETR to the right of the GAAP ETR on the continuum; they regard it as a purer measure of tax avoidance, because it is not based only on accounting information. If this same approach is followed, long-run CASH ETR (LR CASH ETR) is placed to the right of CASH ETR, because the long-run version of the CASH ETR measure assists in mitigating the effects of changes in the ETR relating to profitability, isolated events or instances, and variations in accounting, including the implications of accrual accounting (Davis et al. 2016:65). Based on the same approach, CFM A is placed to the right of the LR CASH ETR, and CFM B, which is the only ETR measure not affected by accrual accounting (Salihu et al. 2013:418), is placed to the right of CFM A.

The next tax position, set further to the right on the continuum, is tax aggressiveness. This subsection of tax avoidance covers an area more to the aggressive side (right-hand side) of the continuum. It is essential that the tax avoidance measures chosen as suitable to analyse tax aggressiveness are able to identify more aggressive tax avoidance than the

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[45] Since the tax fraud controversy score (see Section 3.6) is a possible new measure not identified from the literature and conclusive evidence on its suitability to measure tax avoidance was not found in my study, it is not included as part of the tax avoidance measure suitability instrument in Figure 3.1.

effective tax rate measures do. The measures based on book-tax differences, namely total BTDs (see Section 3.4), permanent BTDs (*PERMDIFF*) and discretionary permanent BTDs (*DTAX*) (see Sections 3.4.2.2.to 3.4.2.3), are best suited to measure such tax aggressive behaviour (Lisowsky et al. 2013:591).

The final and most aggressive tax position, on the far right-hand side of the continuum, is tax sheltering (Lisowsky et al. 2013:591; see also Chi et al. 2017:844). This is measured using reportable transactions (RT) (Lisowsky 2010:1698) (see Section 3.6).

In addition, UTBs ("public disclosed tax reserves") under FIN 48 (see Section 3.5), which are only applicable to firms using US GAAP, are also indicated in Figure 3.1. This proxy is measured by considering the levels of and/or changes in the UTB, with higher UTBs indicating higher levels of tax avoidance behaviour, since higher UTBs represent more uncertain tax positions held by a firm (Hanlon & Heitzman 2010:140,143). It is not a pure measure, as indicated in Section 3.5, and should preferably be used in conjunction with other measures (Hanlon & Heitzman 2010:143).

According to Blouin (2014:879), the three measures most commonly used in the literature are the CASH ETR, the GAAP ETR and the UTBs under FIN 48 measure. That said, the summary in Figure 3.1 of the various tax avoidance measures discussed in Sections 3.3 to 3.6, their ability to measure specific types of tax avoidance behaviour, and their measurement capabilities relative to each other, emphasises that not every measure discussed is applicable and relevant to the research question that a particular study addresses. Hence, every measure should be evaluated, and its appropriateness, benefits and limitations should be reviewed, before the final selection of measures is made for use in the analyses in a study (Hanlon & Heitzman 2010:129,144).

The aim of the current study, namely to test the relation between tax avoidance and unconditional (Hypothesis 1) and conditional conservatism (Hypothesis 2), respectively, therefore had to be considered in selecting any measure(s) of tax avoidance.

Qiang (2007:765), and Ruch and Taylor (2015:21) have indicated that the application of unconditional conservatism results in the deferral of taxes, which is a less aggressive form of tax avoidance. This type of tax avoidance should fall on the less aggressive (left) side of the tax avoidance continuum (see Figures 2.1 and 3.1). Since the relation of tax avoidance to conditional conservatism is not yet clear from the literature and tax

avoidance is widely defined as covering the full continuum of tax positions, it was necessary to use a measure or measures covering a wide spectrum of tax avoidance behaviour (Dyreng et al. 2010:1164). The ETR measures fall into this spectrum (see Figure 3.1).

Accounting conservatism (including conditional and unconditional conservatism) has been one of the most significant characteristics of valuation and measurement in financial reporting for a long time (Sterling 1970:256), resulting in understatement of the net assets, but also deferral of earnings and understatement of cumulative earnings (Iyengar & Zampelli 2010:122; Watts 2003a:218; Zhong & Li 2017:195,199). The two non-cash based ETR measures (the GAAP ETR and CASH ETR) are both affected by accrual accounting (Blouin 2014:880) when presented as annual measures. Hence, they were not deemed suitable measures of tax avoidance for the purposes of this study, given the impact of accounting conservatism on the valuation and measurement of the amounts recorded in the financial records, combined with the importance of a manager's discretion in implementing accounting principles. However, long-run versions of the CASH ETR were deemed suitable and were included (see the reasons for this below) as measures of tax avoidance. To a lesser extent, CFM A is also affected by accrual accounting (Salihu et al. 2013:418) and was also not deemed a suitable measure. Moreover, all the non-cash flow-based ETR measures, as well as the CFM A measure, account only for non-conforming tax avoidance (Hanlon & Heitzman 2010:139,141; Lisowsky et al. 2013:591; Salihu et al. 2013:418), making them less useful.

By contrast, CFM B addresses both these concerns, because it accounts for both conforming and non-conforming tax avoidance, and it is not affected by accrual accounting in either the nominator (total cash taxes paid) or the denominator (cash flow from operations) (Salihu et al. 2013:418,423). It was therefore chosen as the first measure for tax avoidance for the purposes of this study. In addition, a long-run version of the CFM B measure, calculated over a three- and a five-year period, was also introduced in the study as a second and third measures (see Chapter 5). The long-run version was introduced to eliminate many of the concerns raised regarding the ETR measures calculated using annual data, because the use of cash income taxes paid and net operating cash flow before cash taxes paid over a longer period avoids the fluctuations from year-to-year which limit volatility in the measure.

Given the limited available empirical research testing the CFM B measure, to enhance the comparability of the results, another measure of tax avoidance was used in testing the hypotheses, namely a long-run version of the CASH ETR. The long-run version, calculated over a three- and a five-year period, was introduced in the study as a fourth and a fifth measure of tax avoidance (see Chapter 5). Although the concerns listed above remain valid, the effect of accruals is limited in a long-run measure because of the reversal of these amounts in later years.

The tax fraud controversies score (*TAX_FRAUD_SCORE*) (see Section 3.7) was introduced as a possible sixth measure of tax avoidance in the study. Since the tax fraud controversies score was explored as a possible new proxy that has not been tested previously, and since only limited data were available (data were only available from 2003), it was used in testing to establish the validity of the measure for future research.

3.9 CONCLUSION

In this chapter, I have provided details of the available tax avoidance measures, including an overview of the different measures, the calculation of and the benefits or limitations of the measures, covering the ETR measures, both non-cash flow-based, and cash flow-based, and book-tax difference measures. Reference was also made to specific studies that used these tax avoidance measures in prior research. Chapter 3 concludes with a summary of the most suitable measure(s) for purposes of this study. The following measures were chosen: the CFM B measure, as well as long-run versions of the measure and long-run versions of the CASH ETR. In addition, a possible new measure, the tax fraud controversies score (*TAX_FRAUD_SCORE*), was also introduced during the testing.

Chapter 4 provides details regarding the measures available to measure the two types of accounting conservatism, namely unconditional and conditional conservatism. A thorough investigation of these measures was necessary to ensure that the best proxy to measure unconditional and conditional conservatism was selected to address each of the two hypotheses developed in Chapter 2.

CHAPTER 4:
ACCOUNTING CONSERVATISM MEASURES

4.1 INTRODUCTION

In order to achieve the study's aim (to explore the relationship between tax avoidance and accounting conservatism, including the relationship of tax avoidance to both conditional and unconditional conservatism), in this chapter, more information is provided regarding the measures available to determine these two types of accounting conservatism.

The chapter begins by providing background on the available accounting conservatism measures. It then offers an overview of each measure. Reference is also made to prior studies that have used these accounting conservatism measures. The chapter ends with a summary showing which measures were chosen as the most suitable for the purposes of this study, and a brief conclusion.

4.2 BACKGROUND TO ACCOUNTING CONSERVATISM MEASURES

The fact that conservatism is "an unobservable qualitative characteristic" makes it difficult to measure it in a credible manner (Chung & Hribar 2021:224). Several different methods are available to measure accounting conservatism (Watts 2003b:288), but according to the literature, none of these measures can be classified as the single generally accepted best tool to measure accounting conservatism (Francis et al. 2015:1289; Zhong & Li 2017:201). In their comprehensive review of the accounting conservatism literature, Zhong and Li (2017:201-205,209) identified eight different measures of accounting conservatism used by various researchers. There are two balance sheet measures, namely the market-to-book (MTB) and valuation model (VM) measures. There are also four income statement measures: the earnings measures (persistence and skewness), accruals (*NONACC*) and the accruals/cash flow (*ACC/CFO*) relation measures. Finally, there are two earnings/stock return measures, namely the original Basu measure, also referred to as the differential timeliness measure (Zhong & Li 2017:203), and the firm-year conservatism score (C-score). The differential timeliness measure was the most commonly employed measure in the studies reviewed, as it was used almost three times more than any other measure. All the other accounting conservatism measures were repeatedly used in the studies covered by Zhong and Li's review (2017:209), with the exception of the valuation

model measure, which was used in only one study. Based on the limited application of the valuation model measure, the discussion of this measure is restricted to a short overview, as provided below.

Three additional measures of conservatism that were not addressed by Zhong and Li (2017) occur in the literature, namely the loan loss allowance, the conservatism ratio and the spread of conditional variance measure. All three can be used to calculate a proxy for conditional conservatism (Callen, Segal & Hope 2010:145; Dutta & Patatoukas 2017:200; Nichols, Wahlen & Wieland 2009:95). The loan loss allowance is an income statement/accruals measure, but the conservatism ratio and the spread of conditional variance measures are both earnings/stock relation measures. The loan loss allowance was originally used as a proxy for conservatism by Nichols et al. (2009:88,91,113) to explore levels of conditional conservatism in publicly traded banks versus privately held banks. It was also used in additional testing by Black et al. (2018:135-136) to investigate whether the exposure of banks to less-verifiable fair value estimates, referred to as Level 2 and Level 3 assets under Statement of Financial Accounting Standards 157 (SFAS157): Fair value measurements, as issued by the FASB in the United States in 2006, were associated with conditional conservatism. The loan loss allowance is an important accrual for banks, as it captures the extent to which conservatism is reflected in a bank's balance sheet. Since banks (or financial institutions) are excluded from my analysis (see Chapter 6), this measure is not discussed further here. The conservatism ratio measure and the spread of conditional variance measure are discussed in Sections 4.4.3 and 4.4.4 respectively.

To provide some context, Figure 4.1 summarises the 11 measures of conservatism identified in the literature, including the name of the measure, the classification of each measure (in other words, whether it is a balance sheet, income statement or earnings/stock return measure), whether it measures conditional or unconditional conservatism, and where the discussion of the measure can be found in the chapter.

MEASURES OF CONSERVATISM

BALANCE SHEET MEASURES (Section 4.3)

INCOME STATEMENT MEASURES (Section 4.5)

EARNINGS/STOCK RETURN RELATION MEASURES (Section 4.4)

EARNINGS MEASURES (Section 4.5.1)

ACCRUALS MEASURES (Section 4.5.2)

Market-to-book (MTB) (Section 4.3.1) UC

Persistence (Section 4.5.1.1) CC

Accruals (NONACC) (Section 4.5.2.1) UC

Basu asymmetric timeliness (Basu) (Section 4.4.1) CC

Valuation-model (VM) (Section 4.3.2) UC

Skewness (Section 4.5.1.2) CC

Accruals/cash flow relation (ACC/CFO) (Section 4.5.2.2) CC

Firm-year conservatism score (C-score) (Section 4.4.2) CC

Loan loss allowance (Section 4.2 - not considered further) CC

Conservatism ratio (CR) (Section 4.4.3) CC

Spread of conditional variance (SCV) (Section 4.4.4) CC

Key:	
UC	Unconditional conservatism measure
CC	Conditional conservatism measure

Figure 4.1: Accounting conservatism measures

Source: Own compilation

Below, I discuss the ten measures of accounting conservatism which I considered including to measure unconditional and conditional conservatism for the purposes of this study. The discussion includes a short description of the measure, its calculation, benefits or limitations, and prior use in other studies. The Balance Sheet measures are discussed first in Section 4.3, followed by the earnings/stock return relation measures in Section 4.4, and finally the income statement measures in Section 4.5. The earnings/stock return relation measures are discussed before the income statement measures, since Basu (1997:7) was the first to connect accounting conservatism, particularly conditional conservatism, to asymmetric timeliness. This property of conservatism was later used or referred to in the development of various other measures, including some of the income statement measures (see Section 4.5). Hence, it enhances understanding of the remainder of the chapter to analyse the earnings/stock return relation measures, which include the Basu measure (see Section 4.4.1), before the income statement measures.

4.3   BALANCE SHEET MEASURES (NET ASSET MEASURES)

The two measures discussed here are balance sheet measures or net asset measures. They are the market-to-book (MTB) measure (see Section 4.3.1) and the Feltham-Ohlson valuation model (VM) measure (see Section 4.3.2) (Zhong & Li 2017:201,210).

4.3.1   The market-to-book (MTB) measure

The first of the two balance sheet measures is the MTB ratio or measure. It appears to be a natural way to measure accounting conservatism as a whole (Kim 2018:153-154), but it is mainly driven by unconditional conservatism, which in many ways pre-empts conditional conservatism. The MTB ratio can therefore be used as a measure of unconditional conservatism (Ahmed & Duellman 2007:412; Francis, Hasan & Wu 2013:327; Francis et al. 2015:1289; Ryan 2006:519; Wang, Hógartaigh & Van Zijl 2009:178). According to Ryan (2006:519), the MTB measure is not useful in identifying conditional conservatism unless serious modifications are made. The MTB ratio is classified as a balance sheet measure because it is the result of an understatement of the net assets (Zhong & Li 2017:201).

The MTB measure for conservatism was developed by Feltham and Ohlson (1995:689) and was later refined by Beaver and Ryan (2000:133-137). For the purposes of this measure, accounting conservatism is defined as the asymptotic difference between the book value and the market value, in other words, the ratio of the book value (also referred

to as the accounting value or historical cost) to the market value (the current stock price of all outstanding shares) of a firm (Francis et al. 2015:1293; Zhong & Li 2017:201). This measure essentially compares the selling price of a firm's shares to the net assets of a firm (Corporate Finance Institute 2019b). The difference between the market value and the book value reflects conservatism, since the market value includes the expected value and growth opportunities of the firm, whereas the book value applies prudence before recognising any news, in line with the definition of accounting conservatism (Francis et al. 2015:1289; Watts 2003b:288; Zhong & Li 2017:201). The following formula is used to calculate the MTB ratio (Corporate Finance Institute 2019b):

$$MTB = \frac{Share\ price}{Net\ book\ value\ per\ share}$$

The MTB value can also be calculated as the market capitalisation over the net book value of the firm. If the measure or ratio is larger than one, it implies that the market value exceeds the book value, which is an indication of conservative reporting. It then follows that the higher the MTB measure, the more conservative a firm's financial reporting (Francis et al. 2015:1289; Zhong & Li 2017:201).

A study by Beaver and Ryan (2000:134-135) refined the MTB measure. They separated the MTB into a recognition lag element and a bias element. If there is bias, the market value is persistently lower than the book value, and the MTB ratio is also persistently less than 1. A lag would indicate that news-based (unexpected) gains (losses) are recognised in the book value over time, but are not immediately recognised, with the result that the MTB measure is temporarily higher (lower) than the mean (which is 1 if there is no bias) but tends to move to the mean over time (Zhong & Li 2017:201). They identified the bias component as representing unconditional accounting conservatism. The bias element is represented by β_i in the following fixed effect regression:

$$\frac{MV_{it}}{BV_{it}} = \beta_t + \beta_i + \sum_{j=0}^{6} \beta_j R_{t-j,i} + \varepsilon_{t,i}$$

Where:

MV_{it} = the price per share for firm i at the end of year t;

BV_{it} = the net book value per share for firm i at the end of year t;

β_t = the year-to-year changes in the MTB ratio universal to the sample of firms;

β_i = the bias element of MTB for firm i;

$R_{t-j,i}$ = the stock market return (return on equity (ROE)) over each of the six previous years; and

β_j = the regression coefficient of the lag element of the MTB ratio.

For the purposes of the equation, β_i is a firm-specific unconditional conservatism measure that captures the persistent bias element of the MTB ratio. The higher this coefficient indicating the persistent bias element, the more the book value of net assets is biased downward, indicating higher levels of unconditional conservatism (Francis et al. 2013:327,335; Wang et al. 2009:177-178; Watts 2003b:289).

Two benefits of the widely used MTB measure are that it has a strong theoretical basis, and that it is easy to calculate, since it is a firm-specific measure (Francis et al. 2015:1289; Wang et al. 2009:178). The MTB measure might also include future growth opportunities and economic rent[46] from assets already in use, so it can be classified as a noisy measure. This implies that it may result in an incorrect measurement of conservatism if these factors are not controlled for (Basu 1997:8; Francis et al. 2015:1290; Wang et al. 2009:178-179; Zhang 2008:49; Zhong & Li 2017:201).

The MTB measure is often used in accounting studies to measure conservatism (Zhang 2008:49). It was used by Beaver and Ryan (2005:270,293) in developing a model that captures the distinct qualities of and relations between the two types of conservatism. Qiang (2007:759-760,770) also used it to explore whether the roles played by conditional and unconditional conservatism are the same or different in interaction with four main determinants of accounting conservatism, namely contracting, litigation, regulation and taxation (she did not include gender as a determinant). More specifically, her study investigated whether accounting conservatism defers tax costs, which is different from the objective of the current study, which investigates the relation between tax avoidance and

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[46] Economic rent is the difference between the marginal product and the opportunity cost. It is an indication of whether the benefits received, or the money earned (the marginal product) exceed the cost incurred (opportunity cost) of the factors of production (Corporate Finance Institute 2019a; Investopedia 2018).

accounting conservatism. Zhang (2008:27,49-50) used the bias component of the MTB measure in additional testing in a study on the *ex post* and *ex ante* advantages of accounting conservatism for lenders and borrowers involved in the debt contracting process. The MTB measure was not used by Zhang (2008:49-50) in the main testing because of concerns regarding the inclusion of economic rent from assets already in use in this noisy measure. Francis et al. (2013:319,327) also used the bias component of the MTB measure in robustness testing to examine whether shareholder value, more specifically firm performance in equity markets, is affected by conservative accounting. Francis et al. (2015:1289), who examined the effect of managers' gender on the financial accounting reporting decisions they make, by inspecting the relation between the manager's gender and accounting conservatism, also employed the MTB measure.

The suitability of the MTB measure for the current study is summarised in Table 4.1.

Table 4.1: Summary of suitability of the MTB measure

Measure	Unconditional (UC) or conditional (CC) measure	Firm-year level measure – yes (√) or no (*X*)	Suitable (√) or not (*X*) with a reason	
MTB	UC	√	*X*	It is a noisy instrument, as it may include future growth opportunities and economic rent from assets already in use.

Source: Own compilation

Based on the summary in Table 4.1, the MTB measure was not adopted for use in the current study because it is a noisy measure (it may include future growth opportunities and economic rent from assets already in use).

4.3.2 Valuation Model (VM) Measures

Valuation model (VM) measures are rarely used to measure conservatism (Zhong & Li 2017:210) and therefore only a short overview is provided here, for the sake of completeness. Some researchers argue that the valuation models originally used by Feltham and Ohlson (1996) and later by Ahmed, Morton and Schaefer (2000:272) are structured in such a way that they simplify some theoretical points, rather than provide "empirically well-specified models" (Ryan 2000:294).

Feltham and Ohlson's valuation model is based on the notion that if operating assets are positively related to future abnormal earnings and unrecognised goodwill, the accounting is conservative (Feltham & Ohlson 1996:211; Ryan 2000:293). The more positive the relationship, the higher the level of accounting conservatism – more specifically, the level of unconditional conservatism, which in Feltham and Ohlson's model is represented by accelerated depreciation (Ryan 2000:293). Later studies found that the model leads to inconsistent observations (Ahmed et al. 2000:291; Watts 2003b:289).

The suitability of the VM measures for this study is summarised in Table. 4.2.

Table 4.2: Summary of suitability of the VM measure

Measure	Unconditional (UC) or conditional (CC) measure	Firm-year level measure – yes (√) or no (X)	Suitable (√) or not (X) with a reason	
Valuation model	UC	√	X	This measure leads to inconsistent observations.

Source: Own compilation

Based on the summary in Table 4.2, the VM measure was not considered for this study because it leads to inconsistent observations.

4.4 THE EARNINGS/STOCK RETURN RELATION MEASURES

Section 4.3 above looked at all the measures that related to the Balance Sheet. This section gives a short overview of measures relating to the earnings/stock return relation, namely the Basu asymmetric timeliness measure and the firm-year conservatism score.

4.4.1 Basu's asymmetric timeliness measure (the differential timeliness or Basu measure)

The first earnings/stock relation measure is the Basu asymmetric timeliness measure, which is "one of the principal models of the financial accounting literature" (Ball et al. 2013b:1072). It is also sometimes referred to as the AT measure or differential timeliness measure, but it is referred to as the Basu measure for the purposes of this study. This measure, developed by Basu in 1997, is the most widely used measure of accounting conservatism (Wang et al. 2009:174; Zhong & Li 2017:202,209). Conservatism reveals information as and when it is received, and requires a more thorough confirmation of good news than bad news when news occurs that is difficult to confirm. It therefore results in

asymmetric recognition of good and bad news (Basu 1997:4). Basu (1997:7) was the first to connect accounting conservatism to asymmetric timeliness. The greater the asymmetric timeliness, the greater the level of the accounting conservatism. The Basu measure is based on the principle that earnings captures bad news more timeously than good news, as a result of the asymmetric standards that are applied before recognising good versus bad news. The Basu measure uses stock returns as a proxy for news. The assumption underpinning the measure is that stock returns timeously reflect all the news that enters the market from various sources, including earnings reported (García Lara, García Osma & Penalva 2009a:168, 2009b:345).

It measures conditional conservatism (García Lara et al. 2009a:168) and was developed in the study by Basu (1997:13). Its reliability was assessed by Givoly, Hayn and Natarajan (2007:65). García Lara et al. (2009a:161,168) used the Basu measure to analyse the relation of accounting conservatism to corporate governance. They also used it to study the economic determinants of accounting conservatism (García Lara et al. 2009b:336,345,347). In their second study, they considered the impact of different pressures resulting from the four main determinants of accounting conservatism (contracting, litigation, taxation and regulation) and how these pressures can lead to incentives to increase conditional and unconditional conservatism. Their consideration of the impact of tax pressures on conditional and unconditional conservatism is closely related to the current study, but, unlike the current study, they measured tax as changes in tax-related incentives over time or as changes in tax rules over time. They focused on the highest statutory tax rate for firms over time, to simulate tax pressures relating to conditional conservatism, and used it as a book-tax conformity proxy to capture tax pressures relating to unconditional conservatism (García Lara et al. 2009b:348-349). This is different from the current study, which measures tax avoidance as a specific variable (see Chapter 3) and its relation to both conditional and unconditional conservatism.

The Basu measure was also used in a study by Francis and Martin (2010:162) to examine the relation between accounting conservatism and a firm's acquisition-investment decisions. Ahmed and Duellman (2013:3) employed it to study the effect of managers' overconfidence on both conditional and unconditional conservatism. It was also used in robustness tests in the studies by Francis et al. (2013:319,321) to establish whether shareholder value, especially firm performance in equity markets, was affected by conservative accounting, and by Francis et al. (2015:1285,1290) to explore the effect of a

manager's gender on the financial accounting reporting decisions made, by inspecting the relation between the manager's gender and accounting conservatism.

Banker et al. (2016:207,216) studied the confounding effect of cost stickiness on conditional conservatism estimates, particularly asymmetric timeliness, when the Basu measure is used. They warned that researchers should control for cost stickiness when they use the Basu measure, since cost stickiness can result in a similar asymmetry to that associated with accounting conservatism. Hence, cost stickiness can distort the results obtained from using the Basu measure.

The Basu measure has also been used in robustness testing by Gong and Luo (2018:187,215) to investigate whether lenders (whom they refer to as supply-chain lenders) are able to obtain private supply-chain information from the major customers of borrowers, based on previously established relationships between these parties, and whether the private supply-chain information obtained in this way can affect the level of accounting conservatism required by lenders in borrowers' accounting records.

The Basu measure is calculated using the following cross-sectional regression:

$$\frac{EPS_{it}}{P_{it}} = \beta_0 + \beta_1 DR_{it} + \beta_2 R_{it} + \beta_3 R_{it} * DR_{it} + \varepsilon_{it}$$

Where:

EPS_{it} = earnings per share before extraordinary items and discontinued operations for firm i in year t;[47]

P_{it} = the opening stock market price for firm i in year t;

R_{it} = stock market returns (the stock rate of return) for firm i in year t;[48] and

DR_{it} = a dummy variable of 0 if R_{it} is positive, and 1 if it is negative (or stated differently, it is 1 if it is less than (<) 0, otherwise it is 0).

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[47] Some studies have used net income before extraordinary items (Gong & Luo 2018:215) instead of earnings per share before extraordinary items and discontinued operations, and obtained the same results (García Lara et al. 2009b:345).

[48] In Basu's initial study, the annual stock rate of return was measured from nine months before the financial year end t until three months after the year end t. Most subsequent studies used the financial year t. Initially, returns were measured by including data for three months after the financial year end to ensure that new news could still have time to be reflected in the market. Later studies, which used the financial year data, argued that using returns for the financial year avoids the inclusion of irrelevant information. Both these alternatives for the measurement of annual stock rate of return were tested in the study by García Lara et al. (2009a:169), and similar results were obtained.

The Basu measure regresses the accounting earnings rate on stock returns. The regression is done separately for bad news and good news firm years by using a dummy variable (DR_{it}). A bad news firm year occurs when R_{it} is negative (less than zero) and a good news firm year occurs when R_{it} is zero or more. In a good news firm year, DR_{it} is equal to zero, with the result that $β_2$ is the good-news timeliness coefficient. In a bad news firm year, DR_{it} is equal to one, and than $β_2 + β_3$ are the bad-news timeliness coefficient. Then $β_3$ is known as the asymmetric timeliness coefficient, and it serves as the measure of conditional conservatism. It is significantly positive if conditional conservatism is present, and it measures the incremental reaction of earnings to bad news over earnings' reaction to good news. The higher $β_3$, the higher the level of conservatism (Basu 1997:17; Banker et al. 2016:207; García Lara et al. 2009a:168; Givoly et al. 2007:68; Wang et al. 2009:173-174; Zhong & Li 2017:202-203). If $(β_2 + β_3) / β_2$ is significantly greater than one, referred to as the conservatism coefficient, it is also an indication of accounting conservatism; in particular, it is an indication of the sensitivity of earnings to bad news ($β_2 + β_3$) relative to good news ($β_2$). When the R-square of the negative sample is higher than that of the positive sample, it is also an indication of accounting conservatism (Basu 1997:11; Zhang 2008:32; Zhong & Li 2017:203).

The Basu measure has been widely used (Ahmed & Duellman 2013:3; Banker et al. 2016:207,216; Francis et al. 2013:319,321; Francis et al. 2015:1285,1290; Francis & Martin 2010:162; García Lara et al. 2009a:161,168; García Lara et al. 2009b:336,345,347; Gong & Luo 2018:187,215). From 1997, for more than eight years, it was considered the only measure that captured the asymmetric timeliness of conservatism. The literature identifies several benefits and limitations of the measure (Wang 2009:174). The widespread use of the Basu measure, as well as the consistency with which researchers have been able to verify their theoretical predictions by testing it with the Basu measure, has increased researchers' confidence in the validity of this measure (Ball et al. 2013b:1072; García Lara et al. 2009a:169; Wang et al. 2009:175). In addition, researchers find the measure's simplicity attractive (Ryan 2006:518). It is a fitting measure to test large data sets, such as data in international comparative studies that include cross-sectional analysis (Wang et al. 2009:175).

Notwithstanding the measure's popularity, the limitations identified and discussed below have led some researchers to question whether the asymmetric timeliness employed by measures such as the Basu measure is in fact the most suitable method to measure the

magnitute of conditional conservatism (Ryan 2006:517). The first limitation is that asymmetric timeliness as a criterion performs poorly in time-series research designs, and when the data are aggregated over time (Givoly et al. 2007:77,99). Since the Basu measure is estimated using data for a single financial period, it assesses accounting conservatism in a single period, rather than the aggregate conservatism (Zhang 2008:32). Moreover, it can be difficult to differentiate between the effects of separate or specific news events, which is an important limitation, given the accumulated nature of financial records, if the impact of a particular bad news event is not yet included in the data used to measure that impact (Beaver & Ryan 2005:271; Givoly et al. 2007:77; Ryan 2006:516; Zhong & Li 2017:204).

Some critics of this measure suggest that it may be a biased estimator of accounting conservatism (Wang et al. 2009:175; Zhong & Li 2017:204). When the measure is applied to a single firm, it is also subject to downward bias or measurement error (Zhang 2008:32). Patatoukas and Thomas (2011:1766,1790) have studied the reliability of the Basu measure as a proxy of conditional conservatism, and detected bias in the Basu measure (PT bias). Their tests indicated that a lagged proxy for earnings, represented by a placebo which could not include any news of the current year, and as a result could not be an indicator of conservatism, still displayed sizable asymmetric timeliness. They ascribed the PT bias to two empirical consistencies, namely the loss effect and the return variance, because the share price is positively related to lagged returns and negatively related to return variance. Subsequently, Ball et al. (2013b:1073), after formal econometric analysis, confirmed the validity of the estimates of conditional conservatism provided by the Basu measure. They also indicated that the measure, if all other circumstances remain constant, only identifies the presence of conditional conservatism. In a later study, Dutta and Patatoukas (2017:193) rebutted by arguing that Ball et al. (2013b) reached these conclusions based on a model that assumed asymmetry in the distribution of returns, and that was intentionally simplified by excluding non-accounting sources of changes in the Basu coefficient.

Patatoukas and Thomas (2016:625-626) evaluated two studies proposing alternative explanations for the PT bias, as well as alternative measures to address the bias identified in the Basu measure. The first is a 2013 study by Ball, Kothari and Nikolaev (2013a:783-784), which explains the PT bias by referring to the asymmetry in the conditional relation between the expected elements included in earnings and returns, as opposed to the news-

based (unexpected) elements included in earnings and returns. Ball et al. (2013a) addressed this by measuring the asymmetric timeliness using only the news-based elements included in earnings and returns. The second study to address the PT bias was a 2014 study by Collins, Hribar and Tian (2014:173-174), which attempted to explain the PT bias as arising from the asymmetry in the cash flow element included in lagged earnings. Collins et al. (2014) addressed this by using only the accrual element of earnings to measure the asymmetric timeliness. Patatoukas and Thomas (2016:626) found evidence that neither of the two proposed measures is reliable. Some reasons for their conclusion are that both portray large and abrupt changes from period to period which cannot be explained by the determinants of conditional conservatism, and thus contain considerable upward bias.

In their 2017 study, Dutta and Patatoukas (2017:191,192) evaluated the construct validity of the Basu measure. Their analysis shows that the Basu coefficient is positive, indicating conditional conservatism – even when conditional conservatism does not exist and accounting is symmetric, or when conditional conservatism is held constant, but other (non-accounting) factors are adjusted (see Section 4.4.4 for a detailed discussion). Based on their analysis, Dutta and Patatoukas (2017:200) called for the development of a new measure for conditional conservatism (see Section 4.4.4)

Stock market returns may not display the full information content of non-earnings. They may also display good and bad news in a way that varies according to circumstances or to relevant factors which are influenced by the disclosure policies followed by a firm, or by an incorrect reflection of the nature of the economic news by the market (thus measurement error by the market). In particular, the discretionary nature of particular disclosure policies, for example, big bath write-offs, may lead to asymmetric timeliness, which is not related to accounting conservatism. Management's discretion in deciding when to release particular information may affect or delay the reaction of the market and as a result bias the Basu measure (Beatty 2007:33-34; Ryan 2006:515-516; Zhong & Li 2017:204).

Another important consideration or limitation is the effect of unconditional conservatism on the measurement of conditional conservatism. As previously discussed, unconditional conservatism precedes conditional conservatism, and may thus create unrecorded goodwill that anticipates or even eliminates the application of conditional conservatism,

which then affects the reliability of the measurement of the asymmetric timeliness in earnings (Beaver & Ryan 2005:270; Ruch & Taylor 2015:21). As a result, unconditional conservatism needs to be controlled for in measuring conditional conservatism and *vice versa*.

Another consideration that is important for the current study and for the testing of the hypotheses in this study is that the Basu measure does not provide a conservatism measure that is specific to an individual firm (Ryan 2006:516; Wang et al. 2009:175). Such detail is necessary if research tests changes in conservatism amongst different firms in a specific industry or sector (Khan & Watts 2009:148). The research question of the current study, focusing on the relation of tax avoidance to conditional conservatism, calls for testing differences across firms, as with many other research questions relating to accounting conservatism (Ryan 2006:516).

Since asymmetric timeliness is the most direct result of conditional conservatism, it is less likely than other methods of measuring conditional conservatism to include factors that are not related to conditional conservatism (Ryan 2006:517). Patatoukas and Thomas (2016:646) and Ryan (2006) have identified various methods to address the limitations mentioned above. The first method is to include control variables, but it is important to realise that the number of control variables necessary may be extensive. It may be difficult to measure the impact of these control variables on the effect of the variable of interest, so it may be necessary to run the empirical tests with the controls included, and then with the controls excluded, to measure the real effect (Ryan 2006:517). The most common variable that needs to be controlled for is unconditional conservatism, since it precedes conditional conservatism. One caveat is that the measure used for unconditional conservatism may also display previous applications of conditional conservatism (Ryan 2006:521).

The second method used by researchers to address the limitations identified, specifically the objection that stock market returns may not display the full information content of non-earnings, is to use an alternative measure for bad news that does not rely on market values or on stock market returns, for example, the cash flow from operations, which is used as a proxy for news in the accruals/cash flow measure (see Section 4.5.2.2). The use of alternative measures does raise the question of whether the alternative measure

reflects the impact of news as broadly as stock market returns does, and without introducing other limitations (Ryan 2006:515,517-518).

The third approach followed by some researchers to address the limitations of the Basu measure is to use multiple measures of conservatism in order to measure different features of conservatism and thus confirm and assess the robustness of their findings. The selection of the measure(s) used is of the utmost importance, especially when a researcher wants to assess only conditional conservatism (Ahmed & Duellman 2013:9; Patatoukas & Thomas 2016:646; Ryan 2006:518). Another strategy to address the limitations of the Basu measure is to develop new measures (Patatoukas & Thomas 2016:646; Ryan 2006:518).

It is important to use the Basu measure with caution (Patatoukas & Thomas 2016:627), taking into account all the limitations listed above, as well as the suitability of the measure for the study in question. Table 4.3 summarises the suitability of the Basu measure for the current study.

Table 4.3: Summary of suitability of the Basu measure

Measure	Unconditional (UC) or conditional (CC) measure	Firm-year level measure – yes ($\sqrt{}$) or no (X)	Suitable ($\sqrt{}$) or not (X) with a reason	
Basu	CC	X	X	It does not provide a conservatism measure specific to an individual firm.

Source: Own compilation

Based on the summary in Table 4.3, although the standard Basu measure is one of the fundamental models in the literature relating to financial accounting (Ball et al. 2013b:1072), it was not selected for use in this study, because it does not provide a conditional conservatism measure that is specific to an individual firm (Ryan 2006:516; Wang et al. 2009:175), which is a requirement for this study.

To counter the problem that the Basu measure is not an individual firm measure, several studies have used an augmented Basu model, which, to put it simply, is the standard Basu (1997) model augmented with the variable of interest or the dependent variable. In the last few years, the augmented Basu model has been used in several studies on conditional conservatism (Basu & Liang 2019:896, Black et al. 2018:119-120; Deng, Li, Lobo & Shao

2018:1176; García Lara et al. 2020:15; Khurana & Wang 2018:252-253; Wang, Xie & Xin 2018:2132,2147). One example is the study by Black et al. (2018:119-120) to investigate whether the exposure of banks to less verifiable fair value estimates (referred to as Level 2 and Level 3 assets under SFAS157) is associated with conditional conservatism. Fair value estimates are subject to the discretion of managers. The less verifiable the fair value estimates, the higher the probability and possibility for earnings management, so one would expect higher levels of conditional conservatism to address the possibility of agency problem concerns, among others, those of investors (Black et al. 2018:141). These researchers conclude that conditional conservatism is higher for financial institutions that are exposed to Level 2 and Level 3 fair value estimates, even though there is a higher probability of and possibility for earnings management for Level 2 and Level 3 assets. By contrast, Level 1 assets, which are the more easily verifiable assets of financial institutions, display no relation to conditional conservatism (Black et al. 2018:120).

The augmented Basu model was also used by Deng et al. (2018:1176) to examine the differential impact on conservatism of initial loan sales for firms with traded loans, versus firms without traded loans. Wang et al. (2018:2132,2147) used it to explore the association between inside debt held by managers, either as deferred compensation or as pension benefits, and accounting conservatism. Basu and Liang (2019:896) used this model to study the implications of the director-liability-reduction laws enacted in the United States on conditional conservatism. In an even more recent study, García Lara et al. (2020:15) used the augmented Basu model to explore the effect of conditional conservatism on earnings management.

In the current study, the standard Basu (1997) model, augmented with tax avoidance, is used to establish the relation between tax avoidance and conditional conservatism (see Chapter 5).

4.4.2 Firm-year conservatism score (C-score)

Notwithstanding widespread use of the standard Basu measure as a fundamental model in the accounting literature (Ball et al. 2013b:1072), it is not suitable to measure conservatism in some studies, including this study, because, among other limitations, the standard Basu measure does not provide a conservatism measure specific to an individual firm (Ryan 2006:516; Wang et al. 2009:175). It is either estimated for an industry year, if a cross-section of firms in a specific industry is used, or for a firm if firm years over a time

series are used (Khan & Watts 2009:132). This limitation led Khan and Watts (2009:133) to develop a conservatism measure specific to an individual firm. In particular, they used the Basu measure as a basis for developing a firm-year conservatism score that measures conditional conservatism (Black et al. 2018:141), also referred to as the C-score. In short, they developed the G-score to measure good news, and the C-score to measure bad news. Their analysis provides evidence that movement in the C-score is consistent with conditional conservatism (Ahmed & Duellman 2013:10).

The C-score measure is calculated by taking the Basu measure as a starting point (Francis et al. 2013:321; Khan & Watts 2009:136):

$$\frac{EPS_{it}}{P_{it}} \ = \ \beta_0 + \beta_1 DR_{it} + \beta_2 R_{it} + \beta_3 R_{it} * DR_{it} + \varepsilon_{it} \quad (1)$$

Where:

EPS_{it} = earnings per share before extraordinary items and discontinued operations for firm i in year t;[49]

P_{it} = the opening stock market price for firm i in year t;

R_{it} = the stock market return (stock rate of return) for firm i in year t; and

DR_{it} = a dummy variable of 0 if R_{it} is ≥ 0, and 1 if it is negative.

To establish the C-score measure, the regressions for the Basu measure are estimated annually, after incorporating three firm-specific characteristics into the Basu measure, namely MTB, size, and leverage, which have been connected to changes in conservatism across different firms (Khan & Watts 2009:133). As can be seen below, β_3, which is also referred to as the asymmetric timeliness coefficient, is specified as a linear function of the three variables. The result is a collection of weights that can be used to construct the C-score measure (Brown, Dobbie & Jackson 2011:226). This includes cross-sectional and time-series variations in measuring conditional conservatism for an individual firm (Khan & Watts 2009:133).

The three firm-specific characteristics were derived from the four main determinants of accounting conservatism, namely contracting, litigation, regulation and income tax (Basu 1997:9; Watts 2003a:209), which were commonly referred to in the literature in 2009 when

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[49] Some studies use net income before extraordinary items, for example, that by Ahmed and Duellman (2013:9-10).

Khan and Watts (2009) performed their study. Khan and Watts (2009:133) concluded that the four determinants of accounting conservatism varied with the investment opportunity set (also known as the IOS) of the firm. They argue that firms with more growth opportunities, compared to their assets, were likely to have fewer debts (fewer contracts) and fewer compensation contracts. In addition, these firms would probably face a higher likelihood of litigation, have a lower taxable income, and be unregulated. Capturing the variation in the investment opportunity set enabled Khan and Watts (2009) to capture changes in the four determinants, and as a result, also changes in conservatism. The three firm characteristics, MTB, size and leverage, substituted into the Basu measure are easily accessible and commonly used as proxies for the investment opportunity set of a firm.

The G-score (good news) is then estimated using the following equation:

$$\textit{G-score}_t = \beta_2 = \mu_0 + \mu_1 MV_{it} + \mu_2 MTB_{it} + \mu_3 LEV_{it} + \varepsilon \quad (2)$$

The C-score (bad news) is estimated using the following equation:

$$\textit{C-score}_t = \beta_3 = \lambda_0 + \lambda_1 MV_{it} + \lambda_2 MTB_{it} + \lambda_3 LEV_{it} + \varepsilon \quad (3)$$

Where:

MV_{it} = the log of the market value of equity for firm i in year t;

MTB_{it} = the market value of equity divided by the book value of equity for firm i in year t; and

LEV_{it} = the total debt divided by the total assets for firm i in year t.

Then β_2 (Equation 2) and β_3 (Equation 3) are replaced into the Basu measure (Equation 1), as follows:

$$\frac{EPS_{it}}{P_{it}} = \beta_0 + \beta_1 DR_{it} + R_{it} * (\mu_0 + \mu_1 MV_{it} + \mu_2 MTB_{it} + \mu_3 LEV_{it}) + R_{it} * DR_{it} * (\lambda_0 + \lambda_1 MV_{it} + \lambda_2 MTB_{it} + \lambda_3 LEV_{it}) + (\delta_1 MV_{it} + \delta_2 MTB_{it} + \delta_3 LEV_{it} + \delta_4 DR_{it} * MV_{it} + \delta_5 DR_{it} * MTB_{it} + \delta_6 DR_{it} * LEV_{it}) + \varepsilon_{it} \quad (4)$$

Equation 4 is estimated using annual cross-sectional regressions. Then the estimates obtained from Equation 3 are applied to Equation 4 to calculate the firm-specific conservatism score, the C-score (Khan & Watts 2009:136; see also Ahmed & Duellman

2013:10). The higher the C-score, the higher the conditional conservatism (Khan & Watts 2009:136; see also Black et al. 2018:141; Gong & Luo 2018:193).

The C-score as developed by Khan and Watts (2009:136) has been used by Francis and Martin (2010:176) in robustness testing for their study on the relation between accounting conservatism and a firm's acquisition-investment decisions. Moreover, it was used in a study by Ahmed and Duellman (2013:3,10), who examined the relation between managers' overconfidence and both conditional and unconditional conservatism. Francis et al. (2013:319,321,326) used the C-score as the primary measure of conditional conservatism in their study on whether shareholder value, more specifically firm performance in equity markets, is affected by conservative accounting. This measure has also been used by Hsu et al. (2017:77,83) to investigate the relation between accounting conservatism and overconfident managers and firm performance. They conclude that firms with conservative accounting and overconfident CEOs display better performance, measured by cash flow. This effect is even stronger where the environment is less predictable, and if the firm is not subject to rigid financial limitations. The C-score can be adjusted for the cash flow asymmetry bias previously identified by Collins et al. (2014:174)[50] by using only accruals in calculating the C-score, instead of total earnings. Cash flow is then excluded from earnings.

The C-score measure was used by Heflin et al. (2015:675,684) in their study on the impact of conditional conservatism on several characteristics of analysts' forecasts and GAAP earnings, to verify the results obtained using the Basu measure (see Section 4.4.1) because of concerns regarding the limitations of the Basu measure. The C-score measure was adopted by Hsu et al. (2017:83) for its potential to reduce endogeneity concerns by capturing firm characteristics such as firm size, on which managerial discretion has a limited impact in the short or medium term. This potential to reduce endogeneity was also relevant in the measure selection in the current study, where managerial discretion was seen as having an impact on both accounting conservatism and tax avoidance.

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[50] Patatoukas and Thomas (2016:626) evaluated the reliability of the measure proposed by Collins et al. (2014), specifically using only the accrual element of earnings to measure asymmetric timeliness. Their evidence suggests that the measure is unreliable, because it reflects large and abrupt changes from period to period which cannot be explained by the determinants of conditional conservatism and contain considerable upward bias. Hsu et al.'s (2017) study, reported in a later volume of the same journal, used the principles established by Collins et al. (2014) to adjust the C-score measure.

Bornemann (2018:3,22) used the C-score to examine the relation between unconditional and conditional conservatism, and decreases in the corporate tax rate.[51] Bornemann (2018) found a positive relation between conditional conservatism and future tax rate reductions, especially in firms with small book-tax differences, but reported no significant relation between unconditional conservatism and future tax rate reductions.

The C-score measure has also been used in recent studies by Ahmed et al. 2023:9; Black et al. (2018:139,141), D'Augusta and DeAngelis (2020b:139), Gong and Luo (2018:193) and Kim (2018:154). As mentioned in Section 4.4.1, Black et al. (2018:139,141) investigated the relation between conditional conservatism and the exposure of banks to less verifiable fair value estimates. They also used the C-score in additional testing to determine the effect of conditional conservatism on the value relevance of fair value estimates. Gong and Luo (2018:187,193,217) attempted to determine whether supply-chain lenders' ability to obtain private supply-chain information from the major customers of a borrower, based on previously established relationships between these parties, can affect the level of accounting conservatism required by the lender in the accounting records of the borrower. The evidence suggests that a trustworthy information channel between the lender and the major customers of the borrower assists in assessing the borrower, and effectively decreases the debt contracting demand that would usually exist for accounting conservatism. The main reason for the use of the C-score in these studies appears to be that it is a firm-year measure of conservatism (Black et al. 2018:141) that assists with the empirical analysis (Gong & Luo 2018:193), and it was therefore better suited to the type of research question that those studies wanted to address.

The C-score measure was also used in a recent study by García Lara et al. (2020:1,8) to investigate the effect of conditional conservatism on earnings management. They used a combination of three conditional conservatism measures, namely the C-score measure, the skewness measure (see Section 4.5.1.2) and the conservatism (CR) ratio (see Section 4.4.3) to compile a combined proxy for conditional conservatism for the purposes of their study.

An important benefit of the C-score measure is that it is an uncomplicated measure of conservatism (Khan & Watts 2009:134). Using the C-score measure is beneficial in some

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[51] The current study is different from Bornemann's (2018), since the relation of tax avoidance (not only relative to prospective tax rate changes) to conditional and unconditional conservatism is measured.

studies because it can potentially reduce endogeneity concerns relating to managerial discretion by capturing firm characteristics, such as firm size, on which managerial discretion has a limited impact in the short or medium term (Hsu et al. 2017:83). The C-score can be used for firms with positive returns, unlike the Basu measure, which cannot be calculated for firm samples with only positive returns (Khan & Watts 2009:148).

The usefulness of the C-score may be affected by the fact that it is based on the Basu measure, a measure that has been shown to contain bias (see Section 4.4.1) and to identify conditional conservatism where there is none. To address these concerns, García Lara et al. (2020:9) used the spread of conditional variances (SCV) measure (see Section 4.4.4) to validate the C-score. The SCV measure was developed by Dutta and Patatoukas (2017:191-192,200), after evaluating the construct validity of the Basu measure, to address their concerns around the validity of the Basu measure. Additional testing performed by García Lara et al. (2020:9) confirmed that the C-score classified the firms in their sample accurately, based on their level of conditional conservatism, thus confirming that the C-score is a useful measure of conditional conservatism, despite using the Basu measure as a starting point. Table 4.4 summarises the suitability of the C-score measure for the current study.

Table 4.4: Summary of suitability of the C-score

Measure	Unconditional (UC) or conditional (CC) measure	Firm-year level measure – yes (√) or no (*X*)	Suitable (√) or not (*X*) with a reason	
C-score	CC	√	√	It is an uncomplicated firm-year level measure which can reduce endogeneity concerns relating to managerial discretion, because firm characteristics are included.

Source: Own compilation

Based on the summary in Table 4.4, the C-score was considered appropriate for the current study, as it is a firm-year level measure that helps to address endogeneity concerns relating to managerial discretion, which are also relevant for this study. In addition, it has been used in numerous significant studies (Black et al. 2018:139,141; Bornemann 2018:3,22; García Lara et al. 2020:1,8; Gong & Luo 2018:193; Hsu et al. 2017:83). The use of the C-score in two of these studies, namely those of Bornemann (2018) and García Lara et al. (2020), is significant for the current study, since these studies

have some similarity to the current study: Bornemann (2018:3,22) examined the relation between unconditional and conditional conservatism and decreases in the corporate tax rate; García Lara et al. (2020:1,8) investigated the effect of conditional conservatism on earnings management, linking earnings management to tax avoidance. It is particularly useful that García Lara et al. (2020:9,11) have validated the C-score measure using the SCV measure (see Section 4.4.4) and found that it accurately classified firms according to their level of accounting conservatism.

4.4.3 Conservatism ratio (CR)

Callen et al. (2010:145) developed the conservatism ratio (CR) measure when they studied the relation between conditional conservatism and equity prices. This firm-year level measure measures conditional conservatism (Callen et al. 2010:145; Lisowsky et al. 2013:614). When Callen et al. (2010:152) developed the CR measure, they extended the work done by Vuolteenaho (2002:233), who constructed a model to decompose the stock return of a firm into cash flow news (which refers to changes in cash flow expectations) and the expected-return news (which refers to changes in discount rates).

The CR measure can be defined as the ratio of current earnings shocks (CES) to earnings news (EN) (Callen et al. 2010:145; Hsu et al. 2017:83). In essence, it measures that part of the total shock to the expected current and future earnings that is recognised in the earnings of the current year (Callen et al. 2010:145). Current earnings shocks and earnings news are projected based on a parsimonious vector autoregressive (VAR) model that includes three variables. These three variables are the log of the MTB ratio, the log of one plus return on equity, and the log of stock returns. The higher the value of the CR ratio, the higher the level of conservatism (Hsu et al. 2017:83).

The CR measure was later used in a study by Lisowsky et al. (2013:588,614) to establish whether UTBs ("public disclosed tax reserves") under FIN 48 are a determinant of tax sheltering activities. In additional testing, they explored whether accounting conservatism could be an alternative explanation for the positive relation between tax shelters and tax reserves. They used the CR measure to assess conditional conservatism, and found no evidence that accounting conservatism could be a driver for the positive relation. The CR measure was also used in a recent study by Hsu et al. (2017:77,83), who explored the relation between accounting conservatism and overconfident managers on firm performance. D'Augusta and DeAngelis (2020b:133,139) used the CR measure as one of

three proxies for conditional conservatism to explore whether the tone used by a manager in the financial accounting disclosure relating to earnings performance varies, based on the actual performance of a firm relative to the expected earnings. García Lara et al. (2020:1,8) used the measure as one proxy for conditional conservatism when they analysed the effect of conditional conservatism on earnings management – they used a combination of three conditional conservatism measures, namely the C-score measure (see Section 4.4.2), the skewness measure (see Section 4.5.1.2) and the CR measure, to compile a combined proxy for conditional conservatism for the purposes of their study.

The CR ratio is calculated as follows (Callen et al. 2010:155,166):

$$CR_t \;=\; \frac{CES_t}{EN_t}$$

Where:

CR_t = the conservatism ratio (the higher the CR measure, the more conservative the firm's financial reporting); and

CES_t = the current earnings shock, which is represented by the residual ($\varepsilon_{2,t}$) of the following mean-adjusted equation (part of the parsimonious vector auto-regressive (VAR) model)[52]:

$$roe_t = \beta_1 r_{t-1} + \beta_2 roe_{t-1} + \beta_3 bm_{t-1} + \varepsilon_{2,t}$$

Where:

roe = the log of one plus earnings deflated by book value of equity;

r = the log stock returns;

bm = the log MTB ratio; and

EN_t = earnings news, and is calculated using the following equation:

$$EN_t = \sum_{j=0}^{\infty} \rho^j \left(roe_{t+j} - i_t \right)$$

and assumes that $\rho = 0.967$ (Vuolteenaho 2002:260; Callen et al. 2010:154).

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[52] The other two mean-adjusted equations included in the parsimonious VAR system are:
$$r_t = \mu_1 r_{t-1} + \mu_2 roe_{t-1} + \mu_3 bm_{t-1} + \varepsilon_{1,t}$$
$$bm_t = \delta_1 r_{t-1} + \delta_2 roe_{t-1} + \delta_3 bm_{t-1} + \varepsilon_{3,t}$$

The higher the value of the CR ratio, the higher the level of conservatism (Hsu et al. 2017:83).

Callen et al. (2010:145) tested the validity of the CR ratio as a measure of conservatism empirically. They found that the higher the CR ratio of a firm, the more negative the firm's accruals, incidence of losses and leverage, and the higher the firm's volatility in returns and earnings. These are all factors consistent with conservative accounting.

Some benefits of the CR ratio are that it can be used as a firm-year measure for conditional conservatism, and that it can be applied in both time series and a cross-sectional analysis (Callen et al. 2010:171; García Lara et al. 2020:8). However, Dutta and Patatoukas (2017:193) have criticised Callen et al.'s (2010) study for not considering the confounding implications of non-accounting factors in their measurement of accounting conservatism.

Table 4.5 summarises the suitability of the CR measure for the current study.

Table 4.5: Summary of suitability of the conservatism ratio

Measure	Unconditional (UC) or conditional (CC) measure	Firm-year level measure – yes (√) or no (X)	Suitable (√) or not (X) with a reason	
Conservatism ratio (CR)	CC	√	X	It is a firm-year level measure, but is excluded because the measure does not take into account non-accounting factors and their possible confounding implications.

Source: Own compilation

Based on the summary in Table 4.5, although the conservatism ratio is a firm-year level measure, it was not considered for this study, because it does not take into account the confounding implications of non-accounting factors (Dutta & Patatoukas 2017:193).

4.4.4 Spread of conditional variances (SCV) measure

The standard Basu measure's construct validity was evaluated by Dutta and Patatoukas (2017:191,192), who reported evidence that the Basu coefficient is positive, indicating conditional conservatism, even when there is no conditional conservatism and accounting is symmetric, or when conditional conservatism was held constant, but non-accounting factors were adjusted. They specifically tested for the following non-accounting factors: non-news-based (expected) returns, asymmetry in the returns distribution (which led to an

increase in the Basu coefficient) and cash flow persistence (which led to a decrease in the Basu coefficient). In addition, the results remained the same, irrespective of whether the dependent variable in the Basu measure was total earnings, in line with the original Basu measure (Basu 1997:17), or the dependent variable was one of the proposed alternatives (see Section 4.4.1 for a detailed discussion), namely the news-based elements of earnings (Ball et al. 2013a:783-784), or the accrual element of earnings (Collins et al. 2014:173-174). Based on their analysis, Dutta and Patatoukas (2017:191,192) identified the need for an alternative measure to be developed to measure conditional conservatism, which is (unlike with the standard Basu measure) unaffected by the asymmetry in the distribution of returns, and which is also impartial to the market capitalisation factor. They therefore proposed a measure based on the asymmetry in the variance of the accrual portion of earnings. They used the conditional variance spread of bad news (negative stock returns) and good news (zero or positive stock returns) accruals as a measure of conditional conservatism, because accruals should be more sensitive to bad news events than to good news events, if conditional conservatism is present[53] as a result of the presence of asymmetric loss recognition (Dutta & Patatoukas 2017:192,200; see also García Lara et al. 2020:9). This measure is also referred to as the spread of conditional variances (SCV) (García Lara et al. 2020:9). The SCV measure is based on the assumption that if conditional conservatism is present, asymmetric timely loss recognition is more likely to be apparent in the accrual portion of earnings if bad news is received than if good news is received (Dutta & Patatoukas 2017:200).

The SCV measure is calculated using the following equation:

$$SCV_t = Variance(ACC_{it} | RET_{it} < 0) - Variance(ACC_{it} | RET_{it} \geq 0)$$

Where:

SCV_t = the spread of the conditional variances or the SCV measure for firm i in year t;

ACC_{it} = accruals deflated by lagged stock price for firm i in year t; and

RET_{it} = news-based (unexpected) returns for firm i in year t, which is used as proxy for good (≥ 0) or bad (< 0) news.

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[53] Bad news accrual variances are higher, especially because of conditionally conservative accruals, which are ingrained in GAAP and relate to long-term asset write-downs, inventory write-downs (lower of cost or market value) and goodwill impairments (Dutta & Patatoukas 2017:191,193).

Accounting is conditionally conservative if the SCV measure is positive, in other words, if the spread or difference between the conditional variances of bad and good news accruals is positive. If the spread of the conditional variances is zero, accounting is symmetric (Dutta & Patatoukas 2017:192,200; García Lara et al. 2020:9,12).

The SCV measure was used in the recent study by García Lara et al. (2020:1,9) to validate their measure of conditional conservatism when they investigated the effect of conditional conservatism on earnings management. The SCV measure was used to validate one of their selected measures, namely the C-score (see Section 4.4.2), which is based on the standard Basu measure, which is known to contain bias (see Section 4.4.1) in that it identifies conditional conservatism when there is none. They selected the SCV measure to perform the validation, because it does not suffer from the same bias as the standard Basu measure. Their additional testing validated the C-score as classifying firms accurately, based on their level of conditional conservatism (García Lara et al. 2020:9). The SCV measure was also used in the study by Ahmed et al. (2023:9) to investigate how acquisition outcomes were affected by the level of accounting conservatism of the target firm.

The main benefits of the SCV measure are that it is free from the bias identified in the standard Basu measure (Dutta & Patatoukas 2017:191,211). In addition, Dutta and Patatoukas (2017:200) maintain that unlike the Basu measure, the SCV measure does not rely strongly on the efficiency of the market, but relies on accounting data. The spread in the conditional variances between bad and good news accruals is only positive if conditional accounting conservatism is present. The SCV measure is also not affected by non-accounting factors, namely asymetry in the distribution of returns, non-news based returns, and cash flow persistence (Dutta & Patatoukas 2017:192). The main limitation is that it is not a firm-year level measure (García Lara et al. 2020:18), and that it is a new measure that has not been empirically tested in many other studies.

Table 4.6 summarises the suitability of the SCV measure for the current study.

Table 4.6: Summary of suitability of the SCV measure

Measure	Unconditional (UC) or conditional (CC) measure	Firm-year level measure – yes (√) or no (X)	Suitable (√) or not (X) with a reason	
SCV	CC	**X**	**X**	It is not a firm-year level measure.

Source: Own compilation

Based on the summary in Table 4.6, the SCV measure cannot be considered to measure conditional conservatism for the purposes of this study, since it is not a firm-year level measure.

4.5 INCOME STATEMENT MEASURES (EARNINGS/ ACCRUALS MEASURE)

Of the ten accounting conservatism measures discussed, four relate to the income statement, including the earnings (persistence and skewness), accruals (*NONACC*) and the accruals/cash flow (*ACC/CFO*) relation measures (Zhong & Li 2017:201-202).

4.5.1 Earnings measures

There are two earnings measures that measure accounting conservatism, namely the persistence measure and the skewness measure (Zhong & Li 2017:201).

4.5.1.1 Persistence measure

Accounting conservatism occurs as a response to the higher degree of verification required by accountants before recognising good news, as opposed to bad news. This has the effect that gains are postponed until they are realised, but that losses are anticipated in earnings (Basu 1997:4). It follows that losses are more likely to be recognised in the current year, as a once-off drop in earnings, but also that firms with losses or negative earnings in one period are more likely to have positive earnings in the next period, when losses that were anticipated but are not realised are reversed, or when losses are non-recurring. The converse is also true: the recognition of gains requires a higher level of verification, so gains are more likely to persist in a subsequent period when the related benefits or cash flows are realised. Gains are therefore more persistent than losses. It follows then that positive earnings or positive changes in earnings in one period are likely to persist in the next period (Watts 2003b:289-290; Zhong & Li 2017:201).

This predicted pattern in the movement of earnings forms the basis of the persistence measure, originally developed by Givoly and Hayn (2000:293), which measures conditional conservatism (Ryan 2006:519). The persistence measure is tested cross-sectionally using the following equation:

$$\Delta X_{it}/P_{it-1} = \alpha_0 + \alpha_1 D + \beta_0 \Delta X_{it-1}/P_{it-2} + \beta_1 D \times \Delta X_{it-1}/P_{it-2} + \xi$$

In the formula to calculate the persistence measure (β_1), the variables are defined as follows:

X = earnings before extraordinary items;

P = the market value of equity at the beginning of the fiscal year;

D = 1 if X is negative, and 0 otherwise; and

ξ = the noise included in accounting earnings that reverse in the next period.

If financial reporting is conservative, β_1 is significantly negative (Zhong & Li 2017:201-202).

The persistence measure was used by Nichols et al. (2009:88,109) to investigate the levels of conditional conservatism in publicly traded banks versus those in privately held banks. It was also employed as an alternative proxy for conditional conservatism by García Lara et al. (2009b:336,367) to study the economic determinants of accounting conservatism. The measure was applied in additional testing to confirm results in a study by Black et al. (2018:135) to ascertain whether the exposure of banks to less verifiable fair value estimates (referred to as Level 2 and Level 3 assets under SFAS 157) is associated with conditional conservatism. Bornemann (2018:3,22) used it to examine the relation between unconditional and conditional conservatism and decreases in the corporate tax rate. A limitation of this measure is that it reports on the degree of the changes caused in earnings by certain items, it does not address the timeliness of these changes (Ryan 2006:519).

Table 4.7 summarises the suitability of the persistence measure for the current study.

Table 4.7: Summary of suitability of the persistence measure

Measure	Unconditional (UC) or conditional (CC) measure	Firm-year level measure – yes (√) or no (X)	Suitable (√) or not (X) with a reason	
Persistence	CC	X	X	It is not a firm-year level measure of conservatism and only indicates the degree of conservatism and not the timeliness.

Source: Own compilation

Based on the summary in Table 4.7, the persistence measure was not adopted to measure conditional conservatism for the purposes of this study, since it is not a firm-year level measure of conservatism, as required for this study.

4.5.1.2 Skewness measure

The skewness measure, also developed by Givoly and Hayn (2000:293), is a cumulative earnings measure which measures conditional conservatism (Heflin et al. 2015:683-684; García Lara et al. 2020:8). It is based on the predicted movement of earnings, particularly the manner in which gains and losses are recognised when accounting is conservative. Heflin et al. (2015:675,684) used the skewness measure in their study on the impact of conditional conservatism on a number of characteristics of analysts' forecasts and GAAP earnings. They used the skewness measure to verify the results obtained when using the standard Basu measure (see Section 4.4.1), to address concerns regarding the bias contained in the standard Basu measure. Zhang (2008:27,32) used the measure for additional testing in a study on the *ex post* and *ex ante* advantages of accounting conservatism for lenders and borrowers involved in the debt contracting process. Ahmed and Duellman (2013:3), who examined the relation between managers' overconfidence and both conditional and unconditional conservatism, also used the measure. Francis et al. (2013:319,321) applied it in robustness testing to examine whether shareholder value (firm performance in equity markets) is affected by conservative accounting, as did Francis et al. (2015:1289), who examined the effect of a manager's gender on financial accounting reporting decisions by inspecting the relation between a manager's gender and accounting conservatism. In a more recent study by Bornemann (2018:3,22), the skewness measure was used to examine the relation between unconditional and conditional conservatism and decreases in the corporate tax rate. D'Augusta and DeAngelis (2020b:133,139) used

the measure as one of three proxies for conditional conservatism to explore whether the tone used by managers in the financial accounting disclosure relating to earnings performance varies, based on the actual performance of a firm relative to the expected earnings. Moreover, the skewness measure was adopted in a study by García Lara et al. (2020:1,8) on the effect of conditional conservatism on earnings management, in a combination of three conditional conservatism measures, namely the skewness measure, the C-score measure (see Section 4.4.2) and the conservatism ratio (see Section 4.4.3), to compile a combined proxy for conditional conservatism for the purposes of their study. It was also used as one of five measures of conservatism by Ahmed et al. (2023:9).

If accounting is conservative, losses are accounted for timeously and capitalised into earnings, which reduces earnings. Gains are more likely to be accounted for gradually over future periods. As a result, the distribution of earnings is negatively skewed under accounting conservatism (Zhang 2008:32; Zhong & Li 2017:201). Conversely, the skewness of cash flows is not likely to be negative if accounting is conservative. As a result, the difference in the skewness of earnings and cash flow is positive. The difference between earnings skewness and cash flows skewness is therefore used to measure conservatism. The larger the difference in skewness, the more prevalent the accounting conservatism (Zhong & Li 2017:201). The skewness of earnings (SE) is calculated using the following equation:

$$SE = \quad E\left[(x - \mu)3/\sigma3\right] \quad X \; 100$$

Where:

μ = the mean of earnings over the last five years, or over a five-year window centred on the observation in Year 3, and

σ = the standard deviation of earnings over the last five years, or over a five-year window centred on the observation in Year 3.

The same formula is used for the skewness of cash flow (SCF), replacing earnings with cash flow in the above equation, and all variables are deflated by total assets. The larger the difference between earnings (SE) and cash flow (SCF) skewness, the more prevalent the accounting conservatism (Ahmed & Duellman 2013:11; Zhong & Li 2017:201).

Some studies (Zhang 2008:32; Francis et al. 2015:1289; Heflin et al. 2015:684) calculate the skewness measure as the time-series skewness of earnings, deflated by the skewness of cash flow, multiplied by negative one. Skewness of earnings is then deflated by cash flow to control for variations in the firm's performance (Francis et al. 2015:1289).

One advantage of the cumulative measure is that it can be used to compare a phenomenon in a before and after period (Francis et al. 2015:1290). Another is that it can be used to calculate conservatism in a wide variety of firms, including private firms, since it is not a market-related measure that relies on stock returns, as the earnings/stock return measures do (see Section 4.4) or the MTB measure does (see Section 4.3.1) (Zhang 2008:33). It may also be useful for the current study, as it is a firm-specific measure (Ahmed & Duellman 2013:11).

One limitation of this measure is that negatively skewed earnings can also be an indication of earnings management if managers use a "big bath", namely a substantial one-time write-off structured as a reserve, used to decrease earnings in the current year (Zhang 2008:33). Another limitation is that it reports on the degree of the changes caused by certain items to earnings, but not on the timeliness of these changes (Ryan 2006:519).

Table 4.8 summarises the suitability of the skewness measure for the current study.

Table 4.8: Summary of suitability of the skewness measure

Measure	Unconditional (UC) or conditional (CC) measure	Firm-year level measure – yes (√) or no (X)	Suitable (√) or not (X) with a reason	
Skewness	CC	√	X	It is a firm-year level measure of conservatism, but can be influenced by earnings management, making it unsuitable. It also indicates degree of conservatism and not timeliness.

Source: Own compilation

Based on the summary in Table 4.8, the skewness measure was not considered to measure conditional conservatism for the purposes of this study, since it can be influenced by earnings management and the measure reports on the degree of changes caused to earnings by certain items, and not their timeliness.

4.5.2 Accruals measures

4.5.2.1 Accruals (NONACC) measure

The second type of income statement measure, originally developed by Givoly and Hayn (2000:293), is the accruals measure, hereafter referred to as the *NONACC* measure. The *NONACC* measure focuses on a firm's non-operating accruals. It is also sometimes referred to as negative accruals (Wang et al. 2009:179; Zhong & Li 2017:201), which is used to measure unconditional conservatism (Ahmed & Duellman 2013:3; Francis et al. 2015:1289; Ryan 2006:519; Zhong & Li 2017:201).

This measure was used by Ahmed and Duellman (2007:411-412) to examine the relation between the characteristics of the board of directors (board independence and the strength of outside directors) and accounting conservatism, to establish whether conservatism can assist directors to decrease agency cost. These researchers selected this measure as it is not affected by growth opportunities or future economic rents (Ahmed & Duellman 2007:418). Qiang (2007:759,777) used it to establish whether conditional and unconditional conservatism play the same role or different roles when interacted with the four main determinants of accounting conservatism. Zhang (2008:27,33) used the measure in additional testing to determine *ex post* and *ex ante* advantages of accounting conservatism for lenders and borrowers involved in a debt contracting process.

The *NONACC* measure is helpful to verify the results obtained when using the Basu measure (see Section 4.4.1), given concerns regarding bias contained in the Basu measure. García Lara et al. (2009a:161,171) used the *NONACC* measure to look into the relation of accounting conservatism to corporate governance. Wang et al. (2009:179) adopted the measure, and Ahmed and Duellman (2013:3) employed it to examine the relation of overconfidence of managers to both conditional and unconditional conservatism. Francis et al. (2013:319,321) found it useful in robustness testing to examine whether shareholder value (in terms of firm performance in equity markets) is affected by conservative accounting. Francis et al. (2015:1289) used it again to explore the effect of a manager's gender on the financial accounting reporting decisions made. Hsu et al. (2017:83) applied it to identify the relation between accounting conservatism and overconfident managers in the context of firm performance.

The asymmetric timeliness of earnings, one characteristic of accounting conservatism, where the recognition of economic losses is accelerated but simultaneously the recognition of economic gains is deferred, is achieved through accrual accounting (Givoly & Hayn 2000:292; Wang et al. 2009:189; Watts 2003b:289). If there is no conservatism, there are no accruals, and the net income and cash flows meet over time (Zhong & Li 2017:201). If losses are timeously and fully accounted for, and gains are only recognised progressively, over time, this results in negative and even understated net accruals (operating plus non-operating accruals[54]), which, if they are consistent over a long period, indicate conservatism. In addition, the rate at which the negative net accruals accumulate indicates the level of conservatism (Givoly & Hayn 2000:292; Watts 2003b:289).

The *NONACC* measure is calculated as total net accruals (net income before extra-ordinary items, less operational cash flow) before the depreciation expense, less operating accruals.[55] This amount, which represents non-operating accruals[56] before depreciation, is deflated by the average total assets,[57] which is then averaged over a five-year period (the current year and the previous four years), although it is also acceptable to use a shorter period, limited to a minimum of two years (Zhong & Li 2017:201), and is then multiplied by negative one. Positive values indicate greater conservatism. Therefore, the higher the *NONACC* value, the more conservative the way in which the earnings have been recorded (Givoly & Hayn 2000:303; see also Ahmed 2007:418; Francis et al. 2015:1290; Hsu et al. 2017:83; Zhang 2008:33; Zhong & Li 2017:201-202).

The fact that this measure of conservatism is easy to calculate and implement, since a big sample is not necessary, is one of the main benefits. In addition, the measure can be used to calculate conservatism in a wide range of firms, including private firms, because it is not

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[54] Givoly and Hayn (2000:303-304) found that although the operating accruals of the firms they investigated increased (were positive), the non-operating accruals decreased (were negative) at a faster rate, leading to a net negative effect in total accruals.

[55] Operating accruals arise from a firm's day-to-day activities. They include changes over the period in accounts receivable, inventories, prepaid expenses, accounts payable and taxes payable (Givoly & Hayn 2000:303).

[56] Non-operating accruals, the treatment of which accounting standards sometimes prescribe, but the amounts and timing of which are mainly based on the discretion of managers, include bad debt and loss provisions, and the reversal of these provisions, the effect of any changes in estimates, restructuring charges, deferral of revenues and subsequent recognitions, gains or losses when assets are sold, write-downs of assets, and accrual and capitalisation of expenses (Givoly & Hayn 2000:304). Non-operating accruals can be seen as a reflection of how bad news is recorded or accounted for (Zhang 2008:33).

[57] Later studies (Ahmed & Duellman 2007:412) used the average assets calculated over the period selected, usually the previous five years (but limited to a minimum of two years) or centred on the year *t* (the year of the observation) (Zhong & Li 2017:201).

a market-related measure like the earnings/stock return measures (see Section 4.4) or the MTB measure (see Section 4.3.1) (Wang et al. 2009:179). Another advantage, especially for the current study, is that it is a firm-specific measure (Ahmed & Duellman 2013:11; Wang et al. 2009:179). The measure is also not affected by growth opportunities or future economic rents, as is the case with the MTB measure (see Section 4.3.1) (Ahmed & Duellman 2007:418). As with the skewness measure (see Section 4.5.1.2*), NONACC* can also be used as a cumulative measure, which can be helpful in comparing a phenomenon in a before and after period (Francis et al. 2015:1290).

The fact that *NONACC* has been calculated first as a cumulative measure in previous studies has been criticised as a limitation in some studies, since the accumulated accruals have to be calculated over an extensive period, with all firms starting from the same base year. This limitation was addressed in later studies (Ahmed & Duellman 2007:412), where the use of an average non-operating accrual was calculated and used as the conservatism proxy (as indicated in the calculation method indicated above). This changes the *NONACC* measure from an accumulated to an average measure of periodic non-operating accruals, although it is still based on the same principle, namely that conservatism produces negative non-operating accruals (Wang et al. 2009:179). Another limitation is the exclusion of depreciation from the measure, which, although it is necessary to make earnings compatible with the operating cash flow (Givoly & Hayn 2000:301), excludes a vital element of accrual accounting (Wang et al. 2009:179). In this regard, Zhang (2008:33) argues that, as was the case with negatively skewed earnings, negative non-operating accruals can also be an indication of earnings management if managers use a "big bath" approach. He adds the caveat that accounts need to be scrutinised carefully, because assets bought for cash might be written off as an operating expense, which results in an operating cash flow that includes investment accruals. Table 4.9 summarises the suitability of the *NONACC* measure for the current study.

Table 4.9: Summary of suitability of the *NONACC* measure

Measure	Unconditional (UC) or conditional (CC) measure	Firm-year level measure – yes (√) or no (X)	Suitable (√) or not (X) with a reason	
NONACC	UC	√	√	It is a firm-year level measure of conservatism and is not affected by future economic rents or growth opportunities.

Source: Own compilation

Based on the summary in Table 4.9, the *NONACC* measure was selected to measure unconditional conservatism for the purposes of this study. The advantage of using it is that it is a firm-year level measure. Although it has some limitations, it is not affected by future economic rents or growth opportunities, as is the case with the only other measure of unconditional conservatism, namely the MTB measure (see Section 4.3.1).

4.5.2.2 The accrual/cash flows relation (ACC/CFO) measure

The accrual/cash flow relation measure, hereafter referred to as the *ACC/CFO* measure (Zhong & Li 2017:202), was developed by Ball and Shivakumar (2005:85,93-94). It is also sometimes referred to as the asymmetric accrual to cash flow measure (Wang et al. 2009:176). It was specifically developed to measure accounting conservatism in private (unlisted) firms, since Basu's measure (see Section 4.4.1), which was used by most studies to measure conservatism at that time, catered only for public companies, since it relies on stock prices, which are not available for private companies. This measure has been called the "non-stock-market equivalent" of the Basu measure, as it is based on the same principle of asymmetric timeliness as the Basu measure (Wang et al. 2009:176). It assumes the principle of asymmetry arising from the fact that economic losses (bad news) tend to be recognised more timeously than economic gains (good news). In particular, losses are recognised as unrealised non-cash accruals, which are recorded against income, whereas gains are only recognised once they are realised as cash. Given this asymmetry, there is a positive correlation between accruals and cash flow. This correlation is greater if losses are involved (Ball & Shivakumar 2005:93-94). The ACC/CFO measure regresses an earnings variable, namely accruals, against a proxy for economic news – operating cash flow (Wang et al. 2009:176). It is used to measure conditional conservatism (Ball & Shivakumar 2006:215, García Lara et al. 2009a:170).

The measure has been used in two studies, by Ball and Shivakumar (2005:85,93-94; 2006:214), and by García Lara et al. (2009a:161,170) to investigate the relation between accounting conservatism and corporate governance. Francis and Martin (2010:176) used it in robustness testing to examine the relation of accounting conservatism and a firm's acquisition-investment decisions. It was also used in a modified format by Yip and Young (2012:1787) in sensitivity testing in a European Union study which tested cross-country information comparability improvement after mandatory IFRS adoption. The main reason

for using this measure was to enable the researchers to confirm their results with a non-market value-based measure (Yip & Young 2012:1767,1787).

The ACC/CFO measure is calculated using the following equation:

$$ACC_t = \beta_0 + \beta_1 DCFO_t + \beta_2 CFO_t + \beta_3 DCFO_t \; x \; CFO_t + \varepsilon_t$$

Where:

ACC_t[58] = accruals measured as the change (Δ) in inventory + Δ debtors (accounts Receivable) + Δ other current assets – Δ creditors (accounts payable) – Δ other current liabilities – depreciation;

$DCFO_t$ = a dummy variable which is 0, unless CFO_t is less than (<) 0, or negative when it is 1; and

CFO_t[59] = cash flow from operations[60] for period t.

For the purposes of this calculation, both accruals and cash flow from operations are deflated by total assets at the beginning of period t.[61] Then β_3[62] is significantly positive if conditional conservatism is present, because of the positive association between cash flow and accruals in periods when bad news is experienced. The larger β_3, the higher the degree of conservatism (Ball & Shivakumar 2005:94; García Lara et al. 2009a:170; Wang et al. 2009:176; Zhong & Li 2017:202).

The main benefit of this measure is that, unlike the Basu measure, it can be used to measure conservatism in all types of firms, both private and public (Wang et al. 2009:176) since it does not rely on the market value of shares. When a measure relies on market value, there is a risk of drawing inaccurate conclusions, given the likelihood of insufficiencies in the market (García Lara et al. 2009a:170). In the light of the recent criticism of the Basu measure (see Section 4.4.1), some researchers favour the ACC/CFO

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[58] Some studies adjust accruals and cash flow from operations by subtracting the two-digit SIC industry mean of the variable annually. This is done to control for variations in the type and size of accruals across different industry groups (García Lara et al. 2009a:170).

[59] See previous footnote.

[60] Measured as earnings before any special (exceptional and extra-ordinary) items, less accruals (Ball & Shivakumar 2005:94).

[61] Some studies scale accruals and cash flow from operations by average total assets (García Lara et al. 2009a:170).

[62] The β_2 is expected to be significantly negative because of the negative correlation envisioned between cash flow and accruals (García Lara et al. 2009a:170).

measure (Wang et al. 2009:176). Table 4.10 summarises the suitability of the ACC/CFO measure for this study.

Table 4.10: Summary of suitability of the ACC/CFO measure

Measure	Unconditional (UC) or conditional (CC) measure	Firm-year level measure – yes (√) or no (X)	Suitable (√) or not (X) with a reason	
ACC/CFO	CC	X	X	It is not a firm-year level measure of conservatism and is therefore not considered in this study.

Source: Own compilation

Based on the summary in Table 4.10, the *ACC/CFO* measure was not selected to measure conditional conservatism for the purposes of this study, since it is not a firm-year level measure of accounting conservatism.

4.6 COMMENTARY ON THE SUITABILITY OF ACCOUNTING CONSERVATISM MEASURES

The suitability of the various measures of conservatism identified from the literature and summarised above in Tables 4.1 to 4.10 is summarised in Table 4.11. The measures that are highlighted in Table 4.11 were deemed suitable for measuring either unconditional or conditional conservatism for the purposes of reaching the aim of this study, namely to explore the relationship between tax avoidance and accounting conservatism, including the relationship of tax avoidance to the two components of accounting conservatism.

Table 4.11: Summary of the evaluation of suitability of accounting conservatism measures

Measure	Unconditional (UC) or conditional (CC) measure	Firm-year level measure – yes (√) or no (X)	Suitable (√) or not (X) with a reason	
MTB (see Section 4.3.1)	UC	√	X	It is a noisy instrument, as it may include future growth opportunities and economic rent from assets already in use.
Valuation model (see Section 4.3.2)	UC	√	X	This measure leads to inconsistent observations.
NONACC (see Section 4.5.2.1	UC	√	√	It is a firm-year level measure of conservatism and is not affected by future economic rents or growth opportunities.

Measure	Unconditional (UC) or conditional (CC) measure	Firm-year level measure – yes (√) or no (X)	Suitable (√) or not (X) with a reason	
Basu (see Section 4.4.1)	CC	X	X	It does not provide a conservatism measure specific to an individual firm. The augmented Basu method provides a solution to this, so it is implemented as a measure introduced to overcome this problem.
Conservatism ratio (CR) (see Section 4.4.3)	CC	√	X	It is a firm-year level measure, but is excluded because the measure does not take into account non-accounting factors and their possible confounding implications.
Persistence (see Section 4.5.1.1)	CC	X	X	It is not a firm-year level measure of conservatism and only indicates the degree of conservatism and not the timeliness.
Skewness (see Section 4.5.1.2)	CC	√	X	It is a firm-year level measure of conservatism, but can be influenced by earnings management, making it unsuitable. It also indicates degree of conservatism and not timeliness.
ACC/CFO (see Section 4.5.2.2)	CC	X	X	It is not a firm-year level measure of conservatism and is therefore not considered in this study.
C-score (see Section 4.4.2)	CC	√	√	It is an uncomplicated firm-year level measure which can reduce endogeneity concerns relating to managerial discretion, because firm characteristics are included.
SCV (see Section 4.4.4)	CC	X	X	It is not a firm-year level measure.

Source: Own compilation

Based on the analyses in Table 4.11, the *NONACC* measure was used as a proxy for unconditional conservatism. It was chosen because it is a firm-year level measure, which is important for the purposes of the study. Despite some limitations, *NONACC* is not affected by future economic rents or growth opportunities, unlike the only other measure of unconditional conservatism, namely the MTB measure (see Section 4.3.1). In their comprehensive review of the accounting conservatism literature, Zhong and Li (2017:292) found the *NONACC* measure to be the second-most used measure in accounting

conservatism, surpassed only by the Basu measure, which was the most commonly used measure of conditional conservatism for many years.

The C-score measure was deemed suitable to measure conditional conservatism in the current study. Since no single measure is sufficient to analyse the different elements of accounting conservatism (Givoly et al. 2007:67), both the C-score and the *NONACC* measures were used in this study. The C-score is also a firm-year level measure. In addition, using the C-score measure helped to address endogeneity concerns relating to managerial discretion, which is relevant for this study as managerial discretion affects both accounting conservatism and tax avoidance. It was also used in similar studies to measure conditional conservatism (Black et al. 2018:139,141; Bornemann 2018:3,22; García Lara et al. 2020:1,8; Gong & Luo 2018:193; Hsu et al. 2017:83).

A regression model (see Chapter 5), namely the augmented Basu (1997) model (see Section 4.4.1 and Chapter 5 for more details), was also used in testing of H_2, which focuses on the relation between tax avoidance and conditional conservatism. To put it simply, it is the standard Basu (1997) model augmented with the variable of interest (tax avoidance). This model has been used in various other studies for testing relations to conditional conservatism (Basu & Liang 2019; Black et al. 2018; Deng et al. 201; García Lara et al. 2020; Wang et al. 2018) and overcomes the limitation that the Basu measure does not provide a firm-year level measure of conditional conservatism.

4.7 CONCLUSION

In this chapter, I have provided details of the available accounting conservatism measures, including a discussion of the different measures, the calculation of and the benefits or limitations of each measure. Studies that used these accounting conservatism measures are indicated. The chapter shows which measures were chosen as the most suitable measure(s) for the purposes of my study. The *NONACC* measure (an accruals-based measure) was used as proxy for unconditional conservatism, and the C-score measure (an earnings/stock relation measure) was deemed suitable to measure conditional conservatism, together with the augmented Basu model.

Chapter 5 discusses the research design followed in the study to address the two hypotheses developed in Chapter 2.

CHAPTER 5:
RESEARCH DESIGN AND METHODOLOGY

5.1 INTRODUCTION

In line with the aim of this study, to explore the relationship between tax avoidance and accounting conservatism, including its two components, conditional and unconditional conservatism, this chapter provides details of the research design and methodology followed to achieve this aim, and to meet the three research objectives related to this aim. The first research objective was to clarify the theoretical framework that underpins this study and identify the determinants and consequences of tax avoidance and accounting conservatism. The second was to identify the various measures used in previous research for tax avoidance, and for conditional and unconditional conservatism and then to identify the most relevant measures for the study. The third objective was to establish the relationship between tax avoidance and the two forms of accounting conservatism, namely conditional and unconditional conservatism.

The chapter discusses the chosen research paradigm and research strategy, followed by the sample and data collection methods. The research design applied to test the two hypotheses is covered in the remainder of the chapter. This discussion includes an overview of the measures selected, based on the analyses in Chapter 3 (tax avoidance measures) and Chapter 4 (accounting conservatism measures) to test the hypotheses.

5.2 RESEARCH STRATEGY

The research falls within a positivist research paradigm. This implies that the research can be both observed and measured in an objective manner. Objectivity implies that other researchers should be able to concur with the reported observations, using the specified measuring instrument (Welman et al. 2007:6). Such a study does not attempt to prescribe behaviour, but to predict and/or explain a phenomenon or a relation (Deegan 2014:10; Welman et al. 2007:7). Given that the study aims to provide evidence on the relationship between tax avoidance and accounting conservatism, including its two components, conditional and unconditional conservatism, and that it explains this relationship, it can be classified as positivist research.

To establish the relationship, an archival research design was followed, starting with an extensive literature review to clarify the theoretical framework underpinning this study, and to identify the characteristics of tax avoidance and accounting conservatism, including the definitions, determinants, consequences and measurement of both these phenomena. This analysis was used as the starting point to develop two hypotheses relating to the relation between tax avoidance and unconditional conservatism, and between tax avoidance and conditional conservatism. In addition, it was also used to determine the most relevant measures to be applied to measure these phenomena.

The research followed a quantitative research approach, in line with the positivist paradigm (Welman et al. 2007:7). Quantitative research evaluates objective data (usually large volumes of data), using structured empirical and inferential methods to make unbiased conclusions (Leedy & Ormrod 2010:95; Welman et al. 2007:9-10). Independent parties should be able to replicate the research (Welman et al. 2007:135). A quantitative approach is selected if a study investigates an objective, measurable reality which can be tested by asking a confirmatory or predictive research question, supported by a relatively large body of knowledge (Leedy & Ormrod 2010:107), as was the case in my study.

The measures used in the analysis for tax avoidance, conditional and unconditional conservatism were quantified and analysed by me, using inferential statistical data analysis techniques, as suggested by Welman et al. (2007:236). Inferential statistics broadly relate to the inferences researchers can make relating to a given population, based on characteristics obtained from a randomly drawn sample (Leedy & Ormrod 2010:31; Salkind 2009:171; Welman et al. 2007:236). Inferential statistics support statistically based hypothesis testing (Leedy & Ormrod 2010:275). I performed multivariate regression analyses to determine the relation between tax avoidance and the two types of accounting conservatism.

5.3 INITIAL SAMPLE SELECTION AND DATA COLLECTION

Data were obtained for all publicly listed firms in the United States for 29 years, from 1990[63] to 2018, in line with the studies by Balakrishnan et al. (2019:51) – whose sample

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[63] Frank et al. (2009:479) mention that the book-tax gap began in early 1990, which further supports the decision to include data from 1990.

period also started in 1990 – and by García Lara et al. (2020:2) – whose sample period covered 1990 to 2018. Although the sampling period chosen to test my hypotheses only covers the 26-year period from 1993 to 2018, I also had to obtain data for the years 1990 to 1992 to calculate some of the proxies that I used for testing, for example, the Cash ETR measure of tax avoidance and the *NONACC* measure of unconditional conservatism, which require data for at least two and three previous years respectively.

The data were obtained from the *Datastream* database (including Worldscope), a global financial and macro-economic data platform provided by Refinitiv. This database was selected because it was the most comprehensive database of financial information available to students at the University of Pretoria. The database offers easy access to many observations for various countries, over an appropriate period.

Only publicly listed firms were selected for the sample, because the proxy for conditional conservatism (the C-score) requires stock return data to measure the timeliness of news (see Section 4.4.2). The sample focused on United States firms for three reasons. The first was the extent of tax avoidance experienced in that country, and the fact that the United States is globally ranked at number 25 among countries that enable tax avoidance (Tax Justice Network 2023). The second reason was the availability of large-scale data. The third was that limiting the empirical design to one country isolates differences relating to regulations and legislation, in particular regulations and legislation applicable to taxation and accounting, as well as the regulators responsible for enforcing these regulations and differences in culture (Hasan et al. 2017:632; Schwab et al. 2022:419). I excluded firms in the financial services (SIC codes 6000 to 6999) and utilities (SIC codes 4900 to 4999) from my sample because of their unique regulatory environment and reporting requirements, in line with Basu and Liang (2019:899), Frank et al. (2009:472,479), and García Lara et al. (2020:9).

5.4   RESEARCH DESIGN

After performing an extensive literature review (see Chapter 2) to identify the characteristics of both tax avoidance and accounting conservatism, including the definitions, determinants and consequences of both these phenomena, I developed my hypotheses in Chapter 2. I developed two hypotheses to explore the relationship between tax avoidance and accounting conservatism, focusing on the relation of tax avoidance to

unconditional and conditional conservatism respectively. Before discussing the research design further, I summarise the two hypotheses below.

In Chapter 2, I argued that if a firm wishes to defer taxable income (a form of less aggressive tax avoidance behaviour which should fall on the left-hand side of the tax avoidance continuum in Figure 2.1), while still aiming for book-tax conformity, then accounting income or net earnings also has to be deferred. This is achieved by deferring revenue. At the same time, the recognition of expenses is accelerated in the financial records. This tendency to report more conservatively, which is referred to as tax-induced accounting conservatism (Hanlon et al. 2008:295), and is brought about naturally by the interaction between financial accounting and taxation (Basu 2005:313; Qiang 2007:760; Watts 2003a:209,216,217), results in the deferral of taxes because of the asymmetric recognition of gains and losses. Previous studies (Qiang 2007:765; Ruch & Taylor 2015:21) have indicated that unconditional conservatism in particular results in tax deferral. Based on this, Hypothesis 1, stated in the alternative form, is the following:

H₁: There is a positive relationship between tax avoidance and unconditional conservatism.

As I have explained in Chapter 2, the prior literature has reported evidence of a significantly negative association between the two types of conservatism, suggesting that they fulfil interrelated roles, sometimes making a trade-off between the two types of conservatism necessary (Qiang 2007:760). Furthermore, they have a different impact on the financial statements, which affects the net income before tax and the amounts recorded in the financial statements on which the tax calculation is based (Deegan 2014:130). Unconditional conservatism has a more consistent impact from one year or period to the next, whereas conditional conservatism, given its dependence on economic news, has a more sporadic effect on the financial statements (Ruch & Taylor 2015:20-21). It is therefore important to differentiate between the two types of conservatism, and to test the relation of each of the two types of conservatism to tax avoidance separately.

As I have argued, conditional conservatism is more sensitive to managers' risk aversion, because it relies on economic news and requires a more thorough confirmation of good news than bad news does, if news that is difficult to confirm arises (Basu 2005:313). The studies by Francis et al. (2014) and Francis et al. (2015) show that the level of risk aversion, which is in turn related to the gender of the CFO, dictates the relation of the

manager to both tax avoidance and accounting conservatism. Based on their results, I further posited that, since the prior literature suggests that a female CFO is likely to engage in less tax avoidance and in more accounting conservatism, this suggests a negative relation between tax avoidance and conditional conservatism. This hypothesis was further strengthened by the fact that there is a significantly negative association between unconditional and conditional conservatism (Qiang 2007:760). Given that previous studies have reported a positive relation between tax avoidance and unconditional conservatism (Qiang 2007:765; Ruch & Taylor 2015:21), a negative association between the two types of accounting conservatism suggests a negative relation between tax avoidance and conditional conservatism. Since the literature that I reviewed suggests a negative relation, but has failed to provide strong support for the direction of the relation of tax avoidance and conditional conservatism, the second hypothesis was stated in the null form:

H$_2$: There is no relationship between tax avoidance and conditional conservatism.

In the sections below, I first provide a summary of the tax avoidance measures (see Section 3.8) and the accounting conservatism measures (see Section 4.6) deemed suitable to test the two hypotheses discussed above, after which I provide details on the regression analyses that I used to test the two hypotheses.

5.4.1 Measures used for tax avoidance and accounting conservatism

Chapters 3 and 4 contained a comprehensive review of the available measures, including the calculation and benefits or limitations of each measure, as used in the literature as proxies for tax avoidance (*TA*) and accounting conservatism (*CONS*), including unconditional and conditional conservatism. Based on this review (see Sections 3.8 and 4.6), the next two sections summarise the measures most suitable for the purposes of this study.

5.4.1.1 Tax avoidance measures

Based on the analysis performed in Section 3.8, the Cash Flow ETR Measure B (*CFM B*) and the long-run CASH ETR[64] were the most suitable to measure tax avoidance (*TA*). Given the impact of accounting conservatism on the valuation and measurement of the

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[64] All measures are defined in Annexure A.

amounts recorded in the financial records, combined with the importance of a manager's discretion in implementing accounting principles, a tax avoidance measure which is not affected by accrual accounting had to be selected for the purposes of this study.

CFM B addresses this concern, since it is not affected by accrual accounting in either the nominator (total cash taxes paid) or the denominator (cash flow from operations). It also tests a wide range of tax avoidance activities, accounting for both conforming and non-conforming tax avoidance (Salihu et al. 2013:418,423).

CFM B (*CFM_B* – Measure 1) was calculated by dividing the total cash income taxes paid by the operating cash flow (Salihu et al. 2013:420). Operating cash flow was adjusted by adding back cash taxes paid. Firms that are more aggressive in their tax avoidance strategies tend to have lower CFM B ETRs than other firms (Gebhart 2017:45). The following formula was used to calculate CFM B:

$$\frac{Total\ cash\ taxes\ paid}{Operating\ cash\ flow\ before\ cash\ taxes\ paid}$$

A long-run version of the CFM B measure was also introduced in the study. It was calculated by dividing the sum of cash income taxes paid over *n* years by the sum of operating cash flow before cash taxes paid over *n* years. The long-run version was calculated over both a five-year period (the current year plus the previous four years) (*LR_CFM_B5* – Measure 2) and a three-year period (the current year plus the previous two years) (*LR_CFM_B3* – Measure 3), using the following formula:

$$\frac{\sum_{t=1}^{N}(Total\ cash\ taxes\ paid)}{\sum_{t=1}^{N}(Operating\ cash\ flow\ before\ cash\ taxes\ paid)}$$

The long-run version was used to overcome many of the concerns raised regarding ETR measures calculated using annual data, namely that the use of cash income taxes paid and net operating cash flow before cash taxes paid over a longer period makes irrelevant the fluctuations from year to year, limiting volatility in the measure.

The long-run CASH ETR was used as another measure of tax avoidance. It was calculated over a five-year period (the current year plus the previous four years) (*LR_CASH_ETR5* – Measure 4), and a three-year period (the current year plus the previous two years) (*LR_CASH_ETR3* – Measure 5). It was calculated by dividing the sum of cash income

taxes paid over n years by the sum of the net income before taxation (pre-tax accounting income) after adjustment for any special items over n years. The following formula was used to calculate the long-run CASH ETR:

$$\frac{\sum_{t=1}^{N}(Total\ cash\ taxes\ paid)}{\sum_{t=1}^{N}(Net\ income\ before\ tax\ (after\ adjustments\ for\ special\ items))}$$

Firms that are more aggressive in their tax avoidance strategies tend to have lower long-run CASH ETRs than other firms (Chen et al. 2010:42). This measure was deemed suitable because it has been widely used in other studies (Blouin 2014:879), which enhances the comparability of the results. Moreover, it covers a wide scope of tax avoidance activities (Dyreng et al. 2010:1164), and the measure should be less affected by accruals management, since both the accrual and its reversal should be captured by the long-run measure (Dyreng et al. 2008:66-67; Hanlon & Heitzman 2010:141). A long-run CASH ETR over a three-year period was also previously used by Balakrishnan et al. (2019:49) and Drake et al. (2020:15) to mitigate the concerns mentioned above.

The last measure, the tax fraud controversies score (*TAX_FRAUD_SCORE* – Measure 6), namely the number of controversies published in the media linked to tax fraud, parallel imports or money laundering, obtained from the Datastream database, was also used in this study as a possible proxy for tax avoidance. Since this is a possible new proxy that has not been tested previously, and since only limited data were available (data were only available from 2003), it was used in testing to establish the validity of the measure as well.

5.4.1.2 Accounting conservatism measures

Based on the analysis of measures performed in Section 4.6, two measures[65] were identified to measure accounting conservatism (*CONS*). The *NONACC* measure was used to measure unconditional conservatism; the C-score measure was chosen to measure conditional conservatism. In addition, I used the augmented Basu model to establish the relation between tax avoidance and conditional conservatism.

The *NONACC* measure focuses on the non-operating accruals of a firm. It is also sometimes referred to as the negative accruals measure (Wang et al. 2009:179; Zhong &

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[65] All measures are defined in Annexure A.

Li 2017:201). The measure is widely used to measure unconditional conservatism (Zhong & Li 2017:292), so it was selected as a proxy for unconditional conservatism, since it is a firm-year level measure, which is necessary for this study, and it is the only unconditional conservatism measure which is not affected by future economic rents or growth opportunities.

The *NONACC* measure is calculated as total net accruals (net income before extra-ordinary items, less operational cash flow) before the depreciation expense, less operating accruals. This amount, which represents non-operating accruals before depreciation, was then deflated by the average total assets, which was then averaged over a three-year period (the current year and the previous two years) or a five-year period (the current year and the previous four years) respectively, and was then multiplied by negative one. Positive values indicate greater conservatism. Therefore, the higher the *NONACC* value, the more conservative the way in which the earnings have been recorded (Ahmed 2007:418; Francis et al. 2015:1290; Givoly & Hayn 2000:303; Zhang 2008:33; Zhong & Li 2017:201-202).

To calculate the proxy for *NONACC* in the study, I followed the same approach as Frank et al. (2009:480) in calculating the total net accruals. The total tax expense is added back when net income before extra-ordinary items is calculated, and income taxes paid is added back when operational cash flow is calculated. This is done to ensure that the proxies for tax avoidance and accounting conservatism are not spuriously correlated (Frank et al. 2009:480). For this reason, all proxies used in this study to measure accounting conservatism were adjusted to exclude tax-related expenses and cash flows when calculated.

For the purposes of the study, I used two proxies for *NONACC*. The first, *NONACC5*,[66] was calculated using the non-operating accruals before depreciation, deflated by the average total assets, averaged over a five-year period (the current year and the previous four years), multiplied by negative one. The other, *NONACC3*, was calculated over a three-year period (the current year and the previous two years). The average accumulated assets are usually calculated using a five-year period, but it is acceptable to use a shorter period, limited to a minimum of two years (Zhong & Li 2017:201). Using a three-year period

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[66] All variables are defined in Annexure A.

increases the sample size and thus the statistical power. The *NONACC* measures were calculated using the following formula:

$$\left(\frac{\sum_{t=1}^{N}(Non - operating\ accruals\ before\ depreciation)}{\sum_{t=1}^{N}(Average\ total\ assets)}\right) X - 1$$

The C-score measure (see Section 4.4.2 for an explanation of the calculation of the measure) was deemed suitable to measure conditional conservatism for the purposes of the study. Not only is the C-score a firm-year level measure, but it also helps to address endogeneity concerns relating to managerial discretion (Hsu et al. 2017:83), which is relevant for this study because managerial discretion affects both accounting conservatism and tax avoidance. To calculate the C-score (*CSCORE*), the regressions for the Basu measure (see Section 4.4.1) are estimated annually, after three firm-specific characteristics (MTB, size and leverage, which have been connected to changes in conservatism across different firms) have been incorporated into the Basu measure (Khan & Watts 2009:133). The result is a collection of weights that is used to construct the C-score measure (Brown et al. 2011:226) and that includes cross-sectional and time-series variations when measuring conditional conservatism for an individual firm (Khan & Watts 2009:133). This collection of weights is commonly referred to as the asymmetric timeliness coefficient. The higher the C-score, the higher the level of conditional conservatism (Black et al. 2018:141, Gong & Luo 2018:193; Khan & Watts 2009:136). To calculate the C-score (*CSCORE*[67]), the regressions for the Basu measure, namely

$EARN\_TAX_{it} = \beta_0 + \beta_1 ROE\_DUMMY_{it} + \beta_2 ROE_{it} + \beta_3 ROE\_DUMMY_{it}\ x\ ROE_{it} + \varepsilon_{it}$ (1)

(see Section 4.4.1) were estimated at the firm level, assuming that β_2 (the timeliness of good news – GSCORE) and β_3 (the incremental timeliness of bad news – *CSCORE*) are a linear function of three firm-specific characteristics, namely market-to-book (*MTB*), size (*SIZE*) and leverage (*LEVERAGE*) as follows:

$GSCORE_t = \beta_2 = \mu_0 + \mu_1 SIZE_{it} + \mu_2 MTB_{it} + \mu_3 LEVERAGE_{it}$ (2)

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[67] All variables are defined in Annexure A.

$CSCORE_t = \beta_3 = \lambda_0 + \lambda_1 SIZE_{it} + \lambda_2 MTB_{it} + \lambda_3 LEVERAGE_{it}$ (3)

The β_2 (equation 2) and β_3 (equation 3) were then replaced into the Basu model as follows:

$\beta_0 + \beta_1 ROE\_DUMMY_{it} + ROE_{it} * (\mu_0 + \mu_1 SIZE_{it} + \mu_2 MTB_{it} + \mu_3 LEVERAGE_{it})$
$+ ROE_{it} * ROE\_DUMMY_{it} * (\lambda_0 + \lambda_1 SIZE_{it} + \lambda_2 MTB_{it} + \lambda_3 LEVERAGE_{it})$
$+ (\delta_1 SIZE_{it} + \delta_2 MTB_{it} + \delta_3 LEVERAGE_{it} + \delta_4 ROE\_DUMMY_{it} * SIZE_{it}$
$+ \delta_5 ROE\_DUMMY_{it} * MTB_{it} + \delta_6 ROE\_DUMMY_{it} * LEVERAGE_{it}) + \varepsilon_{it}$ (4)

CSCORE was then calculated by substituting the coefficient estimates λ_0, λ_1, λ_2 and λ_3 from Equation (4) into Equation (3).

In the current study, I also use the augmented Basu model. I estimated the standard Basu (1997) model, augmented with conditional conservatism, to establish the relation between tax avoidance and conditional conservatism, as Regression Model 2 (see Section 5.4.2). In the next section I provide details on the regression analyses used to test the two hypotheses.

5.4.2 Regression analyses

While testing the two hypotheses, this study did not attempt to determine causality in investigating the relation of tax avoidance to unconditional and conditional conservatism. Instead, I attempted rather to establish to what extent firms engage in both tax avoidance *and* conditional or unconditional conservatism respectively, because the literature review established that tax avoidance potentially affects the costs and benefits of conservatism, and *vice versa*. Although a causal relationship between the activities (concepts) was not argued, it appears that engaging in the one behaviour has an effect on the returns from the other. The scope of the commitment to or engagement in each behaviour was therefore determined simultaneously. I did this by following Davis et al.'s (2016:49) simultaneous approach, which they used to examine the relation between corporate social responsibility and tax payments. According to Davis et al. (2016:49), the results when using simultaneous equations are consistent with ordinary least squares (OLS) results.

In the first set of tests, the relation between tax avoidance and unconditional conservatism, and between tax avoidance and conditional conservatism, was tested using the following regression model (Regression Model 1):

$$CONS_{it} = \alpha + \beta_1 TA_{it} + \sum \beta_k CONTROLS_k + \varepsilon_{it} \qquad (5)$$

Where:

CONS = one of two different variables to test the two hypotheses, namely unconditional conservatism (*NONACC5* and *NONACC3*) or conditional conservatism (*CSCORE*), and

TA = the tax avoidance variable (*CFM_B, LR_CFM_B5, LR_CFM_B3, LR_CASH_ETR5, LR_CASH_ETR3* or the *TAX_FRAUD_SCORE*) (see Section 3.8).

The coefficient of *TA* (β_1) represents the relation between tax avoidance and either unconditional conservatism or conditional conservatism. If the coefficient is positive, it suggests that tax avoidance and the dependent variable (either unconditional conservatism or conditional conservatism) are positively associated, and that they increase or decrease in proportion to each other. Thus they are complements. However, if the coefficient is negative, it suggests that they are negatively associated and that they move in opposite directions. Thus if tax avoidance increases, the dependent variable (either unconditional conservatism or conditional conservatism) decreases, which suggests that they are substitutes for one another.

CONTROLS[68] refers to the control variables used in the regression model to enhance internal validity. *CONTROLS* differed, depending on whether the dependent variable was unconditional conservatism or conditional conservatism. Some variables controlled for more than one attribute. In line with previous research by García Lara et al. (2020:8) and Khurana and Wang (2019:253), control variables were identified after analysing the previous literature on tax avoidance and accounting conservatism. A two-step approach was followed. Firstly, the literature review performed in Chapter 2, which analysed each of the determinants for tax avoidance and accounting conservatism respectively, was considered to establish whether the study needed to control for the specific determinant. The findings of this analysis performed in Chapter 2, are summarised in Table 5.1.

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[68] Defined in Annexure A.

Table 5.1: Analysis of the control variables suitable for controlling for the determinants of tax avoidance and conditional conservatism

Determinants	Control for determinant (Yes/No)	Applicable control variable/s	Definition (calculation) of control variable or reason for not controlling
			Tax Avoidance (TA)
Firm-level characteristics (see Section 2.2.2.1)	Yes	- *SIZE* - *MTB* (growth) - Industry fixed effects - Leverage (*LEVERAGE*) - Profitability (Operating cash flow (*OPER_CF*)) - Earnings (*EARNINGS*) (profitability)	Natural log of the market value of equity Market value of equity at the end of the year, deflated by book value of equity Based on the two-digit SIC code Total debt deflated by the market value of equity Calculated as the cash flow from operations deflated by the market value of equity, included to control for profitability Net income before extraordinary items deflated by lagged market value
Ownership structure (see Section 2.2.2.2)	No	N/A	Not applicable, as the study was limited to listed public companies
Executive effects (see Section 2.2.2.3)	Yes	*MTB*	Market value of equity at the end of the year deflated by book value of equity
Managers' incentive structures (see Section 2.2.2.4)	Yes	*MTB*	Market value of equity at the end of the year deflated by book value of equity
Governance (see Section 2.2.2.5)	Yes	*GOV* [N3]	Closely held shares – WC08021 (CEO-held shares) – Closely held shares (defined as shares held by the CEO) divided by the total number of shares outstanding
Corporate social responsibility (see Section 2.2.2.6)	No	N/A	Did not have access to data for the full period of testing to measure corporate social responsibility (CSR) in the *Datastream* database used for the study.
Attributes of the resident tax system (see Section 2.2.2.7)	No	N/A	Not applicable, as the study was limited to companies in the United States.
Social capital (see Section 2.2.2.8)	No	N/A	Did not have access to data to construct a variable to measure social capital in the *Datastream* database used for the study.

Accounting conservatism			
Determinants	**Control for determinant (Yes/No)**	**Applicable control variable/s**	**Definition (calculation) of control variable or reason for not controlling**
Contracting (CC)[N1] (see Section 2.3.2.1)	Yes	Leverage (*LEVERAGE*)	Total debt deflated by market value of equity
Litigation (CC [N1] and UC[N2]) (see Section 2.3.2.2)	Yes	Litigation (*LITIGATION*)	Litigation risk – equals 1 if a firm belongs to a high-litigation industry (SIC codes 2833 to 2836, 3570 to 3577, 7370 to 7374, 3600 to 3674, and 5200 to 5961), and 0 otherwise (Baloria 2022:54; Francis 2015:1295; Hsu et al. 2017:84)
Regulation (UC) [N2] (political cost) (see Section 2.3.2.3)	Yes	Size (*SIZE*) [N3]	Natural log of the market value of equity
Income tax (UC) [N2] (see Section 2.3.2.4)	No	N/A	Variable of interest
Gender (UC [N2] and CC[N1]) (see Section 2.3.2.5)	No	N/A	Did not have access to data relating to the gender of directors/management in the *Datastream* database used for the study.
Unconditional conservatism (CC) [N1]	Yes – If CC is the dependent variable	*NONACC5/NONACC3*	The non-operating accruals before depreciation are deflated by the average total assets, which is then averaged over a five-year or a three-year period (the current and previous four or two years respectively) and is then multiplied by negative one.

N1   *Determinant of conditional conservatism*

N2:   *Determinant of unconditional conservatism*

N3:   *During initial testing, an additional control variable, the Sarbanes-Oxley indicator (SOX) was included to control for corporate governance and regulation. When the VIFs of the regression models were calculated, the VIF for SOX was at an unacceptably high level (more than 120 for all models), indicating multicollinearity concerns. To address these concerns, the control variable was removed from the regression models, as the models already contained other control variables for corporate governance, namely closely held shares (GOV), and for regulation, firm size (SIZE).*

Source: Own compilation

As a second step, to ensure the completeness and validity of the control variables used during testing, I did an analysis of recently published papers (published in three top journals based on the Scopus rankings in the field of Accounting – *The Accounting Review* (ranked number seven on the Scopus ranking list for Accounting journals), the *Journal of Accounting Research* (ranked number six on the Scopus ranking list for Accounting journals) and the *Journal of Accounting and Economics* (ranked number four on the Scopus ranking list for Accounting journals) (SCImago (n.d)) for the period from 2018 to 2021), which included testing relating to tax avoidance and/or conservatism. In total, 34 papers relating to either tax avoidance (20 papers) or accounting conservatism (14 papers) were identified for evaluation, and the variables and control variables used in testing were identified. Of these, 14 papers on accounting conservatism were evaluated, and of these 14 papers, seven papers were relevant to my study (the papers which were excluded related to financial institutions, which I did not include in my study, to auditor conservatism, or to a new model that was tested).

Based on this two-step approach and in line with previous research (Ahmed & Duellman 2013:9-10; Bornemann 2018:18), I controlled for firm characteristics by including control variables for a firm's size (*SIZE*), calculated as the natural log of the market value of equity, because larger firms tend to have lower levels of accounting conservatism and higher levels of tax avoidance than smaller firms. I also controlled for the MTB (*MTB*), calculated as the market value of equity at the end of the year, deflated by the book value of equity, since it captures a firm's growth opportunities and is linked to the asymmetric timeliness of a firm from when the business opened its doors (Roychowdhury & Watts 2007:4,30). I controlled for the capital structure and debt service needs (*LEVERAGE*), calculated as the total debt deflated by the market value of equity (Balakrishnan et al. 2019:50). Leverage was controlled for, because highly leveraged firms tend to experience higher levels of bondholder and shareholder conflict. This can in turn increase the contractual demand for accounting conservatism (Ahmed & Duellman 2007:421). These three control variables, namely size, MTB and leverage, were commonly found in the further analysis performed of control variables used in recent studies involving tax avoidance and/or accounting conservatism, for example, in the studies relating to accounting conservatism by Barth et al. (2020:30), Black et al. (2018:141), D'Augusta and DeAngelis (2020b:151), Gong and Luo (2018:195), Khurana and Wang (2019:253), and Manchiraju, Pandey and Subramanyam (2021:399), as well as in the studies relating to tax avoidance by

Balakrishnan et al. (2019:50), Bradshaw et al. (2019:263), Chen, Schuchard and Stomberg (2019:99), Drake et al. (2020:15), and Guenther et al. (2019:246).

Operating cash flow (*OPER_CF*), calculated as the cash flow from operations deflated by the market value of equity, was included to control for profitability (Bornemann 2018:18), as was earnings (*EARNINGS*), calculated as the net income before extraordinary items deflated by the lagged market value of equity. To control for governance,[69] I included a proxy to measure governance (*GOV*), using the level of management ownership, by identifying closely held shares (defined as shares held by the CEO) divided by the total number of shares outstanding (Ahmed & Duellman 2007:420; Bradshaw 2019:266; Hsu et al. 2017:83,85). I also controlled for litigation risk, using a dummy variable (*LITIGATION*) that equalled 1 if a firm belongs to a high-litigation industry (SIC Codes 2833 to 2836, 3570 to 3577, 7370 to 7374, 3600 to 3674, and 5200 to 5961 – see Annexure B), and 0 otherwise (Baloria 2022:54; Francis et al. 2015:1295; Hsu et al. 2017:84). Firm size (*SIZE*) also acted as a control for regulation,[70] *MTB* was a control for executive effects and the managers' incentive structure, and the level of leverage of a firm (*LEVERAGE*) was a control for contracting.

If conditional conservatism was included as the dependent variable in the regression, unconditional conservatism (*NONACC5* or *NONACC3*) had to be added as a control variable, because unconditional conservatism precedes or pre-empts conditional conservatism. Unconditional conservatism creates unrecorded goodwill that anticipates the application of conditional conservatism, and limits the amount of the adjustment that is made in the event of bad news (Beaver & Ryan 2005:270; Ruch & Taylor 2015:21). In instances where the variable for tax avoidance (*TA*) was calculated over five years (*LR_CFM_B5* and *LR_CASH_ETR5*), *NONACC5* was used to ensure consistency of the period. Where it was calculated over three years (*LR_CFM_B3* and *LR_CASH_ETR3*), *NONACC3* was used. If the variable for tax avoidance was calculated per firm-year

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[69] During initial testing, an additional control variable, the Sarbanes-Oxley indicator (*SOX*) was included to control for corporate governance and regulation. When the VIFs of the regression models were calculated, the VIF for *SOX* was at an unacceptably high level (more than 120 for all models), indicating multicollinearity concerns. To address these concerns, the control variable was removed from the regression models, as the models already contained other control variables for corporate governance, namely closely held shares (*GOV*), and for regulation, firm size (*SIZE*).

[70] Refer to previous footnote.

(*CFM_B* and *TAX_FRAUD_SCORE*), the regression was duplicated using *NONACC5* and *NONACC3* respectively as the control variables.

A second regression model (Regression Model 2) was included to do testing of H_2, focusing on the relation between tax avoidance and conditional conservatism. To test H_2, I followed Basu and Liang (2019), Black et al. (2018), Deng et al. (2018), García Lara et al. (2020), and Wang et al. (2018), in using the augmented Basu (1997) model (see Section 4.4.1 for a detailed discussion of the model) to test the relation between tax avoidance and conditional conservatism. I estimated the standard Basu (1997) model, augmented with tax avoidance (Regression Model 2), as follows:

$$EARN\_TAX_{it} = \beta_0 + \beta_1 ROE\_DUMMY_{it} + \beta_2 ROE_{it} + \beta_3 ROED\_ROE_{it} + \beta_4 TA_{it} +$$
$$\beta_5 ROE\_TA_{it} + \beta_6 ROED\_TA_{it} + \beta_7 ROED\_ROE\_TA_{it}$$
$$+ \sum \beta_k CONTROLS_k + \varepsilon_{it} \qquad (6)$$

Where:

$EARN\_TAX_{it}$ = earnings before extraordinary items (adjusted for the total income tax expense) deflated by the market value of equity at the beginning of the fiscal year for firm i;

ROE_{it} = the fiscal year stock return for firm i; and

ROE_DUMMY_{it} = a dummy variable of 1 if ROE_{it} is negative (for a bad news firm year), or 0 otherwise (for a good news firm year).

Thus β_3 should be positive if earnings, on average, is more sensitive to negative stock returns (bad news) than to positive stock returns (good news). The coefficient on $ROED\_ROE\_TA_{it}$, β_7 represents the relation between tax avoidance (*TA*) and conditional conservatism ($ROED\_ROE_{it}$, the interaction between ROE_DUMMY_{it} and ROE_{it}). It was used as a proxy to test H_2. If the coefficient is positive, it suggests that tax avoidance and conditional conservatism are positively associated, and that they increase or decrease in proportion to each other; thus they are complements. However, if the coefficient is negative, it suggests that they are negatively associated and move in opposite directions; thus, if tax avoidance increases, conservatism decreases, and they are substitutes. *CONTROLS* refers to the control variables used in the regression model and has already been discussed above under Regression Model 1.

Consistent with Francis et al. (2015:1295) and Frank et al. (2009:479), all regressions had industry fixed effects, based on the two-digit SIC code (see Annexure B for a list of the two-digit SIC codes) and year fixed effects. The industry and year fixed effects were included to control for the possibility of variation in tax policies (Bradshaw et al. 2019:266) and the macroeconomic environment (Black et al. 2018:135) across different industries and years included in the study. All continuous variables were winsorized at the top and bottom one per cent to limit the impact of outliers.

5.5   CONCLUSION

In this chapter, I have addressed the research paradigm and research design and methodology followed in this study, and have discussed the sample and data collection methods. The research design that was applied to test the two hypotheses was presented, including an overview of the proxies and control variables that I included in the regressions.

Chapter 6 presents the results relating to the main objective of this study, to explore the relationship between tax avoidance and accounting conservatism, including its two components, conditional and unconditional conservatism.

CHAPTER 6:
RESULTS

6.1 INTRODUCTION

This chapter presents the results relating to the aim of this study, namely to explore the relationship between tax avoidance and accounting conservatism – both conditional and unconditional conservatism. The sample used in this study is discussed. Then the results of the investigation into the relationship between tax avoidance and accounting conservatism are reported. First, the relationship of tax avoidance to unconditional conservatism is shown, considering the validity of Hypothesis 1 (see Chapter 2). Then, the results regarding the relationship between tax avoidance and conditional conservatism are presented, considering the validity of Hypothesis 2 (see Chapter 2). The chapter ends with conclusions on the relationship of tax avoidance to unconditional conservatism, and to conditional conservatism.

6.2 SAMPLE

To test my hypotheses, I first obtained data for all publicly listed firms in the United States for 29 years, from 1990 to 2018, from the *Datastream* database. The data were analysed and used to calculate the various variables[71] necessary for the statistical analysis to enable me to perform the necessary testing on publicly listed firms in the United States for the sampling period from 1993[72] to 2018, which covers a 26-year period. The initial sample contained 870 203 firm-years and 30 006 individual firms. Table 6.1 sets out the details of the sample selection procedure used to reduce the initial data set from *Datastream* to the data required for the study.

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[71] Some of the proxies that I used for testing, for example, the Cash ETR measure of tax avoidance and the *NONACC* measure of unconditional conservatism, required data for at least two and three previous years respectively, so I also included the data for the years 1990 to 1992.

[72] Proxies calculated over five years, for example, *NONACC5*, only have values from 1995.

Table 6.1: Sample selection

Description	Firm-year observations		Number of firms
All firm-year observations available on *Datastream* for the variables identified	**870 203**		**30 006**
Minus: Firm-years with missing observations for the control variables, or no industry identifier (SIC Code)	(847 281)		(26 033)
Minus: Observations from regulated industries including utilities (SIC Code 49) and financial services (SIC Code 60-69)	(8 376)		(1 290)
Final sample	**14 546**		**2 683**

Source: Own compilation

I excluded firms with missing values for the control variables, in line with Basu and Liang (2019:899), as well as firms for which there was no information on their specific industry (there was no SIC Code or industry identifier). These exclusions reduced the dataset by 847 281 firm-year observations and 26 033 individual firms. I also excluded firms in the financial services sector (SIC Codes 6000 to 6999) and utilities firms (SIC Codes 4900 to 4999), because of their unique regulatory environment and reporting requirements (Frank et al. 2009:472,479; Basu & Liang 2019:899; García Lara et al. 2020:9). This removed a further 8 376 firm-year observations and 1 290 individual firms from the sample used for further testing. The final sample of 2 683 remaining firms and 14 546 firm-year observations was used as the basis for the testing. Table 6.2 sets out the details of the spread of the firm-year observations included in the final sample spread over the sample period, from 1993 until 2018. The firm-year observations increased steadily from 1993, until they stabilised from 2001 onwards.

Table 6.2: Spread of the firm-year observations included in the final sample over the sample period (1993 until 2018)

Year	Firm-year observations/ number of firms
1993	21
1994	106
1995	193
1996	240
1997	355
1998	370
1999	426
2000	419
2001	601
2002	661
2003	714
2004	760
2005	794
2006	781
2007	720
2008	799
2009	814
2010	732
2011	760
2012	625
2013	496
2014	567
2015	602
2016	626
2017	635
2018	729
Total firm-year observations	**14 546**

Source: Own compilation

The sample size for various tests varied between 14 546 and 44 firm-year observations, depending on the specific tests performed and the variables used for testing. This variation

in the sample sizes for various tests can be attributed mainly to the variation in the variables being tested and the control variables introduced, specifically the observations available for unconditional conservatism (*NONACC5* and *NONACC3*). These variables (*NONACC5* and *NONACC3*) limited the sample size when they were used as a dependent variable in testing Hypothesis 1 (focusing on the relation of unconditional conservatism to tax avoidance, see Section 6.4) and when unconditional conservatism was introduced as a control variable to test Hypothesis 2 (focusing on the relation of conditional conservatism to tax avoidance, see Section 6.5). The sample was limited to the lower end when tax avoidance was represented by the *TAX_FRAUD_SCORE*, for which very limited data were available for the sample period.

The graph in Figure 6.1 shows a breakdown of the 2 683 firms included in the sample, classified according to the SIC Divisions and Codes (see Annexure B for details). All the broad divisions (Divisions A to K) were represented in the sample, unless they were specifically excluded (for example, Division H: Finance, Insurance, and Real Estate, SIC Codes 6000 to 999). Division D: Manufacturing has the highest representation, represented by 1311 firms, followed by Division I: Services, represented by 935 firms, Division B: Mining, represented by 158 firms, and Division F: Wholesale Trade, represented by 128 firms. Figure 6.1 summarises the number of firms per division.
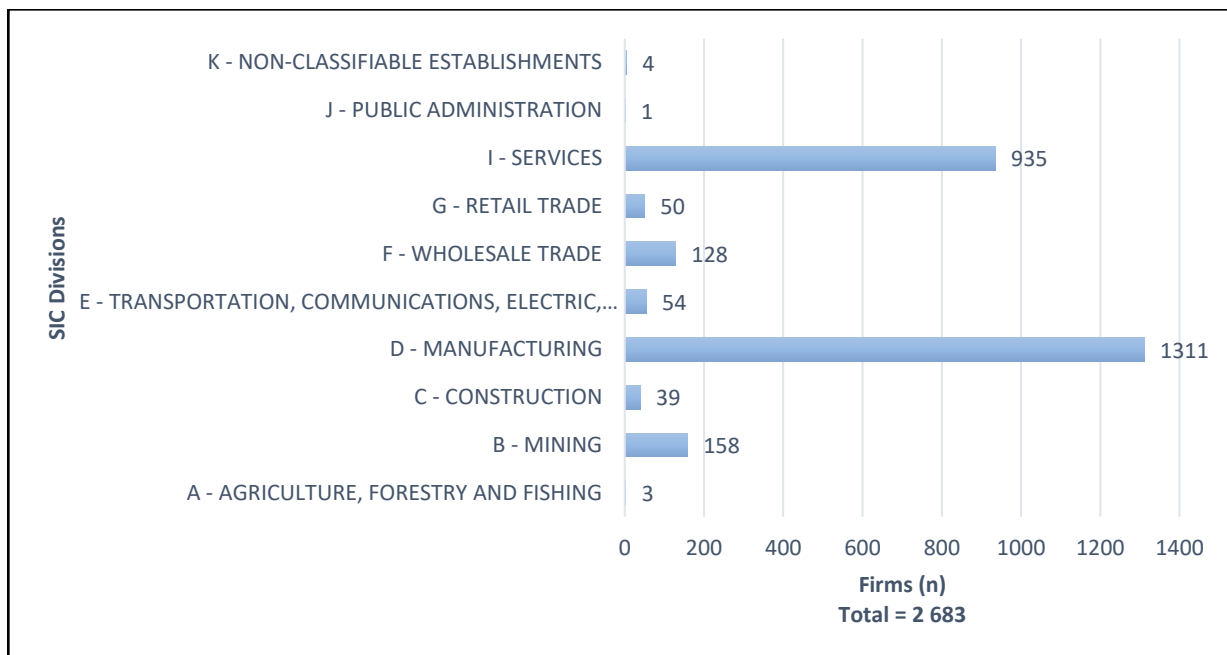
Figure 6.1: Sample firms classified into SIC divisions

Source: Own compilation

150

Each division consists of various two-digit industries. The five two-digit industries with the highest representation were Business Services (two-digit SIC Code 73 – included in Division I: Services), represented by 718 firms. Electronic and other Electrical Equipment and Components (two-digit SIC Code 36 – included in Division D: Manufacturing) was represented by 421 firms; Chemicals and Allied Products (two-digit SIC Code 28 – included in Division D: Manufacturing) was represented by 356 firms; Industrial and Commercial Machinery and Computer Equipment (two-digit SIC Code 35 – included in Division D: Manufacturing) was represented by 186 firms, and Engineering, Accounting, Research, and Management Services (two-digit SIC Code 87 – included in Division I: Services) was represented by 149 firms.

There were 16 two-digit SIC Codes for which no firms were represented in the sample, mainly in the services sector (Division I), the public administration sector (Division J – government-related services), or non-listed entities. These included

- Agricultural Production – Livestock and Animal Specialties (two-digit SIC Code 02 – included in Division A: Agriculture, forestry, and fishing)
- Fishing, Hunting and Trapping (two-digit SIC Code 09 – included in Division A: Agriculture, forestry, and fishing)
- Railroad Transportation (two-digit SIC Code 40 – included in Division E: Transportation, communications, electric, gas, and sanitary service)
- the United States Postal Service (two-digit SIC Code 43 – included in Division E: Transportation, communications, electric, gas, and sanitary service)
- Transportation by Air (two-digit SIC Code 45 – included in Division E: Transportation, communications, electric, gas, and sanitary service)
- Automotive Repair, Services and Parking (two-digit SIC Code 75 – included in Division I: Services)
- Legal Services (two-digit SIC Code 81 – included in Division I: Services)
- Museums, Art Galleries and Botanical and Zoological Gardens (two-digit SIC Code 84 – included in Division I: Services)
- Membership Organizations (two-digit SIC Code 86 – included in Division I: Services)
- Private Households (two-digit SIC Code 88 – included in Division I: Services)
- Executive, Legislative & General Government, except Finance (two-digit SIC Code 91 – included in Division J: Public Administration)

- Justice, Public Order and Safety (two-digit SIC Code 92 – included in Division J: Public Administration)

- Public Finance, Taxation and Monetary Policy (two-digit SIC Code 93 – included in Division J: Public Administration)

- Administration of Human Resource Programs (two-digit SIC Code 94 – included in Division J: Public Administration)

- Administration of Economic Programs (two-digit SIC Code 96 – included in Division J: Public Administration)

- National Security and International Affairs (two-digit SIC Code 97 – included in Division J: Public Administration)

The next section addresses the descriptive statistics relating to my sample.

6.3   DESCRIPTIVE STATISTICS

Summarising statistics are set out in Table 6.3, Panel A, for the main variables of interest defined in Annexure A. Panel B reports the Spearman (Pearson) correlations above (or below) the diagonal for all dependent and independent variables included in further testing. This section first addresses the summary statistics for each variable of interest, after which the Spearman (Pearson) correlations are discussed.

In terms of the firm characteristics, the firms represented in this sample were not highly leveraged. They had a 0.3853 average debt to equity ratio (for *LEVERAGE*, the mean value and the median were 0.1056). The more highly leveraged firms were represented in the upper quartile. The sample consisted of firms with growth opportunities (*MTB* had a mean value of 2.9623 and a median of 2.0762) that were larger in size (*SIZE* had a mean value of 12.8515 and a median of 12.8999). The majority of firms in the sample were profitable (*OPER_CF* had a mean of 0.0235, a median of 0.0570 and *EARNINGS* had a mean of -0.0663 and a median of 0.0250 and *EARN_TAX* had a mean of -0.0504 and a median of 0.0346, all three indicators of profitability). However, the mean of *EARNINGS* was negative but these firms were concentrated in the lower quartile. *EARN_TAX* is slightly higher than *EARNINGS*, as was expected, since the total tax expense is excluded when calculating *EARN-TAX*. On average (*LITIGATION* had a mean of 46,52%) firms were not in high-litigation risk industries, with the high-litigation risk industries

concentrated in the upper quartile. On average, 22.45% of shares in the companies in the sample were closely held (*GOV* had a median of 15.58%).

The proxies used for unconditional conservatism, *NONACC5* and *NONACC3,* had a mean of 0.0598 and 0.09985 and a median of 0.0183 and 0.0224 respectively. The higher the value, the higher the unconditional conservatism. Previous studies reported means for *NONACC* ranging between 0.008 and 0.026 (Ahmed & Duellman 2013:13; Baloria 2022:54; Francis et al. 2013:329; Francis et al. 2015:1292; Hsu et al. 2017:85), which is lower than the means calculated in this study. My results may be attributed to the steady increase over the years in accounting conservatism in financial accounting, with previous studies using sample periods ending in earlier years, resulting in lower levels of unconditional conservatism. In addition, they are also attributable to the exclusion of all tax-related expenses and cash flows in calculating the proxies for tax avoidance, to ensure that the proxies for tax avoidance and accounting conservatism were not spuriously correlated (Frank et al. 2009:480).

The proxy reflected in Table 6.3, Panel A, for conditional conservatism, *CSCORE,* had a mean of 0.1659 and a median of 0.1683. The higher the *CSCORE*, the higher the levels of conditional conservatism. Previous studies, which focused mainly on samples relating to lending arrangements, reported varying *CSCORES*, with means ranging from 0.09 to 0.40 (Gong & Luo 2018:195; Khan & Watts 2009:138; Kim 2018:154). The fiscal year stock return (*ROE*) was negative for approximately a quarter of the firms (*ROE_DUMMY* = 1) and had a mean of 0.1279 and a median of 0.0164.

Six proxies were used to test for tax avoidance: *LR_CFM_B5, LR_CFM_B3, CFM_B, LR_CASH_ETR5, LR_CASH_ETR3* and the *TAX_FRAUD_SCORE*. The means for the three cash flow-based variables used to measure tax avoidance (*LR_CFM_B5, LR_CFM_B3 and CFM_B*) were 12.83%, 12.37% and 11.94% respectively (with medians of 9.29%, 8.83% and 8.73%). This was much lower than the statutory tax rate of 35%, and the mean of 16.82% calculated in the study by Gebhart (2017:51). This result could be an indication of tax planning (Balakrishnan et al. 2019:51). The mean for the three cash flow-based variables was lower than the mean for the two non-cash flow-based measures (discussed below). This result may be explained by the cash-flow based measures (CFM B measures) reflecting the true nature of tax avoidance, as they account for both conforming and non-conforming tax avoidance (Salihu et al. 2013:418). The lower mean

for the three cash flow-based variables, compared to the two non-cash flow-based measures, also confirmed the results in the prior studies by Gebhart (2017:51) and Salihu et al. (2013:419-420,423).

In Chapter 3, I stressed that cash flow measures are not affected by accrual accounting in either the nominator (total cash taxes paid) or the denominator (cash flow from operations) (Salihu et al. 2013:418,423). Therefore cash flow measures are a better reflection of tax avoidance activities for the purposes of this study. The means for the two non-cash flow-based variables used to measure tax avoidance (*LR_CASH_ETR5* and *LR_CASH_ETR3*) were 15.51% and 15.08% respectively (with medians of 11.68% and 10.42%). This is also lower than the statutory tax rate of 35%, and the mean calculated in previous studies by Balakrishnan et al. (2019:52), Dyreng, Hanlon and Maydew (2019:188), and Gebhart (2017:51), which ranged between 21.24% and 26%. The lower mean in the current study can be ascribed to the inclusion of loss firms in the final sample, as well as to the limitation of the sample to firms for which the *NONACC3* proxy for unconditional conservatism had a value, which might indicate firms with higher levels of accruals than average firms, and can be an indicator of lower levels of taxable income. The mean for the *TAX_FRAUD_SCORE* was 1.2046, and the median was 1. This indicates that for the limited firms with a tax fraud controversy score (n = 44), the average number of controversies published in the media linked to tax fraud, parallel imports or money laundering was 1.2046 controversies per year.

In Panel B of Table 6.3, I report the Spearman (Pearson) correlations above (or below) the diagonal for all dependent and independent variables. According to the Spearman and Pearson correlations, all variables representing accounting conservatism, namely *NONACC5* and *NONACC3* (unconditional conservatism), as well as *CSCORE* (conditional conservatism), were significantly negatively correlated with the tax avoidance measures, with the p-values <0.01, except for the *TAX_FRAUD_SCORE*. These correlations were not significant. A negative correlation between tax avoidance and unconditional conservatism contradicts H_1, which states that there is a positive relation between tax avoidance and unconditional conservatism. Inferences were, however, based on the multivariate regression (see Section 6.5.1).

These correlations reported for tax avoidance that were significantly negatively correlated to unconditional conservatism, measured using *NONACC5*, were for *LR_CFM_B5* (Sρ =

-0.31477 and Pρ = -0.09388), *LR_CFM_B3* (Sρ = -0.33199 and Pρ = -0.09805), *CFM_B* (Sρ = -0.32735 and Pρ = -0.09623), *LR_CASH_ETR5* (Sρ = -0.31307 and Pρ = -0.08869), and *LR_CASH_ETR3* (Sρ = -0.33036 and Pρ = -0.09081). Of these, *LR_CFM_B3* was the most highly correlated to *NONACC5*.

These correlations reported for tax avoidance that were significantly negatively correlated to unconditional conservatism, measured using *NONACC3*, were for *LR_CFM_B5* (Sρ = -0.27820 and Pρ = -0. 07412), *LR_CFM_B3* (Sρ = -0.30193 and Pρ = -0. 08171), *CFM_B* (Sρ = -0.31718 and Pρ = -0.08548), *LR_CASH_ETR5* (Sρ = -0.31335 and Pρ = -0.06634) and *LR_CASH_ETR3* (Sρ = -0.33725 and Pρ = -0.06705). Of these, *LR_CASH_ETR3* was the most highly correlated to *NONACC3* for the Spearman correlations and to CFM_B for the Pearson correlations.

The correlations reported for tax avoidance that were significantly negatively correlated to conditional conservatism (*CSCORE*) were *LR_CFM_B5* (Sρ = -0.14985 and Pρ = -0.04881), *LR_CFM_B3* (Sρ = -0.15755 and Pρ = -0.05049), *CFM_B* (Sρ = -0.15890 and Pρ = -0.05477), *LR_CASH_ETR5* (Sρ = -0.13321 and Pρ = -0.04297), and *LR_CASH_ETR3* (Sρ = -0.14533 and Pρ = -0.03786). Of these, *CFM_B* was the most highly correlated to *CSCORE*.

According to the Spearman correlations (unreported), unconditional conservatism, when represented by *NONACC5*, was significantly correlated with all the control variables with p-values <0.01, except for *GOV*, to which *NONACC5* was not significantly correlated. However, according to the Pearson correlations, *NONACC5* was significantly correlated to all the control variables with p-values <0.01, except for *LEVERAGE*, which had a p-value <0.05. If unconditional conservatism was represented by *NONACC3*, the Spearman correlations were significantly correlated to all the control variables with p-values <0.01. According to the Pearson correlations, unconditional conservatism (*NONACC3*) was significantly correlated to all the control variables with p-values <0.01, except to *LITIGATION*, where the correlation was not significant.

According to the Spearman correlations, conditional conservatism (*CSCORE*) was significantly correlated to all the control variables (unreported) with p-values <0.01, except to *LITIGATION,* which had a p-value <0.05. According to the Pearson correlations, conditional conservatism (*CSCORE*) was significantly correlated to all the control variables with p-values <0.01. Of specific interest for the study is the correlation of

conditional conservatism to unconditional conservatism. As reported in Panel B of Table 6.3, *CSCORE* was significantly positively correlated to unconditional conservatism, whether it was represented by *NONACC5* (Sρ = 0.12484 and Pρ = 0.13599) or by *NONACC3* (Sρ = 0.16445 and Pρ = 0.13253), with p-values <0.01.

To determine whether there was multicollinearity, the VIFs were calculated (but are not reported) for all variables, including control variables, for Regression Model 1.[73] Despite the strong correlations, the highest variation inflation factor for all regressions, except where *TAX_FRAUD_SCORE* was the independent variable representing tax avoidance, was 2.2654, which is below the accepted level of 10 (Kutner, Nachtsheim, Neter & Li 2004:409). The VIF for some variables in the regressions, where *TAX_FRAUD_SCORE* was the independent variable representing tax avoidance, was above the acceptable level, but this was to be expected, given the low sample size, ranging from 42 to 44 firms. Taking all of this into account, this finding suggests that the results did not suffer from multicollinearity problems.

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[73] During initial testing, an additional control variable, the Sarbanes-Oxley indicator (*SOX*), was included to control for corporate governance and regulation. When the VIFs of the regression models were calculated, the VIF for *SOX* was at an unacceptably high level (more than 120 for all models), indicating multicollinearity concerns. To address these concerns, this control variable was removed from the regression models, because the models already contained other control variables for corporate governance, namely closely held shares (*GOV*), and for regulation, namely firm size (*SIZE*).

Table 6.3: Descriptive statistics and correlation matrix

Panel A: Descriptive statistics for variables used in this study (as defined in Annexure A)

Variable	N	Mean	Std dev	Lower quartile	Median	Upper quartile
Unconditional conservatism						
NONACC5	9 614	0.0598	0.2505	-0.0157	0.0183	0.0672
NONACC3	14 546	0.0999	0.4571	-0.0201	0.0224	0.0840
Conditional conservatism						
CSCORE	14 546	0.1659	0.3955	0.0193	0.1683	0.3232
EARN_TAX (N1)	14 458	-0.0504	0.3283	-0.0745	0.0346	0.0874
ROE (N1)	14 391	0.1279	0.7230	-0.2942	0.0164	0.3471
ROE_DUMMY (N1)	14 452	0.3562	0.4789	0.0000	0.0000	1.0000
Tax avoidance						
LR_CFM_B5	12 880	0.1283	0.3348	0.0043	0.0929	0.2265
LR_CFM_B3	13 312	0.1237	0.3243	0.0020	0.0883	0.2210
CFM_B	13 314	0.1194	0.3023	0.0020	0.0873	0.2153
LR_CASH_ETR5	12 862	0.1551	0.4628	-0.0010	0.1168	0.3055
LR_CASH_ETR3	13 294	0.1508	0.4698	-0.0015	0.1042	0.3001
TAX_FRAUD_SCORE	44	1.2046	0.8235	1.0000	1.0000	1.0000
Control variables						
LEVERAGE	14 546	0.3853	0.9033	0.0018	0.1056	0.3360
MTB	14 546	2.9623	7.4820	1.1392	2.0763	3.7144
SIZE	14 546	12.8515	2.5079	11.2117	12.8999	14.5112
OPER_CF	14 546	0.0235	0.2739	-0.0052	0.0570	0.1077
EARNINGS	14 546	-0.0663	0.3201	-0.0742	0.0250	0.0624
LITIGATION	14 546	0.4652	0.4988	0.0000	0.0000	1.0000
GOV	14 546	22.4495	22.0882	3.4000	15.5800	34.6500

N1. These variables are used to calculate the CSCORE and when applying the augmented Basu method to calculate conditional conservatism.

Panel A reports the descriptive statistics of the variables and control variables used in the study. All variables are defined in Annexure A.

Source: Own compilation

Table 6.3 (cont.) Panel B: Correlation matrix for variables used in this study (as defined in Annexure A)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) NONACC5	1	**0.77973**	**0.12484**	**-0.44634**	-0.05930	0.02054	**-0.31477**	**-0.33199**	**-0.32735**	**-0.31307**	**-0.33036**	-0.19978
	9 614	9 614	9 614	9 575	9 548	9 587	8 777	8 911	8 910	8 757	8 895	42
(2) NONACC3	**0.88901**	1	**0.16445**	**-0.49168**	**-0.08257**	0.01086	**-0.27820**	**-0.30193**	**-0.31718**	**-0.31335**	**-0.33725**	-0.22702
	9 614	14 546	14 546	14 458	14 391	14 452	12 880	13 312	13 314	12 862	13 294	44
(3) CSCORE	**0.13599**	**0.13253**	1	**-0.17544**	**-0.11415**	**0.05937**	**-0.14985**	**-0.15755**	**-0.15890**	**-0.13321**	**-0.14533**	0.01541
	9 614	14 546	14 546	14 458	14 391	14 452	12 880	13 312	13 314	12 862	13 294	44
(4) EARN_TAX (N1)	**-0.33749**	**-0.32689**	**-0.18961**	1	**0.29850**	**-0.14763**	**0.35403**	**0.39484**	**0.47288**	**0.38485**	**0.43295**	0.05023
	9 575	14 458	14 458	14 458	14 303	14 364	12 846	13 288	13 290	12 850	13 290	44
(5) ROE (N1)	-0.00403	**-0.03367**	**-0.09001**	0.05482	1	**-0.65241**	0.05951	0.07817	0.10608	0.05630	0.07114	-0.31470
	9 548	14 391	14 391	14 303	14 391	14 391	12 770	13 192	13 194	12 751	13 174	43
(6) ROE_DUMMY (N1)	-0.02083	-0.01854	**0.06879**	-0.06111	**-0.48508**	1	**-0.06032**	**-0.04769**	**-0.07785**	**-0.05953**	**-0.04289**	0.05179
	9 587	14 452	14 452	14 364	14 391	14 452	12 795	13 218	13 220	12 776	13 200	44
(7) LR_CFM_B5	**-0.09388**	**-0.07412**	**-0.04881**	**0.10473**	-0.00405	**-0.02437**	1	**0.92072**	**0.49452**	**0.57850**	**0.53206**	0.22786
	8 777	12 880	12 880	12 846	12 770	12 795	12 880	12 672	12 671	12 852	12 651	44
(8) LR_CFM_B3	**-0.09805**	**-0.08171**	**-0.05049**	**0.12342**	0.00320	-0.01962	**0.89221**	1	**0.58680**	**0.54025**	**0.57444**	0.16275
	8 911	13 312	13 312	13 288	13 192	13 218	12 672	13 312	13 309	12 655	13 287	43
(9) CFM_B	**-0.09623**	**-0.08548**	**-0.05477**	**0.15869**	0.00884	**-0.04353**	**0.13633**	**0.25873**	1	**0.42787**	**0.46684**	0.01069
	8 910	13 314	13 314	13 290	13 194	13 220	12 671	13 309	13 314	12 656	13 289	43
(10) LR_CASH_ETR5	**-0.08869**	**-0.06634**	**-0.04297**	**0.10935**	-0.00596	**-0.02607**	**0.17123**	**0.16278**	**0.10410**	1	**0.90980**	0.16379
	8 757	12 862	12 862	12 850	12 751	12 776	12 852	12 655	12 656	12 862	12 659	44
(11) LR_CASH_ETR3	**-0.09081**	**-0.06705**	**-0.03786**	**0.11649**	-0.00152	-0.01620	**0.15993**	**0.16922**	**0.11131**	**0.88891**	1	0.15429
	8 895	13 294	13 294	13 290	13 174	13 200	12 651	13 287	13 289	12 659	13 294	43
(12) TAX_FRAUD_SCORE	-0.09850	-0.11720	-0.01508	0.03516	-0.27734	0.17109	0.06541	0.02559	-0.08580	0.01465	-0.00021	1
	42	44	44	44	43	44	44	43	43	44	43	44

N1. These variables are used to calculate the CSCORE and when applying the augmented Basu method to calculate conditional conservatism.

Panel B reports the Spearman (Pearson) correlations above (below) the diagonal. Significant correlations at a one per cent level appear in bold and the number of observations below each correlation. All variables are defined in Annexure A.

Source: Own compilation

6.4 REGRESSION RESULTS: TAX AVOIDANCE AND UNCONDITIONAL CONSERVATISM

To test Hypothesis 1, namely that there is a positive relationship between tax avoidance and unconditional conservatism, the relation of unconditional conservatism to tax avoidance was tested using Regression Model 1:

$$CONS_{it} = \alpha + \beta_1 TA_{it} + \sum \beta_k CONTROLS_k + \varepsilon_{it} \qquad\qquad (1)$$

Table 6.4 presents the results for the eight estimations of Regression Model 1, where *NONACC5* (the grey columns in Table 6.4) and *NONACC3* (the white columns in Table 6.4) were the dependent variables representing unconditional conservatism (*CONS*). In instances where the independent variable for tax avoidance (*TA*) was calculated over five years (*LR_CFM_B5* and *LR_CASH_ETR5*), *NONACC5* was used to ensure consistency of the period. Where it was calculated over three years (*LR_CFM_B3* and *LR_CASH_ETR3*), *NONACC3* was used. If the independent variable for tax avoidance was calculated per firm year (*CFM_B* and *TAX_FRAUD_SCORE*), the regression was done for both *NONACC5* and *NONACC3*.

CONTROLS refers to the control variables used in the regression model to enhance internal validity. Some variables controlled for more than one attribute. Control variables included controls for firm characteristics, including the capital structure and debt service needs (*LEVERAGE*), growth opportunities (market-to-book (*MTB*)), a firm's size (*SIZE*), profitability (operating cash flow (*OPER_CF*), and earnings (*EARNINGS*)). I also controlled for litigation risk (*LITIGATION*) and for corporate governance with closely held shares (*GOV*). Firm size (*SIZE*) also acted as a control for regulation, market-to-book (*MTB*) for executive effects, and managers' incentive structure and the level of leverage of a firm (*LEVERAGE*) for contracting. The predicted direction of the relationship between unconditional conservatism and the dependent variable and each control variable, as discussed in Chapter 5, is indicated in the second column of Table 6.4.

For all regressions where *NONACC5* was the dependent variable, the coefficient on *TA* was negative; the coefficient on *LR_CFM_B5* (β_1 = -0.02031; t = -3.55), *CFM_B* (β_1 = -0.01945; t = -2.91) and *LR_CASH_ETR5* (β_1 = -0.01240; t = -3.11) were significantly negative at the 1% level. For Regression Model 1, if *NONACC3* was the dependent variable (the white columns in Table 6.4) representing unconditional conservatism, the

coefficient on *TA* was negative for all regressions, and the coefficients on *LR_CFM_B3* (β_1 = -0.02567; t = -2.81) and *CFM_B* (β_1 = -0.02090; t = -2.11) were significantly negative at the 1% and 5% levels respectively.

These results are significant for the study, as they contradict H_1, which states that there is a positive relation between tax avoidance and unconditional conservatism. This change in direction might be ascribed to the fact that I adjusted all variables used in the study to measure accounting conservatism to exclude tax-related expenses and cash flows when calculated, to ensure that the proxies for tax avoidance and accounting conservatism were not spuriously correlated, in line with Frank et al. (2009:480).

The negative relation of tax avoidance to unconditional conservatism may also arise from the use of long-run measures for tax avoidance (*LR_CASH_ETR5*, *LR_CASH_ETR*3, LR_*CFM_B5* and *LR_CFM_*B3) which implies that the deferral effect for tax purposes was not detected (measured), given the longer period over which the measures were calculated. Good news that was anticipated in previous periods but that was not realised was not reported, because of accounting conservatism, but it was accounted for in the period over which the long-run measure was calculated. In addition, the measures that I used for tax avoidance are all ETR measures (except for the *TAX_FRAUD_SCORE*). The previous study by Qiang (2007:761), which found that a rise in tax costs induces unconditional conservatism – in other words, that unconditional conservatism defers tax cost – used a book-tax differences measure. A book-tax difference measure is used to measure the difference between financial income and taxable income, whereas ETR measures indicate the portion of income used for taxes (either as taxes paid or as a tax expense). Lennox et al. (2013:753) explain that the difference between the two categories of measures is that book-tax differences capture the *income* effects of tax avoidance strategies, whereas ETRs capture the *tax* effects of such strategies. In addition, the book-tax differences measures only capture some non-conforming tax avoidance, and not the full range of tax avoidance activities. Although the non-cash flow-based ETR measures used in my study (*LR_CASH_ETR5* and *LR_CASH_ETR3*) only focused on non-conforming tax avoidance, the cash flow-based ETR measures used, namely the *CFM_B*, *LR_CFM_B5* and *LR_CFM_B3* also test for conforming tax avoidance.

Most of the results that indicated a significantly negative relation of tax avoidance to unconditional conservatism were related to one of the *CFM_B* measures. The *CFM_B*

measures for tax avoidance used in my study covered a wider range of tax avoidance activities, including conforming tax strategies, which are more difficult to detect, and more aggressive tax avoidance, carrying higher levels of risk. The difference in direction found in my study can therefore also be ascribed to the different characteristics of the measures used for tax avoidance, as explained above.

The negative relationship between unconditional conservatism and tax avoidance can be explained in light of the risks associated with accounting conservatism and tax avoidance. The studies by Francis et al. (2014) and Francis et al. (2015) indicate that the level of risk aversion of a manager dictates the relation of the manager to both tax avoidance (Francis et al. 2014:174) and accounting conservatism (Francis et al. 2015:1314). This is in line with agency theory, that places the focus on the actions of the agent, or the manager in this instance. It follows in their studies that a risk averse manager (using gender as proxy for risk, and seeing female CFOs as more risk averse than male managers) tends to engage in less tax avoidance, and more accounting conservatism. This results in a negative relation between the two concepts, which supports my results from testing Hypothesis 1.

Hypothesis 1 relates only to the relation of tax avoidance to unconditional conservatism, so it is important to establish which type of accounting conservatism a manager prefers to use to mitigate risk, since Francis et al. (2015:1296) have reported a positive relation between risk averse managers to both unconditional and conditional accounting conservatism. Since the number of women (which have been used as a proxy used for risk aversion) in top management has increased significantly (Francis et al. (2015:1285) in the period after 2007, which was the last year covered in the sample tested by Francis et al. (2015:1286), the impact of risk aversion on the two types of accounting conservatism may have changed substantially. My study covers an additional 11 years (until 2018). Over that period, changes in the diversity of management structures, as well as increased reporting requirements, may have changed the dynamics of the relation of unconditional and conditional conservatism to risk aversion.

The results of my study may, however, indicate that risk averse managers engage more in unconditional accounting conservatism. This can be explained by increased pressure on managers by shareholders, auditors, bondholders (or debtholders) and regulators to use conservatism during financial reporting. This pressure on managers is exerted

because their discretion plays such an important role in the implementation of accounting principles (Zhong and Li 2017:198,200). Managers can either use this discretion to increase reporting quality, or they can aim to increase their own compensation, by reporting accounting information that enhances their incentives. To help ensure that managers use their discretion to increase reporting quality, there is a renewed focus on the stewardship role of the manager in financial reporting, which includes protecting resources from negative economic influences and ensuring proper governance of these resources, including complying with relevant regulations, laws and contractual stipulations (IASB 2018b:1.22-1.23).

Unconditional conservatism has a more consistent and manageable impact from one year or period to the next, whereas conditional conservatism, because of its dependence on economic news, has a more sporadic effect in the financial statements (Ruch & Taylor 2015:20-21). As a result, risk averse managers prefer using unconditional accounting conservatism, which is the more effective and manageable tool, to mitigate risk, including tax avoidance. Thus risk averse managers increase their unconditional conservatism to manage their risk downwards; hence, a negative relation, as confirmed in my results, is established with tax avoidance.

The relation between the control variables and unconditional conservatism was generally consistent with prior evidence and in the predicted direction. For all regressions, except where *TAX_FRAUD_SCORE* was the independent variable representing tax avoidance, *NONACC5 and NONACC3* were significantly negatively related at the 1% level to the leverage of a firm for contracting (*LEVERAGE*), growth opportunities (including earnings management – *MTB*), firm size (*SIZE*) and profitability (*EARNINGS*). They were significantly positively related at the 1% level to litigation risk (*LITIGATION*). In addition, *NONACC3* was significantly positively related at the 5% level to the operational cash flow of a firm (OPER_CF). Thus, when tax avoidance was measured using *LR_CFM_B5, LR_CFM_B3, CFM_B, LR_CASH_ETR5*, and *LR_CASH_ETR3*, firms with higher levels of unconditional conservatism (*NONACC5 and NONACC3*) tended to be less highly leveraged, smaller, with fewer growth opportunities, and less profitable, but they were also more prone to litigation risk. This result was different from what I expected, based on prior research, as I anticipated that companies with higher levels of unconditional conservatism would be more profitable. The next section discusses the results for the testing of the relation of conditional conservatism and tax avoidance.

Table 6.4: Multivariate regression analysis of the relation between unconditional (*NONACC5/NONACC3*) accounting conservatism and tax avoidance

Regression (N1) $CONS_{it} = \alpha + \boldsymbol{\beta_1}TA_{it} + \sum\beta_kCONTROLS_k + \varepsilon_{it}$ (1)

	Predic-ted sign	Unconditional conservatism – NONACC5				Unconditional conservatism – NONACC3			
		TA = LR_CFM_B5	TA = CFM_B	TA = LR_CASH_ETR5	TA = TAX_FRAUD_SCORE	TA = LR_CFM_B3	TA = CFM_B	TA = LR_CASH_ETR3	TA = TAX_FRAUD_SCORE
		(n=8 777)	(n = 8 910)	(n=8 757)	(n=42)	(n=13 312)	(n=13 314)	(n=13 294)	(n=44)
Intercept		0.10867	0.10688	0.10006	0.35358 *	0.27639 *	0.27382	0.28226 *	0.22027
		0.96	0.90	0.88	2.02	1.65	1.63	1.67	1.02
TA	+	-0.02031 ***	-0.01945 ***	-0.01240 ***	-0.00533	-0.02567 ***	-0.02090 **	-0.00868	-0.00877
		-3.55	-2.91	-3.11	-1.01	-2.81	-2.11	-1.37	-1.35
Control variables									
LEVERAGE	?	-0.02301 ***	-0.01779 ***	-0.02062 ***	0.00934	-0.04093 ***	-0.03848 ***	-0.03923 ***	0.03599
		-9.30	-6.93	-8.26	0.26	-11.31	-10.63	-10.76	0.82
MTB	-	-0.000916 ***	-0.00108 ***	-0.000962 ***	0.000249	-0.00349 ***	-0.00352 ***	-0.00335 ***	0.000713
		-2.99	-3.43	-3.10	0.23	-7.74	-7.80	-7.38	0.54
SIZE	-	-0.01087 ***	-0.01126 ***	-0.01078 ***	-0.01755	-0.02293 ***	-0.02313 ***	-0.02371 ***	-0.01038
		-11.25	-11.15	-11.03	-1.58	-14.91	-14.99	-15.26	-0.75
OPER_CF	+	0.00171	-0.00267	-0.00083	-0.01561	0.03144 **	0.02893 **	0.03310 **	0.03360
		0.19	-0.29	-0.09	-0.07	2.47	2.26	2.57	0.11

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	Predic-ted sign	Unconditional conservatism – NONACC5[N1]						Unconditional conservatism – NONACC3[N1]							
		TA = LR_CFM_B5		TA = CFM_B		TA = LR_CASH_ETR5		TA = TAX_FRAUD_SCORE		TA = LR_CFM_B3		TA = CFM_B		TA = LR_CASH_ETR3		TA = TAX_FRAUD_SCORE
		(n=8 777)		(n = 8 910)		(n=8 757)		(n=42)		(n=13 312)		(n=13 314)		(n=13 294)		(n=44)
EARNINGS	+	-0.20161	***	-0.19064	***	-0.19864	***	0.07358		-0.36675	***	-0.36046	***	-0.37128	***	0.27079
		-25.27		-22.95		-24.65		0.17		-31.92		-31.12		-32.06		0.51
LITIGATION	+	0.02375	***	0.03459	***	0.02358	***	0.02754	*	0.02413	***	0.02436	***	0.02264	***	0.02831
		4.40		6.19		4.33		2.01		2.85		2.87		2.65		1.68
GOV	?	-0.0000024		0.000006		0.000012		0.000924		0.000025		0.000044		0.000033		0.00272 **
		-0,02		0.55		0.11		1.17		0.16		0.29		0.21		2.79
Fixed effects		Industry & Year		Industry & Year		Industry & Year		Industry & Year		Industry & Year		Industry & Year		Industry & Year		Industry & Year
F statistics - Overall model		22.08	***	20.76	***	21.49	***	1.88		29.52	***	28.80	***	29.61	***	2.20 *
Adjusted R^2		0.1662		0.1555		0.1627		0.3922		0.1617		0.1582		0.1623		0.4643

N1 If the dependent variable representing unconditional conservatism is NONACC5 in the regression, the column is grey and if the dependent variable is NONACC3 the column is white.

*Table 6.4 reports the multivariate regression results for Regression Model 1 with the relation between unconditional (NONACC5/NONACC3) accounting conservatism and the different tax avoidance measures, namely LR_CFM_B5, LR_CFM_B3, CFM_B, LR_CASH_ETR5, LR_CASH_ETR3 and TAX_FRAUD_SCORE. The t-statistics are reported below each of the coefficient estimates. *, **, *** denotes significance at the ten, five and one per cent levels, respectively. All variables are defined in Annexure A.*

Source: Own compilation

6.5 RESULTS: TAX AVOIDANCE AND CONDITIONAL CONSERVATISM

To test Hypothesis 2, namely that there is no relationship between tax avoidance and conditional conservatism, the relation of conditional conservatism to tax avoidance was tested using Regression Model 1 (see Section 6.5.1) and the augmented Basu model (Regression Model 2 – see Section 6.5.2). The results of these tests are discussed below.

6.5.1 Regression analysis (Regression Model 1)

Hypothesis 2, namely that there is no relationship between tax avoidance and conditional conservatism, was tested using Regression Model 1:

$$CONS_{it} = \alpha + \beta_1 TA_{it} + \sum\beta_k CONTROLS_k + \varepsilon_{it} \qquad (1)$$

Table 6.5 presents the results for the eight estimations of Regression Model 1, where *CSCORE* was the dependent variable, representing conditional conservatism, and where *NONACC5* (the grey columns in Table 6.5) and *NONACC3* (the white columns in Table 6.5) were the control variables representing unconditional conservatism in the respective regressions. In instances where the variable for tax avoidance (*TA*) was calculated over five years (*LR_CFM_B5* and *LR_CASH_ETR5*), *NONACC5* was used to ensure consistency of the period. Where it was calculated over three years (*LR_CFM_B3* and *LR_CASH_ETR3*), *NONACC3* was used. If the variable for tax avoidance was calculated per firm-year (*CFM_B* and *TAX_FRAUD_SCORE*), the regression was duplicated using *NONACC5* and *NONACC3* respectively as the control variables.

CONTROLS refers to the control variables used in the regression model to enhance internal validity. The same control variables were included as when Hypothesis 1 was tested, namely leverage (*LEVERAGE*), market-to-book (*MTB)*, firm size (*SIZE*), operating cash flow (*OPER_CF*), earnings (*EARNINGS*), litigation risk (*LITIGATION*) and closely held shares (*GOV*). Additionally, I included unconditional conservatism (*NONACC5/NONACC3*) as a control variable, because unconditional conservatism precedes or pre-empts conditional conservatism (Beaver & Ryan 2005:270; Ruch & Taylor 2015:21). The predicted direction of the relationship between conditional conservatism and the dependent variable and each control variable, as discussed in Chapter 5, is indicated in Table 6.5.

Table 6.5 presents the results for Regression Model 1, where *CSCORE* was the dependent variable, representing conditional conservatism. The coefficient on *TA* was positive, but not statistically significant for seven of the eight regressions, which were *CFM_B,* for both the regressions using *NONACC5* (β_1 = 0.000786; t = 0.08) and *NONACC3* (β_1 = 00123; t = 0.13) respectively as control variable*, LR_CASH_ETR5* (β_1 = 0.00767; t = 1.30)*, LR_CASH_ETR3* (β_1 = 0.00360; t = 0.61), and *TAX_FRAUD_SCORE,* for both the regressions using *NONACC5* (β_1 = 0.00608; t = 0.34) and *NONACC3* (β_1 = 0.00524; t = 0.29) respectively as control variable. The coefficient on *TA* was negative for one regression, where *LR_CFM_B5* (β_1 = -0.01170; t = -1.36) was used as the independent variable representing *TA*; the results were not statistically significant.

For all regressions, except for the regressions using the *TAX_FRAUD_SCORE* to measure *TA*, the association between the *CSCORE* and the control variables were similar. These results are discussed below. For these regressions, where *LR_CFM_B5, LR_CFM_B3, CFM_B, LR_CASH_ETR5,* and *LR_CASH_ETR3* were used to measure *TA, CSCORE* was significantly negatively related at the 1% level to growth opportunities, including earnings management (*MTB*), firm size (*SIZE*), and profitability, represented by the operational cash flow of a firm (*OPER_CF*) for regressions using *NONACC5* as the control variable, and at the 10% level for regressions using *NONACC3* as the control variable. *CSCORE* was also significantly positively related at the 1% level to the leverage of a firm for contracting (*LEVERAGE*), which was contrary to my expectation that a firm would be less highly leveraged if it had higher levels of conditional conservatism. *CSCORE* was also significantly positively related at the 5% level to corporate governance (*GOV*) for regressions using *NONACC3* as the control variable. Thus, when tax avoidance was measured using *LR_CFM_B5, LR_CFM_B3, CFM_B, LR_CASH_ETR5,* and *LR_CASH_ETR3,* firms with higher levels of conditional conservatism (*CSCORE*) were smaller, had fewer growth opportunities and were less profitable, but were more highly leveraged.

It is important to note that for all these regressions conditional conservatism (*CSCORE*) was negatively related to unconditional conservatism (*NONACC5* and *NONACC3*), with the relation to *NONACC3* being significant at the 10% level if the two cash flow-based variables are used to measure tax avoidance (*LR_CFM_B3 and CFM_B)* and 5% if the non-cash flow-based variable was used to measure tax avoidance (*LR_CASH_ETR3*). This result supports Qiang's (2007:760) conclusion that there is a significantly negative

association between conditional and unconditional conservatism, which suggests that they fulfil interrelated roles as indicated in Chapter 2. Since the results of my study confirmed a negative relation between tax avoidance and unconditional conservatism (see Section 6.4), this negative association between the two types of accounting conservatism would support a positive relation between tax avoidance and conditional conservatism.

For the two regressions using *TAX_FRAUD_SCORE* to measure *TA*, *CSCORE* was significantly negatively related to the leverage of a firm for contracting (*LEVERAGE*) at the 1% level, to growth opportunities, including earnings management (*MTB*) at the 1% level, and firm size (*SIZE*) at the 10% level for regressions using *NONACC5* as the control variable, and at the 5% level for regressions using *NONACC3* as the control variable. Thus, when tax avoidance was measured using *TAX_FRAUD_SCORE,* firms with higher levels of conditional conservatism (*CSCORE*) were less highly leveraged, and they were smaller, with fewer growth opportunities.

Table 6.5: Multivariate regression analysis of the relation between conditional accounting conservatism (*CSCORE*) and tax avoidance

Regression (N1) $CONS_{it} = \alpha + \boldsymbol{\beta_1}TA_{it} + \sum\beta_k CONTROLS_k + \varepsilon_{it}$ (1)

	Predic-ted sign	Unconditional conservatism control variable – NONACC5								Unconditional conservatism control variable - NONACC3							
		TA = LR_CFM_B5		TA = CFM_B		TA = LR_CASH_ETR5		TA = TAX_FRAUD_SCORE		TA = LR_CFM_B3		TA = CFM_B		TA = LR_CASH_ETR3		TA = TAX_FRAUD_SCORE	
		(n=8 777)		(n = 8 910)		(n=8 757)		(n=42)		(n=13 312)		(n=13 314)		(n=13 294)		(n=44)	
Intercept		0.69582	***	0.68339	***	0.69270	***	0.45100	*	0.91583	***	0.91447	***	0.91526	***	1.65207	**
		4.10		3.97		4.10		2.20		5.80		5.79		5.80		2.82	
TA	?	-0.01170		0.000786		0.00767		0.00608		0.000306		0.00123		0.00360		0.00524	
		-1.36		0.08		1.30		0.34		0.04		0.13		0.61		0.29	
Control variables																	
LEVERAGE	-	0.04048	***	0.04270	***	0.03989	***	-0.49687	***	0.03762	***	0.03843	***	0.03811	***	-0.51117	***
		10.83		11.41		10.73		-4.26		10.98		11.24		11.14		-4.33	
MTB	-	-0.01741	***	-0.01782	***	-0.01723	***	-0.01940	***	-0.01833	***	-0.01829	***	-0.01832	***	-0.01935	***
		-37.77		-38.84		-37.39		-5.63		-43.05		-43.04		-43.09		-5.57	
SIZE	-	-0.04029	***	-0.03945	***	-0.04049	***	-0.08225	*	-0.04130	***	-0.04140	***	-0.04142	***	-0.09230	**
		-27.53		-26.68		-27.74		-2.07		-28.26		-28.28		-28.30		-2.52	
OPER_CF	+	-0.07283	***	-0.06499	***	-0.07106	***	1.08789		-0.02239	*	-0.02215	*	-0.02136	*	1.14022	
		-5.43		-4.80		-5.32		1.40		-1.87		-1.84		-1.78		1.49	

	Predic-ted sign	Unconditional conservatism control variable – NONACC5				Unconditional conservatism control variable - NONACC3							
		TA = LR_CFM _B5	TA = CFM_B	TA = LR_CASH _ETR5	TA = TAX_FRAUD _SCORE	TA = LR_CFM _B3		TA = CFM_B		TA = LR_CASH _ETR3		TA = TAX_FRAUD _SCORE	
		(n=8 777)	(n = 8 910)	(n=8 757)	(n=42)	(n=13 312)		(n=13 314)		(n=13 294)		(n=44)	
EARNINGS	+	0.00779	0.01340	0.00692	-1.98458	-0.01899	*	-0.01806		-0.02094	*	-1.88494	
		0.63	1.08	0.56	-1.43	-1.69		-1.60		-1.87		-1.36	
LITIGATION	+	0.00171	0.000344	0.00287	-0.01361	0.00128		0.00148		0.00125		0.00262	
		0.21	0.04	0.36	-0.26	0.16		0.18		0.16		0.05	
GOV	+	0.000196	0.000173	0.000212	-0.00168	0.000352	**	0.000356	**	0.000351	**	-0.00165	
		1.28	1.13	1.40	-0.62	2.43		2.46		2.42		-0.51	
NONACC5[N1]	-	-0.00358	-0.01184	-0.00122	0.83514								
		-0.22	-0.77	-0.08	0.86								
NONACC3[N1]	-					-0.01364	*	-0.01376	*	-0.01605	**	0.30667	
						-1.66		-1.68		-1.98		0.41	
Fixed effects		Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year		Industry & Year		Industry & Year		Industry & Year	
F statistics													
Overall model		67.75 ***	67.48 ***	67.65 ***	45.32 ***	68.63 ***		68.65 ***		68.68 ***		47.72 ***	
Adjusted R²		0.3898	0.3853	0.3900	0.9710	0.3162		0.3162		0.3166		0.9720	

N1 If the control variable representing unconditional conservatism is NONACC5 in the regression, the column is grey and if the control variable is NONACC3 the column is white.

*Table 6.5 reports the multivariate regression results for Regression Model 1 with the relation between conditional conservatism (CSCORE) and the different tax avoidance measures, namely LR_CFM_B5, LR_CFM_B3, CFM_B, LR_CASH_ETR5, LR_CASH_ETR3 and TAX_FRAUD_SCORE. The t-statistics are reported below each of the coefficient estimates. *, **, *** denotes significance at the ten, five and one per cent levels, respectively. All variables are defined in Annexure A.*

Source: Own compilation

6.5.2 Augmented Basu (Regression Model 2)

The augmented Basu model (Regression Model 2) was used for the testing of H_2, which predicts no relation between tax avoidance and conditional conservatism. The standard Basu (1997) model, augmented with conditional conservatism, was estimated as follows:

$$EARN\_TAX_{it} = \beta_0 + \beta_1 ROE\_DUMMY_{it} + \beta_2 ROE_{it} + \beta_3 ROED\_ROE_{it} + \beta_4 TA_{it}$$
$$+ \beta_5 ROE\_TA_{it} + \beta_6 ROED\_TA_{it} + \beta_7 ROED\_ROE\_TA_{it} + \sum \beta_k CONTROLS_k + \varepsilon_{it} \quad (2)$$

Table 6.6 reports the results for the eight estimations of Regression Model 2, where *NONACC5* (the grey columns in Table 6.6) and *NONACC3* (the white columns in Table 6.6) were the control variables representing unconditional conservatism in the respective regressions. Where the variable for tax avoidance (*TA*) was calculated over five years (*LR_CFM_B5* and *LR_CASH_ETR5*), *NONACC5* was used to ensure consistency of the period. Where it was calculated over three years (*LR_CFM_B3* and *LR_CASH_ETR3*), *NONACC3* was used. If the variable for tax avoidance was calculated per firm-year (*CFM_B* and *TAX_FRAUD_SCORE*), the regression was duplicated, using both *NONACC5* and *NONACC3* as control variables. *CONTROLS* refers to the control variables which were the same as the control variables used in Section 6.5.1 for Regression Model 1.

The variable of interest when testing Regression Model 2 was the interaction variable *ROED_ROE_TA,* which was an indication of the relation of conditional conservatism (*ROED_ROE*) and tax avoidance (*TA*). For all regressions, β_7 was positive, except for the regressions where the *TAX_FRAUD_SCORE* was the variable representing tax avoidance, where the sample was too small to calculate the coefficient. The coefficient (β_7) on *LR_CFM_B5* ($\beta_7 = 0.03575$; t = 2.57), where *NONACC5* was the control variable, and *LR_CASH_ETR3* ($\beta_7 = 0.01667$; t = 2.11), where *NONACC3* was the control variable, was significantly positive at the 5% level. The coefficient (β_7) on *LR_CFM_B3* ($\beta_7 = 0.01817$; t = 1.78), where *NONACC3* was the control variable and *CFM_B* ($\beta_7 = 0.02851$; t = 1.72), where *NONACC5* was the control variable, was significantly positive at the 10% level. Three cash flow-based ETR measures therefore had a significantly positive coefficient (β_7). These results indicate that firms with higher levels of tax avoidance reported earnings more conservatively, in other words, the demand for conditional conservatism dominated in firms involved in more tax avoidance activities, because conditional conservatism results in asymmetric recognition of good and bad news, with

the reporting of gains being postponed until they are realised, but anticipated losses being recognised in earnings, which results in a lower reported income for both tax and accounting. This contradicts the results reported when testing H_2 using Regression Model 1, in Section 6.5.1. These results when testing H_2 using Regression Model 2, contradict H_2, which predicts that there is no relation between tax avoidance and conditional conservatism.

The positive relation between conditional conservatism and tax avoidance found when testing Hypothesis 2 can be explained by extending the argument I presented above in support of my rejection of Hypothesis 1. Risk averse managers, who are also more conservative managers, tend to be prudent in adjusting for accounting using unconditional conservatism. Since unconditional conservatism pre-empts conditional conservatism (Beaver & Ryan 2005:270; Ruch & Taylor 2015:21), it follows that less engagement with conditional conservatism is then necessary. In my sample, firms with higher levels of unconditional conservatism were more prone to litigation risk (see Section 6.4), whereas this was not the case for firms with high levels of conditional conservatism (see Section 6.5.1), which might be an additional indication that unconditional conservatism was applied to mitigate risk which was then no longer prevalent when conditional conservatism came into play. Higher levels of unconditional conservatism in a firm result in lower levels of conditional conservatism, as confirmed by my results, as well as a decrease in tax avoidance. This in turn means that conditional conservatism and tax avoidance decrease under similar circumstances, explaining the positive relationship indicated in my results.

For the purposes of Regression Model 2, based on the augmented Basu model, the discussion is limited to the interaction variable *ROED_ROE_TA,* which was an indication of the relation of conditional conservatism (*ROED_ROE*) and tax avoidance (*TA*) as this is the focus of the study. The relationship between the control variables and the dependent variable in the regression, *EARN_TAX*, is not covered as it falls outside the scope of this study. This same approach is followed in the studies by Black et al. (2018:129-130) and García Lara et al. (2020:15).

Table 6.6: Multivariate regression analysis (Augmented Basu) of the relation between conditional conservatism and tax avoidance

$$EARN\_TAX_{it} = \beta_0 + \beta_1 ROE\_DUMMY_{it} + \beta_2 ROE_{it} + \beta_3 ROED\_ROE_{it} + \beta_4 TA_{it} + \beta_5 ROE\_TA_{it} + \beta_6 ROED\_TA_{it} + \beta_7 ROED\_ROE\_TA_{it} + \sum \beta_k CONTROLS_k + \varepsilon_{it} \qquad (2)$$

	Predicted sign	Unconditional conservatism control variable – NONACC5				Unconditional conservatism control variable - NONACC3			
		TA = LR_CFM_B5 (n=8 706)	TA = CFM_B (n = 8 850)	TA = LR_CASH_ETR5 (n=8 705)	TA = TAX_FRAUD_SCORE (n=41)	TA = LR_CFM_B3 (n=13 168)	TA = CFM_B (n=13 170)	TA = LR_CASH_ETR3 (n=13 170)	TA = TAX_FRAUD_SCORE (n=43)
Intercept		0.10157 **	0.09986 **	0.10322 **	0.00426	0.09258 ***	0.09232 ***	0.09159 ***	0.02233
		2.28	2.26	2.31	0.07	2.91	2.91	2.88	0.35
TA		0.00693 *	0.01763 ***	0.00608 **	-0.00085	0.01384 ***	0.01900 ***	0.00713 ***	-0.00337
		1.95	4.52	2.45	-0.29	4.93	6.31	3.78	-1.02
ROE_DUMMY		-0.00264	-0.000830	-0.00157	-0.02574	-0.00116	-0.000437	-0.00144	-0.00097
		-1.05	-0.33	-0.64	-1.57	-0.60	-0.22	-0.76	-0.07
ROE		0.00529 ***	0.00567 ***	0.00586 ***	-0.00369	0.00336 ***	0.00366 ***	0.00377 ***	0.00187
		3.39	3.75	3.77	-0.40	3.10	3.39	3.51	0.13
ROED_ROE		0.00207	0.00552	-0.00382	-0.13180 *	0.00796 *	0.00894 **	0.00774 *	-0.07437
		0.34	0.92	0.63	-2.42	1.84	2.08	1.81	-1.06
ROE_TA		0.00457	-0.00714 ***	-0.00101	0.01318	0.00449 *	0.00246	-0.00022	0.02244 *
		1.34	-1.56	-0.27	1.25	1.68	0.80	-0.08	1.95

	Predicted sign	Unconditional conservatism control variable – NONACC5				Unconditional conservatism control variable - NONACC3			
		TA = LR_CFM_B5 (n=8 706)	TA = CFM_B (n = 8 850)	TA = LR_CASH_ETR5 (n=8 705)	TA = TAX_FRAUD_SCORE (n=41)	TA = LR_CFM_B3 (n=13 168)	TA = CFM_B (n=13 170)	TA = LR_CASH_ETR3 (n=13 170)	TA = TAX_FRAUD_SCORE (n=43)
ROED_TA		0.00937 (1.37)	-0.00580 (-0.75)	0.00084 (0.18)	0.00340 (1.02)	-0.00374 (-0.72)	-0.00804 (-1.42)	-0.00143 (-0.41)	0.00319 (0.79)
ROED_ROE_TA ($\beta 7$)	?	0.03575 ** (2.57)	0.02851 * (1.72)	0.01609 (1.49)	0.00000 (None)	0.01817 * (1.78)	0.00825 (0.72)	0.01667 ** (2.11)	0.00000 (None)
Control variables									
LEVERAGE		-0.00665 *** (-6.59)	-0.00625 *** (-6.34)	-0.00661 *** (-6.58)	0.01156 (0.85)	-0.00278 *** (-3.89)	-0.00277 *** (-3.89)	-0.00280 *** (-3.93)	-0.00016 (-0.01)
MTB		-0.000054 (-0.44)	-0.000040 (-0.34)	-0.00004 (-0.34)	-0.00008 (-0.23)	-0.00012 (-1.42)	-0.000124 (-1.44)	-0.00012 (-1.37)	-0.00036 (-0.84)
SIZE		0.00112 *** (2.87)	-0.00103 *** (2.67)	0.00108 *** (2.77)	-0.00096 (-0.29)	0.00088 *** (2.94)	0.00080 *** (2.68)	0.00091 *** (3.04)	-0.00165 (-0.41)
OPER_CF		0.01827 *** (5.06)	0.01731 *** (4.86)	0.01774 *** (4.93)	-0.14558 (-1.77)	0.01271 *** (5.10)	0.01254 *** (5.03)	0.01259 *** (5.05)	-0.11428 (-1.13)
EARNINGS		0.96731 *** (291.76)	0.96737 *** (298.67)	0.96774 *** (291.63)	1.51938 *** (10.61)	0.98525 *** (423.04)	0.98477 *** (421.62)	0.98557 *** (423.25)	1.37247 *** (9.03)

	Predic-ted sign	Unconditional conservatism control variable – NONACC5				Unconditional conservatism control variable - NONACC3			
		TA = LR_CFM_B5	TA = CFM_B	TA = LR_CASH_ETR5	TA = TAX_FRAUD_SCORE	TA = LR_CFM_B3	TA = CFM_B	TA = LR_CASH_ETR3	TA = TAX_FRAUD_SCORE
		(n=8 706)	(n = 8 850)	(n=8 705)	(n=41)	(n=13 168)	(n=13 170)	(n=13 170)	(n=43)
LITIGATION		-0.00978 ***	-0.01047 ***	-0.01002 ***	0.00643	-0.00788 ***	-0.00769 ***	-0.00819 ***	0.00323
		-4.57	-4.99	-4.68	1.31	-4.89	-4.78	-5.08	0.52
GOV		0.00009 **	0.00012 ***	0.00009 **	0.00001	0.00005 *	0.00005	0.00005 *	0.00009
		2.24	2.72	2.25	-0.05	1.71	1.59	1.76	-0.27
NONACC5[N1]		-0.02635 ***	-0.02149 ***	-0.02572 ***	-0.00207				
		-6.03	-5.28	-5.93	-0.02				
NONACC3[N1]						-0.00903 ***	-0.00890 ***	-0.00911 ***	-0.00914
						-5.37	-5.32	-5.47	-0.07
Fixed effects		Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year
F statistics - Overall model		1534.70 ***	1575.14 ***	1532.58 ***	93.46 ***	2942.77 ***	2925.26 ***	2946.07 ***	61.30 ***
Adjusted R²		0.9407	0.9412	0.9406	0.9878	0.9559	0.9556	0.9559	0.9810

N1   If the control variable representing unconditional conservatism is NONACC5 in the regression, the column is grey and if the control variable is NONACC3 the column is white.

Table 6.6 reports the multivariate regression results for Regression Model 2 for the relation between conditional conservatism and tax avoidance. The dependent variable is EARN_TAX in all models. The t-statistics are reported below each of the coefficient estimates. All variables are defined in Annexure A. *, **, *** denote significance at the ten, five and one per cent levels, respectively.

Source: Own compilation

6.6 CONCLUSION

In this chapter, the results for the testing of the relationship of tax avoidance to both unconditional and conditional conservatism have been presented. For all regressions where I tested the relation between unconditional conservatism ($NONACC5$ and $NONACC3$) and tax avoidance (Hypothesis 1), the coefficient on TA was negative. This result contradicts H_1, which states that there is a positive relation between tax avoidance and unconditional conservatism. This change in direction might be ascribed to my adjusting all the variables used in the study to measure accounting conservatism to exclude tax-related expenses and cash flows when calculated, to ensure that the proxies for tax avoidance and accounting conservatism were not spuriously correlated (Frank et al. 2009:480). I also conclude that firms with higher levels of unconditional conservatism ($NONACC5$ and $NONACC3$) were less highly leveraged, smaller, with fewer growth opportunities and less profitable, but more prone to litigation risk.

Hypothesis 2 was tested using both Regression Models 1 and 2. The results for Regression Model 1, where the $CSCORE$ was used as the dependent variable, indicated no statistically significant relation between tax avoidance and conditional conservatism. H_2 was also tested using the augmented Basu model (Regression Model 2), which showed a significantly positive relation between tax avoidance and conditional conservatism. Interestingly, the relation was significantly positive for three of the cash flow-based ETR measures, namely for LR_CFM_B5, for LR_CFM_B3 and for CFM_B. The CFM_B *measure* was the preferable cash flow-based ETR measure to use to identify tax avoidance, because it accounted for both conforming and non-conforming tax avoidance and it was not affected by accrual accounting in either the nominator (total cash taxes paid) or the denominator (cash flow from operations) (Salihu et al. 2013:418,423). This result also endorses the validity of the measure selection. The results of the tests using the augmented Basu model further confirmed that firms with higher levels of tax avoidance reported earnings more conservatively (in other words, the demand for conditional conservatism dominated in firms involved in more tax avoidance activities, because conditional conservatism results in the asymmetric recognition of good and bad news, when the reporting of gains is postponed until the gains are realised, but anticipated losses are recognised in earnings).

Moreover, the evidence indicated that firms with higher levels of conditional conservatism (*CSCORE*) were smaller, had fewer growth opportunities, and were less profitable, but more highly leveraged.

It is noteworthy that the results of the testing of H_2 further confirmed that conditional conservatism (*CSCORE*) was negatively related to unconditional conservatism (*NONACC5* and *NONACC3*), which supports the theory by Qiang (2007:760) that there is a negative association between conditional and unconditional conservatism. This suggests that they fulfil interrelated roles, as indicated in Chapter 2.

It should be noted that the tax avoidance measure that I introduced for the purposes of this study, *TAX_FRAUD_SCORE*, was not significantly correlated to any of the accounting conservatism measures, nor to any of the other tax avoidance measures. This, combined with the fact that only a limited number of observations were available to use for testing, limited the usefulness of this measure for tax avoidance.

This chapter has provided details of the sample selection procedure and the results of the tests performed. Chapter 7 concludes the study and provides an overview of the results, possible recommendations, and avenues for further research.

CHAPTER 7:
CONCLUSION

7.1 INTRODUCTION

Corporate taxation, which is reported to the revenue service, and financial information, which is reported in the financial statements, are closely related. More specifically, the manner in which the reporting is approached in both cases is similar. This implies that if firms want to reduce their current tax payments (avoid taxation), this decision might also affect the accounting information reflected in the financial statements (Watts 2003a:209). My study set out to investigate the relationship between tax avoidance and accounting conservatism, and whether the relationship differs for conditional and unconditional accounting conservatism.

To establish the relationship, an archival research design was followed, starting with an extensive literature review to clarify the theoretical framework underpinning this study, and to identify the characteristics of tax avoidance and accounting conservatism, including the definitions, determinants and consequences of both phenomena. This analysis was used as the starting point to develop two hypotheses relating to the relationship between tax avoidance and unconditional conservatism, and between tax avoidance and conditional conservatism. These hypotheses were then tested using multivariate regressions.

I tested two hypotheses using data for all publicly listed firms in the United States for the sampling period, 1993 to 2018, covering a 26-year period. The final sample included 14 546 firm-years from 2 683 individual firms. All the SIC broad industry divisions (Divisions A to K) were represented in the sample, except for a few that were specifically excluded, namely Division H: Finance, Insurance, and Real Estate (SIC Code 6000 to 6999).

Before testing the two hypotheses, a thorough analysis was performed of the measures available, as discussed in the literature, to measure tax avoidance, as well as unconditional and conditional conservatism. Following a recommendation by Hanlon and Heitzman (2010:129,144), the measures were evaluated, and their appropriateness, benefits and limitations were reviewed before a set of final measures was selected to address the research question.

Hypothesis 1 (H_1) states that there is a positive relationship between tax avoidance and unconditional conservatism. Hypothesis 2 (H_2) states that there is no relationship between tax avoidance and conditional conservatism. Both hypotheses were tested using Regression Model 1 (see Sections 6.4 and 6.5.1). Hypothesis 2 was also tested using the augmented Basu model (Regression Model 2 – see Section 6.5.2). The results of these tests are summarised below.

7.2 RESULTS

The relationship of tax avoidance to both unconditional and conditional conservatism was tested in the study. In Chapter 2, I argued that if a firm wishes to defer taxable income (a form of less aggressive tax avoidance behaviour which should fall on the left-hand side of the tax avoidance continuum in Figure 2.1), while still aiming for book-tax conformity, then accounting income or net earnings must also be deferred. This is achieved by deferring revenue. At the same time, the recognition of expenses is accelerated in the financial records. This tendency to report more conservatively, which is referred to as tax-induced accounting conservatism (Hanlon et al. 2008:295), is brought about naturally by the interaction between financial accounting and taxation (Basu 2005:313; Qiang 2007:760; Watts 2003a:209,216,217). Tax-induced accounting conservatism results in the deferral of taxes because of the asymmetric recognition of gains and losses. Previous studies (Qiang 2007:765; Ruch & Taylor 2015:21) have indicated that unconditional conservatism in particular results in the deferral of taxes. Based on this, Hypothesis 1, stated in the alternative form, was the following:

H_1: *There is a positive relationship between tax avoidance and unconditional conservatism.*

The results of my study indicated a significant negative relation between unconditional conservatism and tax avoidance, which contradicts H_1. This is also contrary to the results of previous studies that suggested a positive relation between tax avoidance and unconditional conservatism (Qiang 2007:765; Ruch & Taylor 2015:21). My results further indicate that firms with higher levels of unconditional conservatism were less highly leveraged; they were also smaller, with fewer growth opportunities, and less profitable, but were more prone to litigation risk.

The result of a change in direction from a proposed positive relationship to a negative relationship between tax avoidance and unconditional conservatism can be ascribed to specific changes made to the variables measuring tax avoidance and unconditional conservatism in my study. The change in direction can firstly be ascribed to the adjustment of all variables measuring accounting conservatism to exclude tax-related expenses and tax-related cash flows (in order to ensure that the proxies for tax avoidance and accounting conservatism were not spuriously correlated).

The negative relation of tax avoidance to unconditional conservatism may arise from the use of long-run measures for tax avoidance (*LR_CASH_ETR5*, *LR_CASH_ETR*3, LR_*CFM_B5* and *LR_CFM_*B3) which implies that the deferral effect for tax purposes was not detected (measured), given the longer period over which the measures were calculated. Also, the measures that I used for tax avoidance are all ETR measures (except for the *TAX_FRAUD_SCORE*). Previously, Qiang (2007:761) found that a rise in tax costs induces unconditional conservatism, using a book-tax differences measure. Book-tax differences capture the *income* effects of tax avoidance strategies, whereas ETRs capture the *tax* effects of such strategies (Lennox et al. 2013:753). In addition, book-tax differences measures capture only some non-conforming tax avoidance aspects, and not the full range of tax avoidance activities, whereas the measures used in my study captured both non-conforming tax avoidance (non-cash flow-based ETR measures - *LR_CASH_ETR5* and *LR_CASH_ETR3*), as well as conforming tax avoidance (cash flow-based ETR measures - *CFM_B*, *LR_CFM_B5* and *LR_CFM_B3*).

The negative relationship between unconditional conservatism and tax avoidance can also be explained in light of the risks associated with accounting conservatism and tax avoidance. The studies by Francis et al. (2014) and Francis et al. (2015) indicate that the level of risk aversion of a manager dictates the relation of the manager to both tax avoidance (Francis et al. 2014:174) and accounting conservatism (Francis et al. 2015:1314). It follows in their studies that a risk averse manager (proxied by gender), tends to engage in less tax avoidance, and more accounting conservatism. This results in a negative relation between tax avoidance and accounting conservatism, which supports my results from testing Hypothesis 1.

Hypothesis 1 relates only to the relation of tax avoidance to unconditional conservatism, so it is important to establish which type of accounting conservatism a manager prefers to

use to mitigate risk. As explained in Section 6.4, my results may, however, indicate that risk averse managers engage more in unconditional accounting conservatism (as a more effective and manageable tool) to mitigate risk, including tax avoidance. Thus risk averse managers increase their unconditional conservatism to manage their risk downwards; hence, a negative relation, as my results confirmed, was established with tax avoidance.

I have provided evidence from the literature, in Chapter 2, of a significantly negative association between the two types of conservatism, suggesting that they fulfil interrelated roles, sometimes making a trade-off between the two types of conservatism necessary (Qiang 2007:760). It was therefore important to differentiate between the two types of conservatism, and to test the relation of each of the two types of conservatism to tax avoidance separately. Since previous studies have suggested a positive relation between tax avoidance and unconditional conservatism (Qiang 2007:765; Ruch & Taylor 2015:21), a negative association between the two types of accounting conservatism suggested a negative relation between tax avoidance and conditional conservatism. Since the analysis of the literature suggested a negative relation, but did not provide strong support for the direction of the relation of tax avoidance and conditional conservatism, Hypothesis 2 was stated in the null form, namely:

H_2: There is no relationship between tax avoidance and conditional conservatism.

The results of my study for *H_2* showed a positive relation between tax avoidance and conditional conservatism. Again, this finding contradicted my prediction in *H_2* that there was no relation between tax avoidance and conditional conservatism. This result confirms that companies with higher levels of tax avoidance tend to report earnings more conservatively. In other words, the demand for conditional conservatism dominates in firms involved in more tax avoidance activities, because conditional conservatism results in asymmetric recognition of good and bad news, with the reporting of gains being postponed until they are realised, but anticipated losses being recognised in earnings, which results in a lower reported income for both tax and accounting. The data and analyses show that firms with higher levels of conditional conservatism were smaller, with fewer growth opportunities, and less profitable, but they were more highly leveraged. Testing also confirmed that conditional conservatism was negatively related to unconditional conservatism, which supports prior research (Qiang 2007:760) and suggests that they fulfil interrelated roles. Since the results confirmed a negative relation

between tax avoidance and unconditional conservatism (see Section 6.4), a negative association between the two types of accounting conservatism would further support a positive relation between tax avoidance and conditional conservatism (see below).

The positive relation between conditional conservatism and tax avoidance found when testing Hypothesis 2 can be explained by extending the argument I presented in Section 6.4 in support of my rejection of Hypothesis 1. Risk averse managers, who are also more conservative managers, tend to be prudent in making adjustments for accounting using unconditional conservatism. Since unconditional conservatism pre-empts conditional conservatism (Beaver & Ryan 2005:270; Ruch & Taylor 2015:21), it follows that less engagement with conditional conservatism is then necessary. In addition, my test results indicate that, in my sample, firms with higher levels of unconditional conservatism were more prone to litigation risk (see Section 6.4), whereas this was not the case for firms with high levels of conditional conservatism, which might be an additional indication that unconditional conservatism was applied to mitigate risk, which was then no longer prevalent when conditional conservatism came into play. My results indicate that higher levels of unconditional conservatism result in lower levels of conditional conservatism, as well as a decrease in tax avoidance. This in turn means that conditional conservatism and tax avoidance decrease under similar circumstances, explaining the positive relationship indicated in my results (see Section 6.5).

7.3   CONTRIBUTION

The main aim of my study was to investigate the relationship between tax avoidance and accounting conservatism, and whether the relationship differs for conditional and unconditional accounting conservatism for publicly listed corporate taxpayers. The study has increased the body of knowledge on these topics by exploring the relation of tax avoidance to unconditional and conditional conservatism respectively, using tax-adjusted proxies for accounting conservatism. The results of the study can assist in the identification of firms that are likely to reflect higher levels of unconditional conservatism and conditional conservatism respectively, which in turn can assist in the identification of firms that are prone to tax avoidance, since the relationship between accounting conservatism and tax avoidance has been explored. In addressing this objective, the study has contributed to the body of knowledge relating to tax avoidance and accounting conservatism, as it has identified determinants and consequences of tax avoidance and

accounting conservatism, and provided conceptual frameworks for both these phenomena.

A key contribution of my study is the advancement of measures of tax avoidance and accounting conservatism in various ways. This contribution was not the main aim of the study, but was related to one of the three objectives of the study, namely to identify the different measures used in previous research on tax avoidance and conditional and unconditional conservatism, and to select the most relevant measures for my study. This involved a comprehensive analysis and the compilation of a useful list of measures for both tax avoidance and accounting conservatism (unconditional and conditional conservatism). For tax avoidance measures, a tax avoidance continuum developed by Lisowsky et al. (2013:583) was adapted and extended, by including the non-cash-based ETR measures, CFM A, CFM B and the long-run version of the CFM B measure, to develop a comprehensive tax avoidance measure suitability instrument that summarises the levels of tax avoidance (from legal or least aggressive to illegal or most aggressive). This can assist future researchers in identifying the most appropriate measure(s) to address a specific research question. The study also extended the limited empirical testing of the CFM B measure, which accounts for both conforming and non-conforming tax avoidance and is not affected by accrual accounting in either the nominator (total cash taxes paid) or the denominator (cash flow from operations). In addition, a long-run version of the CFM B measure, calculated over a three- and a five-year period, was introduced, empirically tested and validated in this study for use in future tax avoidance research.

In addition, this is the first study where, in calculating the proxies to measure accounting conservatism (the *NONACC* to measure unconditional conservatism and the *CSCORE* to measure conditional conservatism), all proxies were adapted by adjusting them to exclude tax-related expenses and cash flows to ensure that the proxies for tax avoidance and accounting conservatism were not spuriously correlated. This method of calculation could be applied in future research, in instances where the relation of accounting conservatism to earnings management, or similar topics, is investigated. Below is a more detailed discussion of the contributions of my study.

My study answers the call by Dyreng and Maydew (2018:311) for research that informs understanding of tax questions that have not yet been fully explored from an accounting perspective and that can shed some light on the interaction between tax avoidance and

accounting conservatism, in so far as the study reflects on the interaction between tax issues and questions on accounting disclosure. My study addresses pertinent topics in both the tax avoidance and accounting conservatism literature, providing guidance for researchers in the form of frameworks. In fulfilling one of the three objectives of the study, namely to perform a literature review in order to clarify the theoretical framework that underpins this study, and to identify the determinants and consequences of tax avoidance and accounting conservatism, conceptual frameworks were presented for the determinants and consequences of both tax avoidance (see Section 2.2.4) and accounting conservatism (see Section 2.3.4).

The study also provides an overview of the wide range of measures of, or proxies for, tax avoidance (see Section 3.8) and unconditional and conditional conservatism (see Section 4.2). This study will be helpful to regulators, investors, managers and academics in these two highly topical areas. This study could assist regulators in identifying, and potentially combatting, tax avoidance. The accounting conservatism profile of a firm can assist regulators to identify firms that are more likely to engage in tax avoidance. Investors' investment decisions may be influenced by the guidance on the consequences of tax avoidance (see Section 2.2.3) and accounting conservatism (see Section 2.3.3). The clearer understanding of the relationship between tax avoidance and accounting conservatism provided in the study will assist managers in making more informed business and investment decisions, and has the potential to contribute to an improved understanding of the role of taxation in an organization (Hanlon & Heitzman 2010:168). Academics and researchers will find the conceptual frameworks presented and the analysis on tax avoidance and accounting conservatism, specifically the determinants of tax avoidance and accounting conservatism, and the in-depth analysis of the measures, summarised below, helpful in their own research on these topics.

The determinants and consequences of tax avoidance and accounting conservatism are summarised in two conceptual frameworks in Figure 2.2 (the tax avoidance conceptual framework) and Figure 2.3 (accounting conservatism conceptual framework). These conceptual frameworks, replicated below for ease of reference, in Figures 7.1 and 7.2 respectively, will assist researchers in identifying the relevant constructs and variables for their research and will alert investors to areas of possible risk in their investment portfolios.

Determinants:

1. Firm-level characteristics (e.g. firm size, performance, liquidity, leverage, market-to-book ratio, industry type, operating cost);
2. Ownership structure (e.g. private versus public firms and family-owned versus non-family-owned);
3. Executive (managers') effects;
4. Managers' incentive structures (e.g. earnings-based incentives, equity risk incentives and inside debt holdings);
5. Governance;
6. Corporate social responsibility;
7. Attributes of the resident tax system:
   • world-wide versus source-based,
   • level of book-tax conformity, and
   • perceived strength of enforcement; and
8. Social capital (e.g. robustness of civic norms and concentration of social networks).

Tax Avoidance:

The reduction of explicit taxes resulting from a continuum of tax planning activities ranging from legal to illegal activities.

Consequences:

1. Deferral or elimination of tax liability resulting in savings in taxes;
2. Increased cash flow;
3. Increased after-tax net income;
4. Increased net present value and share value of a firm;
5. Increased expenses (including the cost to implement tax-avoidance strategies and penalties, which can lead to liquidity problems);
6. Agency costs, including rent-extraction;
7. Reputational damage (including uncertainty among shareholders and negative attention from credit-rating agencies);
8. Tax-induced unconditional conservatism; and
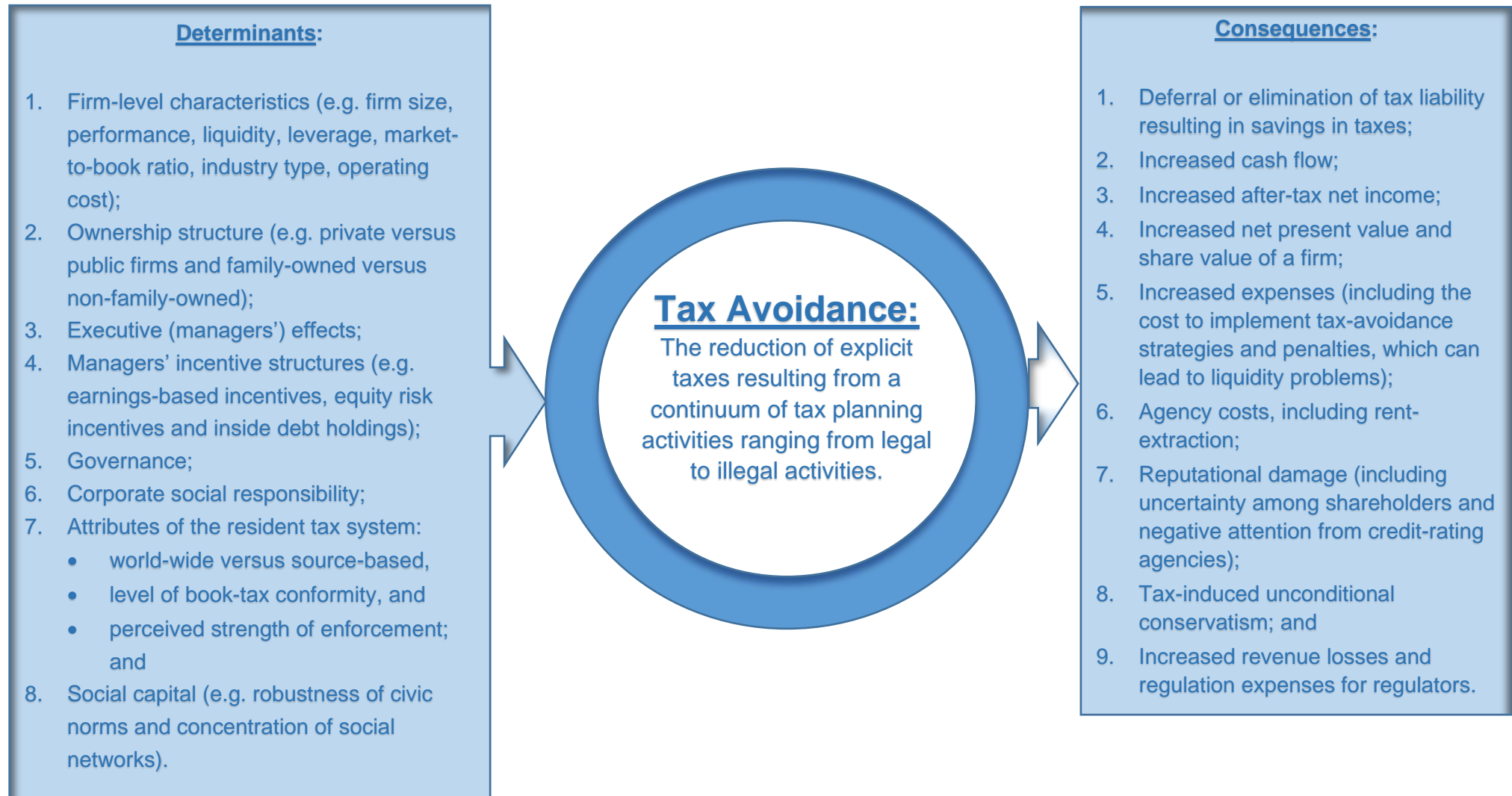9. Increased revenue losses and regulation expenses for regulators.

Figure 7.1 (repetition of Figure 2.2): Conceptual framework for the determinants and consequences of tax avoidance
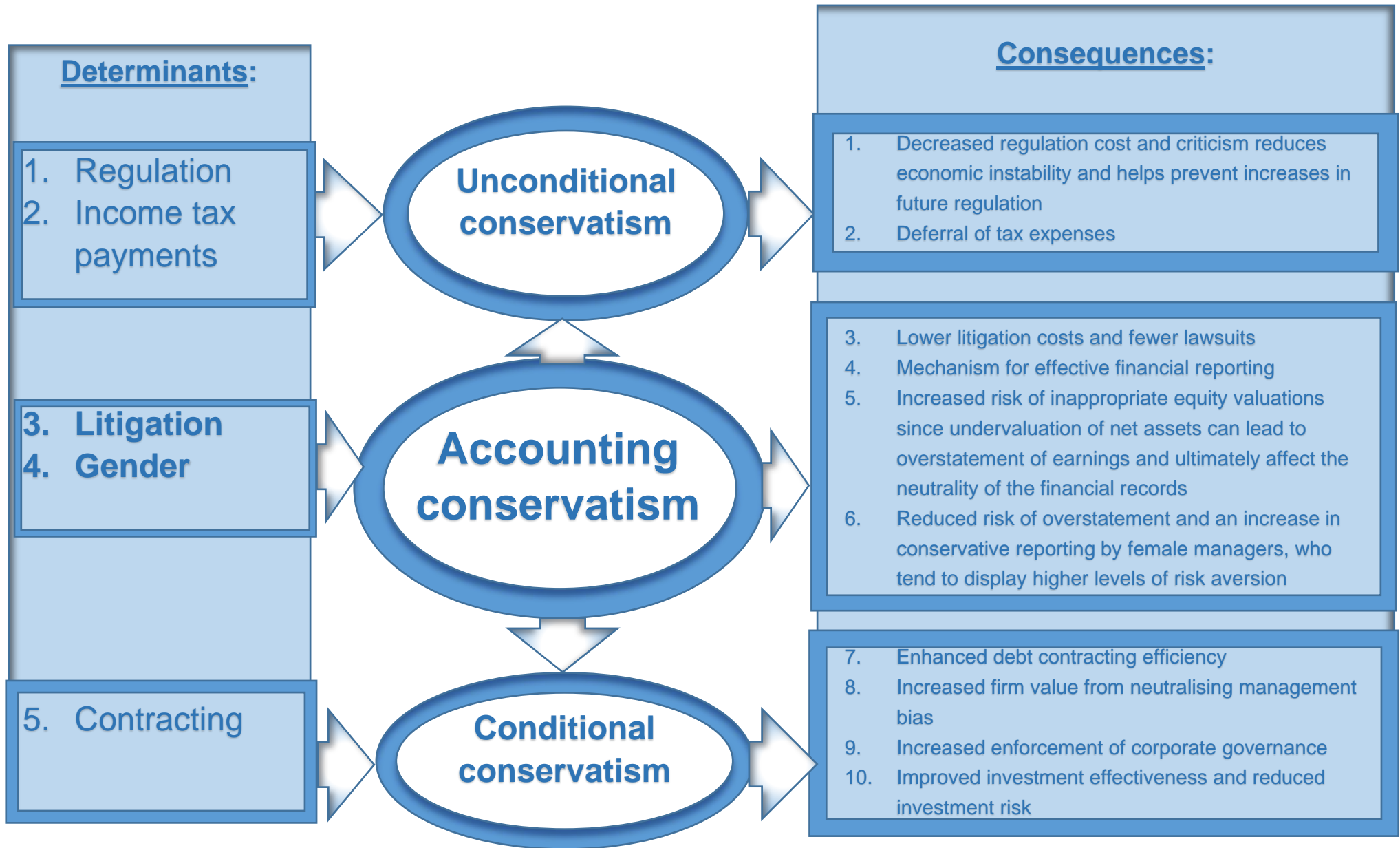
Source: Own development

Figure 7.2 (repetition of Figure 2.3): Conceptual framework for the determinants and consequences of accounting conservatism
Source: Own development

The study contributes to the advancement of measures of tax avoidance and accounting conservatism in various ways, including an analysis of a comprehensive list of measures for both tax avoidance and accounting conservatism (unconditional and conditional conservatism). This analysis includes a comprehensive overview, the calculation and the benefits or limitations of each measure. Reference was also made to specific studies that used these measures, allowing academics to make an informed selection of the most appropriate measure(s) for their research project. Several further contributions to the body of knowledge are summarised below, specifically regarding the measurement of the variables of interest.

As part of the comprehensive analysis of the measures used for testing tax avoidance available in the literature in Chapter 3, a tax avoidance continuum developed by Lisowsky et al. (2013:583) was adapted and extended, by including the non-cash-based ETR measures, CFM A and CFM B, to develop a comprehensive tax avoidance measure suitability instrument (see Figure 3.1, replicated below in Figure 7.3 for ease of reference, with the exception of the additional inclusion of the long-run CFM B (LR CFM B) measure to the instrument – see the discussion below). Since the extended conceptual model also summarises the levels of tax avoidance (from legal or least aggressive to illegal or most aggressive), it could assist researchers to analyse the ability of a tax avoidance measure to measure specific types of tax avoidance, the extent of tax avoidance it can measure, as well as the measurement capabilities of each specific tax avoidance measure compared to others. This analysis and conceptual model could assist researchers in identifying the most appropriate measure(s) to address a specific research question.

TAX AVOIDANCE MEASURE SUITABILITY INSTRUMENT

TAX AVOIDANCE CONTINUUM

TAX | AVOIDANCE

Legal activities
(e.g. deferral of tax)

Illegal activities
(e.g. tax evasion)

Wide scope of tax avoidance

GAAP ETR | CASH ETR | LR CASH ETR | CFM A | CFM B | LR CFM B

Tax aggressiveness

Measures:	
GAAP ETR	GAAP effective tax rate
CASH ETR	CASH effective tax rate
LR CASH ETR	Long-run CASH effective tax rate
CFM A	Cash flow-based effective tax rate measure A
CFM B	Cash flow-based effective tax rate measure B
LR CFM B	Long-run cash flow-based effective tax rate measure B
BTD	Total book-tax differences
PermBTD	Permanent book-tax differences
DTAX	Discretionary permanent book-tax differences
UTBs	Unrecognised tax benefits
RT	Reportable transactions

BTD | PermBTD | DTAX

Tax sheltering

RT

Low ⟵ Level of uncertainty regarding the ability to sustain tax benefits claimed ⟹ High
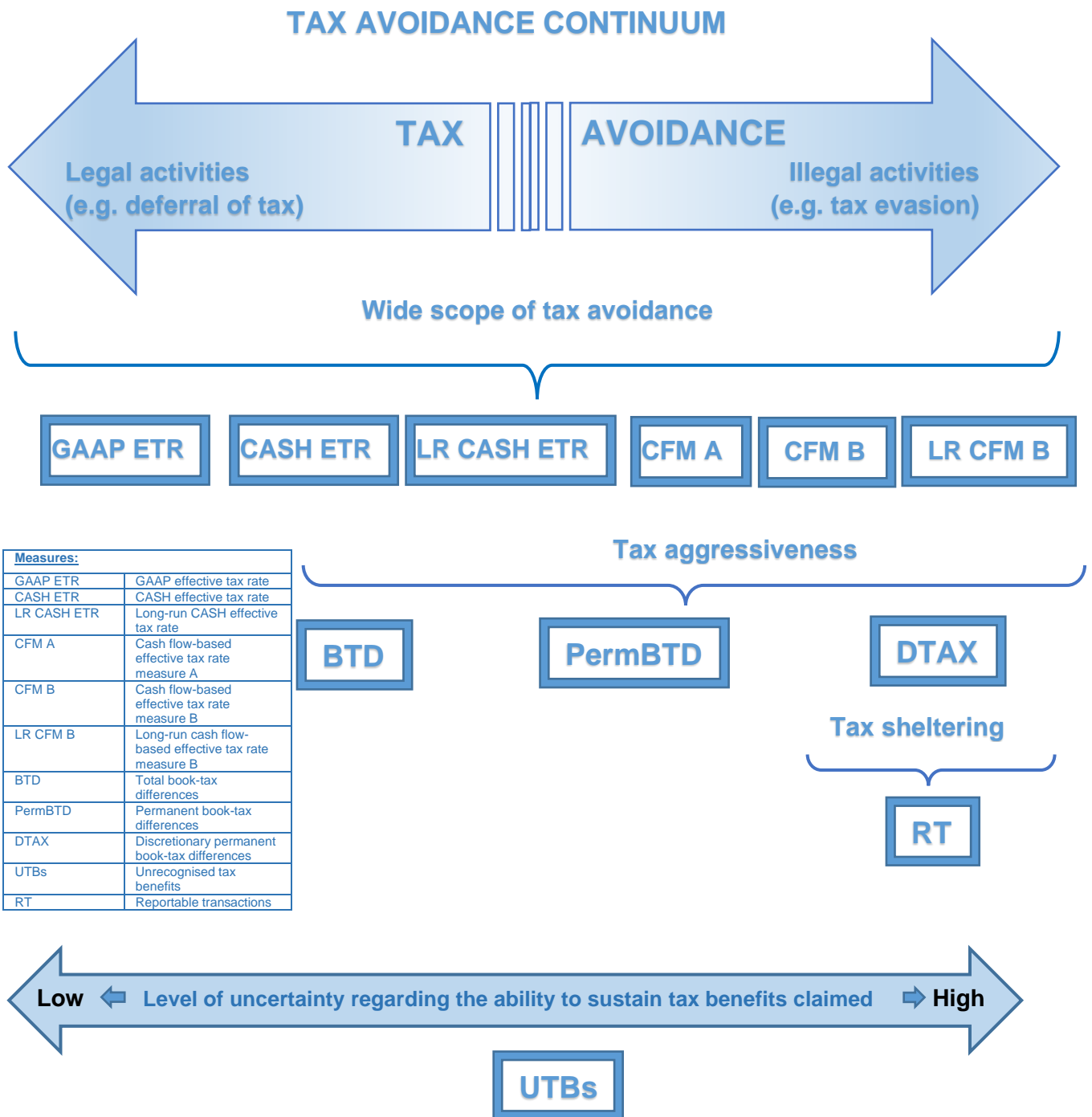
UTBs

Figure 7.3 (extension of Figure 3.1): Tax avoidance measure suitability instrument

Source: Extension of the tax avoidance continuum by Lisowsky et al. (2013:591)

The CFM B measure, a cash-flow based ETR measure, was used in this study as the best measure of tax avoidance. This measure was first proposed as a possible ETR measure

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by Hanlon and Heitzman (2010:144) in their review of tax research. They indicated this as a possible ETR measure that could encapsulate both conforming and non-conforming tax avoidance behaviour. Limited empirical testing has been done in the literature on this measure. Salihu et al. (2013:419-420,423) used it in a Malaysian study. Gebhart (2017:51) used it for United States firms to analyse the relationship between the different measures of tax avoidance; they confirmed that the CFM B measure is the only ETR measure that includes both conforming and non-conforming elements. The CFM B measure was recently used in additional analyses by Badertscher et al. (2019:23) to confirm their results when they tested the relation of conforming tax avoidance and capital market pressure. They alluded to the fact that the CFM B measure mainly includes conforming tax avoidance, which refers to the more aggressive types of tax avoidance and confirms the placement of the measure towards the right of the tax avoidance continuum. This study has built on these empirical results, as it applied the measure in a regression to establish the relationship between tax avoidance and the elements of accounting conservatism, specifically since it accounts for both conforming and non-conforming tax avoidance and it is not affected by accrual accounting in either the nominator (total cash taxes paid) or the denominator (cash flow from operations) (Salihu et al. 2013:418,423).

Badertscher et al. (2019:2) stress the importance of understanding the full spectrum of tax avoidance activities, including both conforming and non-conforming tax avoidance strategies. Although non-conforming tax avoidance strategies are prevalent in accounting research and are seen as more important than conforming tax avoidance, it is important to understand both types of tax avoidance (Badertscher et al. 2019:2,4). Since it is more difficult to detect conforming tax avoidance strategies, a measure that detects conforming tax avoidance activities enhances understanding of the effectiveness and scope of the kinds of tax planning that firms and their managers engage in. This information should be valuable for investors and analysts in doing a risk analysis during investment decision making. Using only the more traditional measures, such as non-cash flow-based ETR measures, cannot provide a complete picture of the types of firm or manager that engage in tax planning, nor of the extent of the tax planning they engage in. This in turn, can lead to understatement of the impact of tax avoidance on the economy. The use of both conforming and non-conforming tax avoidance measures, as was done in this study, therefore enhances the decision-making of analysts and investors, as well as of regulators who are trying to curb tax avoidance (Badertscher et al. 2019:2).

In addition, a long-run version of the CFM B measure, calculated over a three-year period (*LR_CFM_B3*) and a five-year period (*LR_CFM_B5*) was newly introduced, empirically tested and validated in this study (see Chapter 5) for use in future tax avoidance research. The long-run version was introduced to eliminate many of the concerns raised regarding annual ETR measures and the volatility concerns raised as a result. Both the long-run CFM B measures were significantly positively correlated to the other tax avoidance measures (except for the *TAX_FRAUD_SCORE*, which was not significantly correlated to any of the tax avoidance measures – see below). These results confirm the validity of the use of the long-run measures. Since the long-run CFM B measure has now been validated in the study, I included it in Figure 7.3 (above) as part of the comprehensive tax avoidance measure suitability instrument. As it is a purer measure than CFM B since it addresses the volatility concerns of an annual measure, the long-run CFM B (LR CFM B) measure is placed to the right of CFM B.

The tax fraud controversies score (*TAX_FRAUD_SCORE*), namely the number of controversies published in the media linked to tax fraud, parallel imports or money laundering, obtained from the *Datastream* database, was also introduced for the first time in this study as a proxy for tax avoidance. However, the validity of the measure as a possible measure for tax avoidance could not be confirmed in the study. The *TAX_FRAUD_SCORE* was not significantly correlated with any of the tax avoidance measures, and the limited number of observations available implies that the use of this measure for tax avoidance should be approached with caution.

A comprehensive analysis of the measures used for testing accounting conservatism, including unconditional and conditional conservatism, is available in the literature discussed in Chapter 4. Figure 4.1 contains a summary of the 11 measures of conservatism identified in the literature, including the name of the measure, the classification of each measure, namely, whether it is a Balance Sheet, Income Statement or earnings/stock return measure, whether it measures conditional or unconditional conservatism. This figure should be read together with Table 4.11, which indicates reasons for the suitability of measures for the purposes of my study. Researchers can use this table if they seek guidance in selecting an accounting conservatism measure.

This is the first study where, in calculating the proxies to measure accounting conservatism (the *NONACC* to measure unconditional conservatism and the *CSCORE* to

measure conditional conservatism), all proxies were adapted by adjusting them to exclude tax-related expenses and cash flows to ensure that the proxies for tax avoidance and accounting conservatism were not spuriously correlated. This approach was adapted from a study by Frank et al. (2009:480), in which (when calculating total net accruals to investigate the relation of tax reporting aggressiveness to aggressive financial reporting), net accruals were used to calculate the proxy for aggressive financial reporting and were adjusted to exclude tax-related expenses and cash flows. This was done to ensure that the proxies used in their study for tax avoidance and aggressive financial reporting were not spuriously correlated (Frank et al. 2009:480). For this reason, all proxies used in the current study to measure accounting conservatism were adjusted to exclude tax-related expenses and cash flows when calculated. This method of calculation could be applied in future research, especially in instances where the relation of accounting conservatism to earnings management is investigated, which is currently an area generating high volumes of research (Zhong & Li 2017:209).

This study helps to ensure a better understanding of the driving forces behind tax avoidance, as called for by Rego and Wilson (2012:780), and accounting conservatism, as called for by Zhong and Li (2017:209). The study contributes to this body of knowledge relating to the relation of tax avoidance to unconditional and conditional conservatism respectively, with tax-adjusted proxies for accounting conservatism. This study obtained results that were contrary to those reported in prior research, as indicated below.

Based on the literature review performed in Chapter 2, I developed two hypotheses to test the aim of my study, namely Hypothesis 1 (H_1), stated in the alternative form, that there is a positive relationship between tax avoidance and unconditional conservatism, and Hypothesis 2 (H_2), stated in the null form, that there is no relationship between tax avoidance and conditional conservatism. The results indicate a negative relationship between unconditional conservatism and tax avoidance, and a positive relationship between conditional conservatism and tax avoidance. The relationship between unconditional and conditional conservatism was significantly negative (as expected). The change in direction of the relations to tax avoidance can be explained by the exclusion of tax-related elements from the calculation of the accounting conservatism measures.

The negative relation of tax avoidance to unconditional conservatism may arise from the use of long-run measures of tax avoidance, which means that the deferral effect for tax

purposes was not measured, given the longer period over which the measures were calculated. Thus good news that was anticipated in previous periods, but that was not realised, was not reported, because of conservatism, but it was accounted for in the period over which the long-run measure was calculated. In addition, this finding can be explained by the risks associated with accounting conservatism and tax avoidance. The studies of Francis et al. (2014) and Francis et al. (2015) indicate that the level of risk aversion of a manager dictates the relation of the manager to both tax avoidance (Francis et al. 2014:174) and accounting conservatism (Francis et al. 2015:1314). This is in line with agency theory, that places the focus on the actions of the agent, or the manager in this instance. It follows from their studies that a risk averse manager, using gender as proxy for risk, with a female CFO being more risk averse than a male manager, tends to engage in less tax avoidance, but would be inclined to more accounting conservatism. This results in a negative relation between the two concepts, which supports my results in testing Hypothesis 1. A risk averse manager tends to prefer using unconditional accounting conservatism, which is the more effective and manageable tool, to mitigate risk, including tax avoidance. Thus, risk averse managers would increase their unconditional conservatism, whilst engaging in less tax avoidance, explaining the negative relationship. Higher levels of unconditional conservatism in a firm therefore result in lower levels of conditional conservatism, also confirmed by my results, as well as a decrease in tax avoidance. This in turn means that conditional conservatism and tax avoidance decrease under similar circumstances, explaining the positive relationship between conditional conservatism and tax avoidance, as indicated in my results (see Section 6.5). In addition, the positive relation of tax avoidance to conditional conservatism supports the argument that firms with higher levels of tax avoidance tend to report earnings more conservatively. In other words, the demand for conditional conservatism dominates in firms involved in more tax avoidance activities, because conditional conservatism results in an asymmetric recognition of good and bad news: the reporting of gains is postponed until they are realised, but anticipated losses are recognised in earnings, which results in a lower reported income for both tax and accounting.

The results of the study can assist in identifying firms that are likely to reflect higher levels of unconditional conservatism (firms that are less highly leveraged, smaller, with fewer growth opportunities, and they are less profitable, but more prone to litigation risk). It will also assist in identifying firms with higher levels of conditional conservatism, which are

expected to display the same properties as firms with high levels of unconditional conservatism, except that they are not prone to litigation risk, and are more highly leveraged.

7.4 LIMITATIONS

There are a number of limitations that should be considered in assessing the results and contribution of my study. Firstly, the study was limited to one country, namely the United States. The decision to limit the study was made because of the availability of large amounts of data for the United States, which enhanced the significance of the statistical results. Moreover, if an empirical design is limited to one country, it isolates the data from differences relating to regulations and legislation, specifically those applicable to taxation and accounting, as well as the regulators responsible for enforcing these regulations, and differences in culture (Hasan et al. 2017:632; Schwab et al. 2022:419). Although the selection of the United States for my study was beneficial at various levels, it does limit the likelihood of extrapolating the results to firms in other countries.

Secondly, the study focuses on publicly listed firms, which suggests that the results are not necessarily applicable to other types of firms, including public firms that are not listed, private firms and family-owned firms.

Thirdly, the study relied on secondary data available on the cross-country database *Datastream*. Given that the necessary data to construct some proxies were not available, or only available for a limited period, the study could not control for two determinants of tax avoidance: corporate social responsibility (CSR) and social capital. In addition, the study could not control for the gender of the management of a firm for the purposes of determining accounting conservatism.

Fourthly, the reduction in the sample size arising from the specific data requirements of the study should be considered when the results of my study are evaluated by other researchers.

Fifthly, the study does not venture into exploring the tax avoidance landscape, nor the ethical issues surrounding tax avoidance.

7.5 SUGGESTIONS FOR FUTURE RESEARCH

At the outset of the study, analysing the measures to be used for tax avoidance and accounting conservatism was not a specific focus area of the study, but given the complexity and the number of measures available in the literature, a review of these measures became an integral part of the study. My analysis of the possible measures available to investigate the variables of interest has identified many useful variations, but further research should be done on the use of combined proxies to provide measures for tax avoidance and accounting conservatism that represent these phenomena more comprehensively.

In further research, my study should be replicated, but for a shorter period (from 2002) to facilitate the inclusion of ESG data to control for the impact of corporate social responsibility during testing. The *Datastream* database used for my study only includes Environmental, Social and Governance (ESG) scores from 2002, so the data did not cover the full period of my study and I could therefore not include this determinant. This is noted as a limitation of the study above, and it constitutes an area for possible future research, where testing is performed for the period from 2002, when data are available to control for corporate social responsibility.

Since the study was set in only one country, the United States, it can be replicated to include a cross-country analysis to investigate whether relationships identified between tax avoidance and unconditional and conditional conservatism are specific to the Unites States setting, or whether these relationships differ in other countries. In addition, further research could explore whether the relationships identified between tax avoidance and unconditional and conditional conservatism differ if they are investigated across the different states in the United States, given the differences in the state taxes levied. In my study, when reference was made to taxes in the calculations of the variables (see Annexure A), the total (both state and federal) taxes levied or payable were included in calculations.

Further research should also focus on investigating the specific characteristics, for example, the risk aversion of managers, that drive the negative relation of tax avoidance to unconditional conservatism, and the positive relation of tax avoidance to conditional conservatism. It would also be valuable to explore the impact, if any, of specific events, for example, a change in tax rates, a change in financial reporting requirements, a change

in leadership (for example, the switch from the Trump presidency to the Biden regime), or a specific non-economic event (for example, the COVID-19 pandemic) on the relationship of tax avoidance to accounting conservatism and its components.

The study can be extended to investigate the possibility of identifying specific parameters, based on the level of conditional and unconditional conservatism of a firm, that can be used to identify the receptiveness of a specific firm to a particular form of tax avoidance behaviour.

7.6   CONCLUDING REMARKS

The opening statement by Li and Ma (2022:295) in their recent study, once again highlights the importance of a renewed focus on research to enhance the understanding of the different aspects affecting tax avoidance. They state: "The last several decades have witnessed a rapid increase in corporate tax avoidance around the world."

The relationship between tax avoidance and accounting conservatism has hitherto been relatively underexplored in the literature. This highlighted the need for further research in this area, together with a need for further research to ensure a better understanding of the driving forces behind tax avoidance (Rego & Wilson 2012:780) and accounting conservatism (Zhong & Li 2017:209), which is one of the most significant characteristics of valuation and measurement for financial reporting (Sterling 1970:256). My study assists in addressing these concerns and has contributed to the growing body of knowledge on both tax avoidance and accounting conservatism.

Using data from the United States for a period of 26 years (1993 to 2018), the relation between tax avoidance and unconditional conservatism, as well as conditional conservatism, has been explored in my study. Evidence has been provided of a negative relation between tax avoidance and unconditional conservatism, and of a positive relation between tax avoidance and conditional conservatism. In the process, I provided valuable inputs on the measurement of both tax avoidance and accounting conservatism.

My study has also found further evidence in support of a negative relation between conditional conservatism and unconditional conservatism (*NONACC5* and *NONACC3*), which supports the theory by Qiang (2007:760) that they fulfil interrelated roles.

The international tax system is entering a new era. It is facing its first major reform in more than a century and it has been claimed that this could offer the unique chance to ensure that tax avoidance is curbed and that all taxpayers pay "their fair share" (Gurria 2021). The question is then whether it is possible that the OECD/G20 inclusive framework on Base Erosion and Profit Shifting, supported by more than 90% of the economies globally (OECD 2021:4), can rectify the tax avoidance behaviour of millions of firms. How will the proposed two-pillar system, which prescribes not only the taxing rights to the taxable income of multinationals, but also a proposed minimum tax rate of 15% globally (OECD 2023:4), impact the financial reporting behaviour and decisions of firms, including their appetite for accounting conservatism? The extent of the impact of these changes has yet to be seen, but one thing is certain: since these two phenomena are related, the changes to the international tax system will affect not only tax avoidance but also accounting conservatism.

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VARIABLE DEFINITIONS

Variable	Definition	Reference	Data source (*Datastream*)
Unconditional Conservatism			
NONACC5	Total net accruals (represented by net income before extraordinary items and total tax expense, less operational cash flow, before the depreciation expense and income taxes paid) less operating accruals is equal to the non-operating accruals before depreciation. The non-operating accruals before depreciation is then deflated by the average total assets, which is then averaged over a five-year period (the current and previous four years) and is then multiplied by negative one.	Ahmed (2007:418); Francis et al. (2015:1290); Frank et al. (2009:480); Givoly & Hayn (2000:303); Zhang (2008:33); Zhong & Li (2017:201-202).	Net income before extraordinary items/preferred dividends (WC01551) Income Taxes (WC01451) Net cash flow – operating activities (WC04860) Taxation (Cash flow) (WC04150) Depreciation (WC01148) Δ Receivables WC04825) Δ Inventory (WC04826) Prepaid expenses (WC02140) Δ Accounts payable (WC04827) Total assets (WC02999)
NONACC3	Total net accruals (represented by net income before extraordinary items and total tax expense, less operational cash flow, before the depreciation expense and income taxes paid) less operating accruals is equal to the non-operating accruals before depreciation. The non-operating accruals before depreciation is then deflated by the average total assets, which is then averaged over a three-year period (the current and previous two years) and is then multiplied by negative one.	Ahmed (2007:418); Francis et al. (2015:1290); Frank et al. (2009:480); Givoly & Hayn (2000:303); Zhang (2008:33); Zhong & Li (2017:201-202).	
Conditional conservatism			
CSCORE	This is a firm-year measure, based on the study by Khan and Watts (2009). To calculate the C-score (*CSCORE*), the regressions for the Basu measure, namely	Black et al. (2018:141); Francis et al. (2013:321);	

Variable	Definition	Reference	Data source (*Datastream*)
	$EARN\_TAX_{it} = \beta_0 + \beta_1 ROE\_DUMMY_{it} + \beta_2 ROE_{it} + \beta_3 ROE\_DUMMY_{it} \times ROE_{it} + \varepsilon_{it}$ (1) (see Section 4.1.1) was estimated at the firm level, assuming that β_2 (the timeliness of good news – GSCORE) and β_3 (the incremental timeliness of bad news – *CSCORE*) are a linear function of three firm-specific characteristics, namely market-to-book (*MTB*), size (*SIZE*) and leverage (*LEVERAGE*) as follows: $GSCORE_t = \beta_2 = \mu_0 + \mu_1 SIZE_{it} + \mu_2 MTB_{it} + \mu_3 LEVERAGE_{it}$ (2) $CSCORE_t = \beta_3 = \lambda_0 + \lambda_1 SIZE_{it} + \lambda_2 MTB_{it} + \lambda_3 LEVERAGE_{it}$ (3) β_2 (Equation 2) and β_3 (Equation 3) is then replaced into the Basu model as follows: $\beta_0 + \beta_1 ROE\_DUMMY_{it} + ROE_{it} * (\mu_0 + \mu_1 SIZE_{it} + \mu_2 MTB_{it} + \mu_3 LEVERAGE_{it}) + ROE_{it} * ROE\_DUMMY_{it} * (\lambda_0 + \lambda_1 SIZE_{it} + \lambda_2 MTB_{it} + \lambda_3 LEVERAGE_{it}) + (\delta_1 SIZE_{it} + \delta_2 MTB_{it} + \delta_3 LEVERAGE_{it} + \delta_4 ROE\_DUMMY_{it} * SIZE_{it} + \delta_5 ROE\_DUMMY_{it} * MTB_{it} + \delta_6 ROE\_DUMMY_{it} * LEVERAGE_{it}) + \varepsilon_{it}$ (4) *CSCORE* is then calculated by substituting the coefficient estimates λ_0, λ_1, λ_2 and λ_3 from Equation (4) into Equation (3).	Gong & Luo (2018:193,220); Khan & Watts (2009:136); Kim (2018:154, 167).	
EARN_TAX (N_1)	Earnings before extraordinary items (adjusted for the total income tax expense) deflated by the market value of equity at the beginning of the fiscal year for the firm.		Net income before extraordinary items/preferred dividends (WC01551) Income Taxes (WC01451) Market price – year end (used previous year for beginning value) (WC08002)
ROE (N_1)	The fiscal year stock return for the firm.		Return index (RI) used to calculate ROE (value for Y_2 – value for Y_1)/value for Y_1
ROE_DUMMY (N_1)	Represents a dummy variable that is 1 if ROE_{it} is negative (a bad news firm year), otherwise it is set to 0 (a good news firm year).		
ROE_TA (N_1)	*ROE x TA*		
ROED_TA (N_1)	*ROE_DUMMY x TA*		

Variable	Definition	Reference	Data source (*Datastream*)
ROED_ROE_TA (N₁)	*ROE_DUMMY x ROE x TA*		
Tax avoidance (TA)			
LR_CFM_B5	Divide the sum of cash income taxes paid over *n* years by the sum of operating cash flow before cash taxes paid over *n* years. The long-run version is calculated over a five-year period (current year plus previous four years).		Taxation (Cash flow) (WC04150) Net cash flow - operating activities (WC04860)
LR_CFM_B3	Divide the sum of cash income taxes paid over *n* years by the sum of operating cash flow before cash taxes paid over *n* years. The long-run version is calculated over a three-year period (current year plus previous two years).		Taxation (Cash flow) (WC04150) Net cash flow - operating activities (WC04860)
CFM_B	Divide the cash income taxes paid for the year by the operating cash flow before cash taxes paid.	Gebhart (2017:45); Salihu et al. (2013:420)	Taxation (Cash flow) (WC04150) Net cash flow - operating activities (WC04860)
LR_CASH_ETR5	Divide the sum of cash income taxes paid over 5 years by the sum of net income before taxation (pre-tax accounting income) after adjustment for any special items over 5 years.	Blouin (2014:879); Chen et al. (2010:42)	Taxation (Cash flow) (WC04150) Pre-tax income (WC01401) Extraordinary or special items (WC04225)
LR_CASH_ETR3	Divide the sum of cash income taxes paid over 3 years by the sum of net income before taxation (pre-tax accounting income) after adjustment for any special items over 3 years.	Blouin (2014:879); Chen et al. (2010:42)	Taxation (Cash flow) (WC04150) Pre-tax income (WC01401) Extraordinary or special items (WC04225)
TAX_FRAUD_SCORE	Tax fraud controversies score – the number of controversies published in the media linked to tax fraud, parallel imports or money laundering obtained from the *Datastream* database (data only available from 2003).		SOCODP060
Control variables			
LEVERAGE	Total debt deflated by market value of equity.	Balakrishnan et al. (2019:50); Barth et al. (2020:30);	Total debt (WC03255) MV

Variable	Definition	Reference	Data source (*Datastream*)
		Black et al. (2018:141); Bradshaw, Liao & Ma (2019:263); Chen, Schuchard & Stomberg (2019:99); D'Augusta & DeAngelis (2020b:151); Drake et al. (2020:15); Gong & Luo (2018:195); Guenther, Wilson & Wu (2019:246); Khurana & Wang (2019:253); Manchiraju, Pandey & Subramanyam (2021:399).	
MTB	Market value of equity at the end of the year deflated by book value of equity.	Ahmed & Duellman (2013:9-10); Balakrishnan et al. (2019:50); Barth et al. (2020:30); Black et al. (2018:141); Bornemann 2018:18); Bradshaw, Liao & Ma (2019:263); Chen, Schuchard & Stomberg (2019:99); D'Augusta & DeAngelis (2020b:151); Drake et al. (2020:15); Gong & Luo (2018:195); Guenther, Wilson & Wu (2019:246); Khurana & Wang (2019:253); Manchiraju et al. (2021:399); Roychowdhury & Watts (2007:4,30).	MV Book value of equity (WC03501)
SIZE	The natural log of the market value of equity.	Ahmed & Duellman (2013:9-10); Balakrishnan et al. (2019:50); Barth et al. (2020:30); Black et al. (2018:141); Bornemann (2018:18);	Natural log of MV of equity

Variable	Definition	Reference	Data source (*Datastream*)
		Bradshaw et al. (2019:263); Chen et al. (2019:99); D'Augusta & DeAngelis (2020b:151); Drake et al. (2020:15); Gong & Luo (2018:195); Guenther et al. (2019:246); Khurana & Wang (2019:253); Manchiraju et al. (2021:399);	
OPER_CF	Cash flow from operations deflated by the market value of equity.	Bornemann (2018:18); Francis et al. (2015:1296)	Cashflow from operations (WC04201) MV
EARNINGS	Net income before extraordinary items deflated by lagged market value of equity.	Bradshaw (2019:267); Francis et al. (2015:1296)	NI before extraordinary items (WC01551) MV
LITIGATION	One if a firm belongs to high-litigation industries (SIC codes 2833–2836, 3570–3577, 7370–7374, 3600–3674, and 5200–5961) and zero otherwise.	Baloria 2022:54; Francis et al. (2015:1295); Hsu et al. (2017:84)	
GOV	CEO-held shares divided by total number of shares.	Ahmed & Duellman (2007:420); Bradshaw (2019:266); Hsu (2017:83,85).	CEO-held shares (WC08021)
SOX (N2)	Equals 1 if a year is after 2002, and 0 otherwise.	Francis et al. (2015:1295); Gao & Jia (2016:83-84); García Lara et al. (2020:5)	

N_1. *These variables were used to calculate the CSCORE and when applying the augmented Basu method to calculate conditional conservatism.*

N_2. *During initial testing, an additional control variable, the Sarbanes-Oxley indicator (SOX), was included to control for corporate governance and regulation. When the VIFs of the regression models were calculated, the VIF for SOX was at an unacceptably high level (more than 120 for all models), indicating multicollinearity concerns. To address these concerns, the control variable was removed from the regression models, as the models already contained other control variables for corporate governance, namely closely held shares (GOV), and for regulation, firm size (SIZE).*

Source: Own compilation

ANNEXURE B:

LIST OF TWO-DIGIT STANDARD INDUSTRIAL CLASSIFICATION

(SIC) CODES – 1987

Code Value	Description
DIVISION A: AGRICULTURE, FORESTRY, AND FISHING	
01	Agricultural Production – Crops
02	Agricultural Production – Livestock and Animal Specialties
07	Agricultural Services
08	Forestry
09	Fishing, Hunting and Trapping
DIVISION B: MINING	
10	Metal Mining
12	Coal Mining
13	Oil and Gas Extraction
14	Mining and Quarrying of Non-metallic Minerals, Except Fuels
DIVISION C: CONSTRUCTION	
15	Construction – General Contractors & Operative Builders
16	Heavy Construction, Except Building Construction, Contractor
17	Construction – Special Trade Contractors
DIVISION D: MANUFACTURING	
20	Food and Kindred Products
21	Tobacco Products
22	Textile Mill Products
23	Apparel, Finished Products from Fabrics & Similar Materials
24	Lumber and Wood Products, Except Furniture
25	Furniture and Fixtures
26	Paper and Allied Products
27	Printing, Publishing and Allied Industries
28	Chemicals and Allied Products
29	Petroleum Refining and Related Industries
30	Rubber and Miscellaneous Plastic Products
31	Leather and Leather Products
DIVISION D: MANUFACTURING (continued)	
32	Stone, Clay, Glass, and Concrete Products
33	Primary Metal Industries

Code Value	Description
34	Fabricated Metal Products
35	Industrial and Commercial Machinery and Computer Equipment
36	Electronic & Other Electrical Equipment & Components
37	Transportation Equipment
38	Measuring, Photographic, Medical, & Optical Goods, & Clocks
39	Miscellaneous Manufacturing Industries
DIVISION E: TRANSPORTATION, COMMUNICATIONS, ELECTRIC, GAS, AND SANITARY SERVICE	
40	Railroad Transportation
41	Local & Suburban Transit & Interurban Highway Transportation
42	Motor Freight Transportation
43	United States Postal Service
44	Water Transportation
45	Transportation by Air
46	Pipelines, Except Natural Gas
47	Transportation Services
48	Communications
49	Electric, Gas and Sanitary Services
DIVISION F: WHOLESALE TRADE	
50	Wholesale Trade – Durable Goods
51	Wholesale Trade – Nondurable Goods
DIVISION G: RETAIL TRADE	
52	Building Materials, Hardware, Garden Supplies & Mobile Homes
53	General Merchandise Stores
54	Food Stores
55	Automotive Dealers and Gasoline Service Stations
56	Apparel and Accessory Stores
57	Home Furniture, Furnishings and Equipment Stores
58	Eating and Drinking Places
59	Miscellaneous Retail
DIVISION H: FINANCE, INSURANCE, AND REAL ESTATE	
60	Depository Institutions
61	Non-depository Credit Institutions
62	Security & Commodity Brokers, Dealers, Exchanges & Services
63	Insurance Carriers
64	Insurance Agents, Brokers and Service
65	Real Estate

Code Value	Description
67	Holding and Other Investment Offices
DIVISION I: SERVICES	
70	Hotels, Rooming Houses, Camps, and Other Lodging Places
72	Personal Services
73	Business Services
75	Automotive Repair, Services and Parking
76	Miscellaneous Repair Services
78	Motion Pictures
79	Amusement and Recreation Services
80	Health Services
81	Legal Services
82	Educational Services
83	Social Services
84	Museums, Art Galleries and Botanical and Zoological Gardens
86	Membership Organizations
87	Engineering, Accounting, Research, and Management Services
88	Private Households
89	Services, Not Elsewhere Classified
DIVISION J: PUBLIC ADMINISTRATION	
91	Executive, Legislative & General Government, Except Finance
92	Justice, Public Order and Safety
93	Public Finance, Taxation and Monetary Policy
94	Administration of Human Resource Programs
95	Administration of Environmental Quality and Housing Programs
96	Administration of Economic Programs
97	National Security and International Affairs
DIVISION K: NONCLASSIFIABLE ESTABLISHMENTS	
99	Nonclassifiable Establishments