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Tax haven Use, the pricing of audit and Non-audit Services, suspicious matters reporting obligations and whistle blower hotline Facilities: Evidence from Australian financial corporations

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ABSTRACT

This study examines whether tax haven use by Australian financial corporations is associated with the pricing of audit and non-audit services. It also analyzes whether the existence of financial corporations' suspicious matters reports (SMRs) and whistle blower hotline facilities moderate the association between tax haven use and pricing of audit and non-audit services. We find a positive association between tax haven use and the pricing of audit and non-audit services. Our results are economically significant. For example, audit fees for financial corporations with tax haven use is around 23 per cent higher compared to corporations with no tax haven use, while non-audit fees for financial corporations with tax haven use is around 13 per cent higher compared to corporations with no tax haven use. We also find that the existence of SMRs and whistle blower hotline facilities both moderate the positive association between tax haven use and audit pricing. Overall, our results suggest that tax haven use has serious consequences for financial corporations' pricing of audit and non-audit services, whereas SMRs and whistle blower hotline facilities assist corporations to reduce the risks concerning tax haven use.

1. Introduction

Tax haven[1] use by multinational corporations (MNCs) typically involves the concealment of the nature and origin of funds, which makes it difficult for tax authorities to determine the source and applicable tax liability relating to those funds (De

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[1] Tax havens are *loci* of secrecy and lack of information exchange (Dyreng and Lindsey, 2009). We use the Organisation for Economic Co-operation and Development (OECD) list of 33 tax haven jurisdictions in this study as follows: Anguilla, Antigua and Barbuda, Bahamas, Bahrain, Bermuda, Belize, British Virgin Islands, Cayman Islands, Cook Islands, Cyprus, Dominica, Gibraltar, Grenada, Guernsey, Isle of Man, Jersey, Liberia, Malta, Marshall Islands, Mauritius, Montserrat, Nauru, Netherlands Antilles, New Caledonia, Panama, Samoa, San Marino, Seychelles, St. Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Turks and Caicos Islands and Vanuatu (OECD, 2006).

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Simone et al., 2019). Tax havens are characterized by secrecy in banking practices, a weak regulatory framework and a zero (or nominal) tax rate, so they represent ideal jurisdictions for MNCs to retain funds offshore, in addition to conducting earnings management, money laundering and tax evasion activities (Desai, 2005; Desai et al., 2006a; 2006b; 2016; Department of Treasury, 2015; De Simone et al., 2019). At the extreme, subsidiaries incorporated in tax haven jurisdictions by MNCs could be responsible for the treasury function of the corporate group as a whole.

We are motivated to conduct this study for several reasons. First, Oxfam Australia estimates that Australian corporations have used tax havens to avoid around AUD $4.8 billion in corporate taxes in 2014, accounting for about 90 percent of corporate profits (Oxfam, 2014). We argue that tax haven use facilitates large agency problems in MNCs (e.g., rent extraction and/or resource diversion by managers), as the benefits of doing so are likely to be greater than the costs (Dyreng and Lindsey, 2009; Lisowsky, 2010; Lisowsky et al., 2013). The use of tax havens provides managers with opportunities to engage in rent extraction or resource diversion (Dharmapala and Hines, 2009; Atwood and Lewellen, 2019; Wood and Lewellen, 2019). Associated financial reporting obfuscation then makes it more difficult for audit firms to fully assess MNCs risks, leading to increased audit risk and increases in the pricing of audit and non-audit services. Thus, it is important to determine whether Australian financial corporations' use of tax havens is associated with the pricing of audit and non-audit services.

Second, Australian audit firms face increasing obligations in terms of financial corporations' exposure to reporting and compliance risk, particularly in light of the reporting requirements required by the Australian Securities and Investment Commission (ASIC). The extensive use of tax havens is a major source of financial reporting and compliance risk that can lead to a significant increase in audit risk (Donohoe and Knechel, 2014). Audit firms can mitigate risks relating to the use of tax havens as they can apply their expertise and knowledge to assess whether a corporation's control systems are responsive to the risks of tax haven use, and where misalignment is observed, make recommendations to managers about improvement in controls. These risks could have flow-on effects in terms of the pricing of audit and non-audit services (Donohoe and Knechel, 2014).

Third, this study considers the role of corporate governance mechanisms relating to the establishment of a corporate policy in respect of suspicious matters reporting, and also whether corporations that have whistle blower hotline facilities augment reporting concerning fraud or breaches in money laundering controls. Both of these corporate governance mechanisms could assist corporations in identifying, monitoring and being able to adequately assess fraud and money laundering risks. Corporations with strength in these governance attributes are more likely to negate illicit activities that could manifest in or through tax haven jurisdictions, and also signal to audit firms, rigor in their compliance with significant effects on the pricing of audit and non-audit services. It is therefore important to determine whether the association between tax haven use for Australian financial corporations and the pricing of audit and non-audit services is impacted by these specific governance mechanisms.

Overall, the purpose of this study is twofold. First, we examine whether tax haven use by Australian financial corporations is associated with the pricing of audit and non-audit services. Second, we investigate whether the existence of financial corporations' suspicious matters reports (SMRs)[2,3,4] (required for the reporting of corporate activities about money laundering risk or fraud) and whistle blower hotline facilities (a major tool designed to detect fraud) moderate the association between tax haven use and the pricing of audit and non-audit services.

Using a sample of publicly listed Australian financial corporations over the 2008 to 2018 period (1,042 corporation-year observations), we find a positive association between tax haven use and the pricing of audit and non-audit services. Our results are economically significant. For instance, audit fees for financial corporations with tax haven use is around 23 per cent higher than financial corporations with no tax haven use, whereas non-audit fees for financial corporations with tax haven use is about 13 per cent higher than for financial corporations with no tax haven use. Finally, we also find that the existence of SMRs and whistle blower hotline facilities both moderate the positive association between tax haven use and the pricing of audit and non-audit services.

This study makes the following contributions to the literature. First, to the best of our knowledge, this is the first study to examine the association between the use of tax havens by financial corporations and the pricing of audit and non-audit services. Our findings show that financial corporations that use tax havens incur significantly higher audit and non-audit fees. While there is some evidence of the negative effects of corporations' tax haven use on the reliability of financial information in terms of the accuracy of reported revenues and the faithful representation of financial statements (e.g., Blaylock, 2016; Akamah et al., 2018), there is a lack of research that examines the important role that tax havens play in affecting audit

[1] Tax havens are *loci* of secrecy and lack of information exchange (Dyreng and Lindsey, 2009). We use the Organisation for Economic Co-operation and Development (OECD) list of 33 tax haven jurisdictions in this study as follows: Anguilla, Antigua and Barbuda, Bahamas, Bahrain, Bermuda, Belize, British Virgin Islands, Cayman Islands, Cook Islands, Cyprus, Dominica, Gibraltar, Grenada, Guernsey, Isle of Man, Jersey, Liberia, Malta, Marshall Islands, Mauritius, Montserrat, Nauru, Netherlands Antilles, New Caledonia, Panama, Samoa, San Marino, Seychelles, St. Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Turks and Caicos Islands and Vanuatu (OECD, 2006).

[2] SMRs are reports made by a financial corporation about suspicious activity that is or appears to be suspicious in nature. In this study, we use SMRs to refer to the Suspicious Matters Reports under Australian Transaction Reports and Analysis Centre (AUSTRAC). The main goal of SMRs is to help the Australian government identify individuals, groups and organizations involved in fraud, including terrorist financing, money laundering and other crimes. Available at: https://www.austrac.gov.au/business/how-comply-guidance-and-resources/reporting/suspicious-matter-reports-smr.

[3] Reports of transactions and suspicious behaviors from industry are essential in developing high-quality actionable financial intelligence to fight serious and organized crime, including drug trafficking, fraud, tax evasion and terrorism financing.

[4] Information regarding SMRs are available at: https://asic.gov.au/regulatory-resources/markets/report-suspicious-activity/.

and non-audit pricing. While tax havens play a key role in reducing taxes paid by MNCs (Desai et al., 2006a; 2006b; Dyreng and Lindsey, 2009), they are also established for legitimate business purposes, such as the channeling of capital between group subsidiaries, fostering investment opportunities for corporate groups in geographical domains where it would otherwise be difficult to enter markets, and for arm's length financing and insurance business (Government Accountability Office (GAO), 2008a, 2008b). Thus, tax haven use by firms may not necessarily lead to increased audit risk in terms of affecting a client's business risk or the conduct by that client of illicit arrangements designed to significantly reduce the amount of tax payable.

Second, this study contributes to the literature on the determinants of audit risk by examining the audit and non-audit fee implications of tax haven use. The multiple roles that tax havens play in aiding financing, investing, taxation and operational activities of financial corporations has important implications in terms of audit risk and thus on the pricing of audit and non-audit services. Tax haven use increases the level of legal, financial and organizational complexity and risk in a corporation due to the reduced information transparency, generating uncertainty for stakeholders, including the audit firm which could increase the level of audit risk (Hay et al., 2006). An audit firm will likely charge a premium for this increased complexity given the increased audit risk that will likely translate into increased audit effort, and the higher pricing of audit and non-audit services (Choi et al., 2008; Donohoe and Knechel, 2014).

Third, this study is the first to investigate how corporate governance mechanisms relating to the existence of SMRs policies and whistle blower hotline facilities play in moderating the association between tax haven use, and the pricing of audit and non-audit services in financial corporations (Lee and Fargher, 2018). We provide new evidence showing that SMRs and whistle blower hotline facilities both moderate the positive association between tax haven use and the pricing of audit and non-audit services. There are audit fee implications stemming from the identification and reporting of risks associated with firms' use of tax havens through SMRs and whistle blower hotline facilities.

Finally, the results of this study are likely to be of interest to policymakers and regulators of the financial services industry, in addition to tax authorities, such as the Australian Taxation Office (ATO) given the current level of scrutiny of that industry and its economic importance. In fact, there has been growing interest by regulators to review the effects of factors that may impact the reputation and litigation risk of audit firms, and regulatory penalties that the audit firm could incur (Jones et al., 2018).

The remainder of the paper is organized as follows. Section 2 considers the background of the study and develops hypotheses. Section 3 describes the research design, while Section 4 reports the empirical results. Section 5 concludes the paper.

2. Background

2.1. Australian financial industry

Australia has a well-developed financial services sector and is ideally positioned as a financial centre in the Asia-Pacific region (Australian Trade and Investment Commission (ATIC), 2019). According to ATIC (2019), the Australian financial market constitutes a major capital market and investment centre in the Asia-Pacific region with the global funds value of AUD $1.3 trillion in 2019.[5]

The findings of the Royal Commission into misconduct in the banking, superannuation and financial services industry were provided through reports released to the public in January 2019.[6] These reports found that the Australian financial services sector suffered from a lack of controls in term of money laundering, accuracy in the provision of financial advice and terrorism financing. The reports noted that the financial services industry suffered from a culture of greed. In short, these findings provide strong motivation to examine the linkages between Australian financial corporations' use of tax havens, the pricing of audit and non-audit services, the provision of SMRs, and whistle blower hotline facilities.

2.2. Tax haven jurisdictions

The issue of corporations' use of tax haven jurisdictions is high on the political agenda of many countries. Tax havens can facilitate the transfer of funds between members of the corporate group, and may also involve earnings management, banking secrecy, money laundering, tax avoidance and tax evasion (e.g., Dharmapala and Hines, 2009; Dyreng and Lindsey, 2009). Further, the International Monetary Fund (International Monetary Fund (IMF), 2019) reports that tax havens collectively cost governments between USD$500 billion and USD$600 billion annually in lost tax revenue through both legal and illegal activities (e.g., Crivelli et al., 2015; Cobham and Janský, 2018).[7] This report showed that of that lost revenue, low-income economies account for around USD $200 billion, which is a larger hit as a percentage of GDP than advanced economies, and more than the USD $150 billion or so they receive each year in foreign development assistance (IMF, 2019).

[5] See https://www.austrade.gov.au/International/Buy/Australian-industry-capabilities/financial-services.
[6] Available at: https://financialservices.royalcommission.gov.au/Pages/default.aspx.
[7] Available at: https://www.imf.org/external/pubs/ft/fandd/2019/09/tackling-global-tax-havens-shaxon.htm.

In Australia, the flow of funds from (to) tax havens to (from) Australia is significant. For instance, in the period between July 2007 and June 2013, a total of AUD $292 billion was transferred from Australia to tax secrecy jurisdictions, and AUD $367 billion was transferred into Australia from tax havens according to AUSTRAC reports (BI, 2014).[8] In addition, Oxfam (2016) claims that funds flowing from Australia through tax havens and then to developing countries were estimated at around USD $7.7 billion in 2014.

Research by Taylor et al. (2015) shows that tax havens allow MNCs to shift profits out of high tax jurisdictions into low tax jurisdictions, most commonly through transfer pricing arrangements. Taylor et al. (2015) argue that aggressive transfer pricing activities by MNCs include the shifting of profits to tax haven incorporated subsidiaries which are subject to no or relatively low rates of corporate taxes. Finally, MNCs that use tax havens may participate in income-shifting activities which leads to other tax avoidance activities, tax evasion, money laundering and fraud (Slemrod and Wilson, 2009; Jones and Temouri, 2016).

2.3. Pricing of audit and non-audit services

Prior studies show that audit pricing is determined by three important components: (1) the audit effort to protect audit firm reputation, (2) the reduction of litigation risks, and (3) compensation based on expected audit costs. Simunic (1980) and Houston et al. (1999, 2005) argue that audit fees are higher for larger clients or clients with greater levels of complexity due to increased audit effort. However, increased audit effort can improve corporations' financial reporting quality, and reduce litigation and reputation risks (Goodwin-Stewart and Kent, 2006; Chen et al., 2018; Yang et al., 2018).

The American Institute of Certified Practising Accountants (AICPA, 2006) explains that the auditor's business risks constitute the risks that they are exposed to any loss or injury of his or her professional practice due to litigation, harmful publicity or other events arising in association with audited financial statements. Stanley (2011) argue that client business risk can affect audit pricing.[9] Thus, audit pricing is contingent on the audit firm's risk of issuing an unqualified opinion on materially misstated financial statements and its own business risk (AICPA, 2002). Consistent with the audit pricing model developed by Simunic (1980), both factors can impact audit fees through audit investment and/or price premiums covering the audit firm's expected future reputation losses. Schelleman and Knechel (2010) argue that audit fees are key indicator of the operating performance facet of corporations' business risks.

2.4. Hypotheses development

2.4.1. Tax haven use and pricing of audit and non-audit services

Increased audit effort of corporations that use tax havens is likely given the increased financial obfuscation and secrecy in capital flows associated with their use. Tax havens have been associated with earnings management, fraud, money laundering, tax avoidance and evasion (Desai, 2005; Desai et al., 2006a, 2006b, 2016; Department of Treasury, 2015; De Simone et al., 2019), which add multiple layers of complexity to the corporation. A full assessment of corporations' transactions channelled through tax havens, if possible, is likely to increase the audit firm's audit effort and time, which increases the pricing of audit and non-audit services.[10] We conjecture that audit firms should perceive the use of tax havens as attracting additional audit business and reputational risk, leading to an increase in the pricing of audit and non-audit services. Prior studies on audit fees argue that such fees are composed of an audit effort component and an expected future loss component (e.g., Simunic, 1980; Gu and Hu, 2015).

Audit effort is associated with the level of expertise, number of auditors, and the time and resources exerted by the audit firm during the audit to complete it. Seetharaman et al. (2002) suggest that expected future losses include costs arising from the audit firm's reputation and litigation costs, and regulatory penalties that the audit firm could incur after completing the audit process. Given the arguments about the market and financial reporting implications of tax haven use, it important to evaluate how audit firms respond to its presence (Dyreng and Lindsey, 2009). This is a significant issue as audit firms are responsible for verifying financial statements, and tax havens have been identified as attracting increased business risks and costs (Taylor et al., 2015, 2018). In fact, corporations that use tax havens are known *loci* of earnings management and material financial misstatements (Manry et al., 2007). These additional risks are likely to lead audit firms to adjust their effort and pricing (Schelleman and Knechel, 2010). Further, tax haven subsidiaries may facilitate the tax-efficient transfer of funds between group members that include more difficult to separate events or transactions into those that adhere to

[8] Available at: https://www.businessinsider.com.au/offshore-cash-flows-from-australia-hit-a-five-year-low-with-the-tax-haven-business-in-decline-2014-6.

[9] Simunic and Stein (1996) argue that total audit costs include a resource cost and expected liability loss component. The resource cost increases with a rise in audit effort to reduce audit risks and the expected liability loss component increases with a potential rise in the prior liability for loss of a lawsuit (i.e., increased business risks). Audit firms respond to a higher audit of business risks by increasing their investment in the audit and by charging higher audit fees (Mitra et al., 2019).

[10] Whisenant et al. (2003) show that the characteristics of external auditors, their clients and the nature of the auditor–client relationship simultaneously determine both audit and non-audit fees. They assert that audit fees and non-audit fees proxy for the overall level of service provided, and the flow of information between the auditor and its client. Hence, our reference to audit pricing captures both the service level and information exchange between the auditor and its client based on the findings of Whisenant et al. (2003).

the underlying business purpose, and those motivated solely or largely to obtaining a significant tax benefit for the corporation (Desai et al., 2006a, 2006b).

Regulatory audit reforms regarding the accounting treatment for identifying and assessing the risks of material misreporting (including tax evasion) over the years have also impacted audit firm complexities and responsibilities. The Australian Federal Register of Legislation promulgated an Auditing Standard – ASA 315 Identifying and Assessing the Risks of Material Misstatement through Understanding the Entity and Its Environment (Auditing and Assurance Standards Board, 2013), which requires audit firms to provide a basis for designing and implementing suitable responses to the assessed risks of material misstatements due to error or fraud.[11] We conjecture that audit related regulatory reforms increase the duties of audit firms to consider risks relating to tax haven use which, in turn, increase audit risk and the pricing of both audit and non-audit services.

Conversely, it is possible that given that large Australian publicly-listed corporations are required by the ATO to report their uncertain tax positions (UTPs) from 2011 (see ATO, 2021),[12] tax risks stemming from their use of tax havens could be sufficiently reported on, so tax haven use may not produce any additional financial, tax or audit risk. Information relating to firms' UTPs that stem from tax haven use (e.g., significant judgments, financial impacts and associated internal controls) are reported in their annual reports. Reportable tax uncertainties which are filed with the ATO are also disclosed in firms' annual reports. Hence, the level of financial reporting obscurity regarding firms' tax haven use may not generate significant audit risk, so the pricing of audit and non-audit services may be unaffected by firms' tax haven use.

On balance, given the weight of the above discussion, we develop the following directional hypothesis:

H1: All else being equal, there is a positive association between tax haven use and the pricing of audit and non-audit services.

2.4.2. The potential moderating effect of suspicious matter reporting requirements

We also examine whether audit firms' concerns of risks relating to tax haven use could be suppressed by mandatory reporting requirements of corporations (i.e., SMRs). A major issue that should be recognized in studying the association between tax haven and the pricing of audit and non-audit services is the audit firm's assessment of the likelihood that reported risks are later follow-up on by managers. As per the communication channel on suspicious matters, prior studies show that corporations introduced a code of conduct and provide a whistleblowing policy which allows employees to report suspicious matters (e.g., Turley and Zaman, 2007).

According to Section 41 of the Australian *Anti-Money Laundering and Counter-Terrorism Financing Act 2006* (AML/CTF Act), a reporting entity must make a SMR to AUSTRAC if, at any time while dealing with a customer, the reporting entity forms a reasonable suspicion that the matter may be associated with an offence, tax evasion or the proceeds of crime (FATF and APG 2015).[13] In 2017 to 2018, AUSTRAC published and disseminated risk assessments to assist the financial sector in understanding and addressing the weaknesses of their industries and products. SMRs are an important mechanism to detect fraud and corruption. For instance, in the 2017 to 2018 financial year, AUSTRAC received 136,225,100 suspicious reports from the financial services industry. This equates to>370,800 reports per day, which denotes an increase of around 21.6 percent from the prior year. The reports comprised 125,900 SMRs, 3,961,100 threshold transaction reports, and 132,091,900 international funds transfer instruction (IFTI) reports. Further, AUSTRAC intelligence contributed to the outcomes achieved by the Serious Financial Crime Taskforce (SFCT). In 2017 to 2018, the SFCT raised AUD $207.4 million in tax liabilities, with AUD $79.6 million recouped by the ATO.[14] On the basis of these facts, we conjecture that the pricing of audit and non-audit services concerning tax haven use should be lower if the financial corporation has an SMRs disclosure policy.

Based on the above discussion, we develop the following directional hypothesis:

H2: All else being equal, the positive association between tax haven use and pricing of audit and non-audit services is moderated for financial corporations with an SMRs disclosure policy.

2.4.3. The potential moderating effect of a whistle blower hotline facilities

Finally, we investigate the potential effect that the existence of a whistle blower hotline facilities have on the association between tax haven use and audit pricing. Empirical evidence shows that whistle blowing hotline facilities are considered to be a key control mechanism in detecting fraud (e.g., Brennan and Kelly, 2007). The Association of Certified Fraud Examiners (Association of Certified Fraud Examiners, 2006) shows that 60 percent of violations are more likely to be detected by whistleblowing from employees. Further, the Professional Integrity Survey conducted by KPMG in 2005 to 2006 found that around 74 percent of employees observed some form of financial misconduct in the 12-month period prior to the survey (KPMG Forensic, 2007).[15]

[11] Available at: file:///C:/Users/mq20182373/Downloads/F2013C00970.pdf.

[12] Available at: https://www.ato.gov.au/Business/Large-business/Compliance-and-governance/Reportable-tax-positions/Findings-report-Reportable-tax-position-schedule-Category-C-disclosures/.

[13] Available at: https://www.legislation.gov.au/Details/C2019C00011 and https://www.fatf-gafi.org/media/fatf/documents/reports/mer4/5-Preventive-Measures-Mutual-Evaluation-Australia-2015.pdf.

[14] Available at: https://www.austrac.gov.au/sites/default/files/2019–05/AUSTRAC_annual_report_2017-18.pdf.

[15] Available at: http://www.ethicsmanagement.info/content/USIntegritySurveyWEB.pdf.

In short, these findings provide strong evidence of the value-increasing role for whistle blower hotline facilities, suggesting that corporations with such facilities have lower levels of audit risk and possibly reduced pricing of audit and non-audit services (e.g., Jubb, 2000; Brennan and Kelly, 2007; Zhang et al., 2013). We conjecture that the pricing of audit and non-audit services concerning tax haven use should be lower if financial corporations have internal whistle blower hotline facilities.

Based on the above discussion, we develop the following directional hypothesis:

H3: All else being equal, the positive association between tax haven use and pricing of audit and non-audit services is moderated for financial corporations with whistle blower hotline facilities.

3. Research design

3.1. Sample selection and data source

Our sample consists of financial corporations listed on the Australian stock exchange over the 2008 to 2018 period. Data pertaining to tax haven subsidiaries, pricing of audit and non-audit services, and corporate governance characteristics were hand-collected from financial corporations' annual reports, whereas accounting and financial data for the control variables were gathered from the Morningstar database. Our initial sample comprises 2,321 corporation-year observations. Nevertheless, corporation-year observations where we have foreign incorporated corporations (90), corporations with no foreign subsidiary disclosures (3 0 2), and the absence of financial data (9 0 5) were eliminated from the sample.

Table 1 (Panel A) shows that our final sample size consists of 1,024 corporation-year observations. Finally, the sample distribution across the 2008 to 2018 years is provided in Table 1 (Panel B). We find that the number of corporation-year observations increases gradually from 5 percent corporation-year observations in the 2008 year to 11 percent corporation-year observations in the 2018 year.

3.2. Dependent variables

This study has two independent variables: audit fees (AUD_FEE) and non-audit fees (NON_AUD_FEE) paid by the financial corporation for audit services. Specifically, audit firms must provide sufficient assurance that corporations' financial statements are free from material misstatements and errors, and to ensure that all events that may adversely affect the corporation have been sufficiently disclosed (Simunic, 1980; Houston et al., 1999, 2005; Gul and Goodwin, 2010; Gul et al., 2013). As audit firms provide many different services to corporations, audit fees do vary depending on the types of audit services and the potential audit risk which the audit firms must consider. The more complex audit work required by audit firms, leads to higher audit risk, and therefore an increase in audit pricing. Following prior studies, we compute AUD_FEE and NON_AUD_FEE as the natural logarithm of audit and non-audit fees, respectively (e.g., Ittonen and Peni, 2012; Ettredge et al., 2014; Ittonen et al., 2019).

3.3. Independent variables

The main independent variable of interest is the use of tax haven subsidiaries (THAV) by financial corporations.[16] Consistent with prior research (e.g., Taylor et al., 2015), we employ several measures of THAV to improve the robustness of our results. Our first measure, THAV_D, is constructed as a dummy variable, coded 1 if the corporation uses a tax haven subsidiary, and 0 otherwise. Our second measure, THAV_LN, is computed as the natural logarithm of the total number of tax haven subsidiaries used. Our third measure, THAV_CNT_LN, is computed as the natural logarithm of the number of different tax havens used by the corporation.

Our other independent variables are interaction terms. They are computed by multiplying the THAV measures (THAV_D, THAV_LN and THAV_CNT_LN) by SMRs or CMN. Specifically, THAV_D*SMRs (or CMN), THAV_LN*SMRs (or CMN) and THAV_CNT_LN * SMRs (or CMN), where SMRs is a dummy variable, coded 1 if the corporation has a suspicious matter reports policy, and 0 otherwise, and CMN is a dummy variable, coded 1 if the corporation has an internal whistle blower hotline facility, and 0 otherwise.

3.4. Control variables

We include several control variables in our regression models to control for other effects on pricing of audit and non-audit services (see Ettredge et al., 2014; Jones and Temouri, 2016; Taylor et al., 2018; Ittonen et al., 2019; Mitra et al., 2019). Size (SIZE) is measured as the natural logarithm of total assets. Loss (LOSS) is measured as a dummy variable, coded 1 if the corporation has net income less than zero, and 0 otherwise. Return on assets (ROA) is measured as net income scaled by total assets. Securities (SECURITIES) is measured as total securities scaled by total assets. Common Loan (COM_LOAN) is measured as the sum of commercial and agricultural loans scaled by gross loans. The capital ratio (CAP_RATIO) is measured as the total risk-adjusted capital ratio of the corporation. Intangible assets (INTANG) is measured as intangible assets scaled by total

[16] The OECD (2006) provides an official list of jurisdictions that they recognize as being tax havens. See footnote 1 in our paper.

Table 1
Sample selection and distribution.

Panel A: Sample Selection	
Total sample of corporation-years over the 2008 to 2018 period	2,321
Less: exclusions	
Foreign incorporated corporations	(90)
Sub-total	2,231
Less:	
Missing corporation international subsidiary disclosures	(302)
Missing financial data	(905)
Total	1,024

Panel B: Sample Distribution by year		
Year	Frequency	Percent
2008	66	6.45
2009	83	8.11
2010	85	8.30
2011	85	8.30
2012	86	8.40
2013	89	8.69
2014	92	8.98
2015	105	10.25
2016	108	10.55
2017	117	11.43
2018	108	10.55
Total	1,024	100.00

assets. Big 4 audit firm (BIG4) is measured as a dummy variable, coded 1 if the corporation is audited by a Big 4 audit firm, and 0 otherwise.

We also control for some corporate governance variables in our regression models that may be associated with changes in audit and non-audit fees. Board size (BD_SIZE) is measured as the natural logarithm of the number of members on the board of directors. Board independent directors (BD_IND) is measured as the proportion of board members that are independent directors. CEO tenure (CEO_TENURE) is measured as the natural logarithm of the number of years that the CEO is chief executive of the corporation. Audit committee size (AUD_SIZE) is measured as a dummy variable, coded 1 if the total audit committee members is above the sample median, and 0 otherwise. Audit firm change (AUD_CHNG) is measured as a dummy variable, coded 1 if the corporation has changed the audit firm from t-1 to t-0, and 0 otherwise.

Finally, we control for changes in the operating environment of the corporation in our regression models. It is measured as a dummy variable for mergers and acquisitions (M&A), which is coded 1 if the corporation is engaged in a merger or acquisition, and 0 otherwise.

3.5. Regression models

To examine the association between tax haven use and the pricing of audit and non-audit services (H1), we use firm fixed effects (FFE) panel regression analysis to control for correlated omitted variables (Wooldridge, 2010). The FFE panel regression model is estimated as follows:

$$AUDIT\_P_{i,t} = \gamma_{0+}\gamma_1 THAV\_D_{i,t}/THAV\_LN_{i,t}/THAV\_CNT\_LN_{i,t} + \gamma_n CONTROLS + YearDummies + \mu_{i,t} + e_{i,t} \quad (1)$$

where, i = corporations, and t = the financial years 2008 to 2018.[17]

To examine whether the positive association between tax haven use and the pricing of audit and non-audit services is moderated for financial corporations with SMRs disclosure policy (H2), we estimate the following FFE panel regression model:

$$AUDIT\_P_{i,t} = \gamma_0 + \gamma_1 THAV\_D_{i,t}/THAV\_LN_{i,t}/THAV\_CNT\_LN_{i,t} + \gamma_2 SMRs_{i,t} + \gamma_3 THAV\_D_{i,t} * SMRs/THAV\_LN_{i,t} * SMRs/THAV\_CNT\_LN_{i,t} * SMRs + \gamma_n CONTROLS + YearDummies + \mu_{i,t} + e_{i,t} \quad (2)$$

where SMRs = is dummy variable, coded 1 if the corporation has a suspicious matter reports policy, and 0 otherwise, and THAV_D * SMRs, THAV_LN * SMRs and THAV_CNT_LN * SMRs = interaction terms computed by multiplying THAV_D, THAV_LN and THAV_CNT_LN by SMRs.

To examine whether the positive association between tax haven use and the pricing of audit and non-audit services is moderated for financial corporations with whistle blower hotline facilities (H3), we estimate the following FFE panel regression model:

[17] Variable definitions are provided in the Appendix.

$$AUDIT\_P_{i,t} = \gamma_0 + \gamma_1 THAV\_D_{i,t}/THAV\_LN_{i,t}/THAV\_CNT\_LN_{i,t} + \gamma_2 CMN_{i,t} + \gamma_3 THAV\_D_{i,t} * CMN/THAV\_LN_{i,t} * CMN/THAV\_CNT\_LN_{i,t} * CMN + \gamma_n CONTROLS + YearDummies + \mu_{i,t} + e_{i,t} \quad (3)$$

where, CMN = dummy variable, coded 1 if the corporation has an internal whistle blower hotline facility, and 0 otherwise, and THAV_D*CMN, THAV_LN*CMN and THAV_CNT_LN *CMN = interaction terms computed by multiplying THAV_D, THAV_LN and THAV_CNT_LN by CMN.

4. Empirical results

4.1. Descriptive statistics

Table 2 (Panel A) presents the descriptive statistics for the dependent variable (AUD_FEE and NON_AUD_FEE), independent variables (THAV_D, THAV_LN, THAV_CNT_LN, SMRs and CMN) and control variables (SIZE, LOSS, ROA, SECURITIES, COMM_LOAN, CAP_RATIO, INTANG, BIG4, BD_SIZE, BD_IND, CEO_TENURE, AUD_SIZE and AUD_CHNG). The mean (median) value of AUD_FEE and NON_AUD_FEE are 11.80 (11.57) and 6.10 (8.53), so the financial corporations in our sample spend, on average, around AUD $1 million on audit fees. Further, the mean (median) values of THAV_D, THAV_LN and THAV_CNT_LN are 0.13 (0.00), 0.11 (0.00) and 0.08 (0.00), so around 13 percent of the sample financial corporations have at least one subsidiary corporation in an OECD (2006) listed tax haven jurisdiction. This result is similar to Taylor et al. (2018) where 9 percent of U.S. MNCs were found to use at least one tax haven subsidiary corporation in an OECD (2006) listed tax haven jurisdiction. In addition, the mean (median) values of SMRs and CMN are 0.25 (0.00) and 0.16 (0.00). These findings show that around 25 percent of our sample financial corporations have an SMR policy, whereas about 16 percent of financial corporations have internal whistle blower hotline facilities. Finally, the mean and median values of the control variables (SIZE, LOSS, ROA, SECURITIES, COMM_LOAN, CAP_RATIO, INTANG, BIG4, BD_SIZE, BD_IND, CEO_TENURE, AUD_SIZE and AUD_CHNG) are generally consistent with those of prior studies (e.g., Ettredge et al., 2014; Jones and Temouri, 2016; Taylor et al., 2018; Ittonen et al., 2019; Mitra et al., 2019).

4.2. Correlation results

Table 2 (Panel B) reports the Pearson correlation results. We find positive and significant correlations between the tax haven variables (THAV_D, THAV_LN and THAV_CNT_LN) and the pricing of audit and non-audit services (AUD_FEE and NON_AUD_FEE) ($p < 0.01$). Table 2 (Panel B) also shows positive and significant correlations between SMRs/CMN and pricing of audit and non-audit services (AUD_FEE and NON_AUD_FEE) ($p < 0.01$). In addition, Table 2 (Panel B) reports significant positive/negative correlations between SIZE, LOSS, ROA, SECURITIES, COM_LOAN, CAP_RATIO, INTANG, BIG4, BD_SIZE, BD_IND, CEO_TENURE, AUD_SIZE and AUD_CHNG, and the pricing of audit and non-audit services (AUD_FEE and NON_AUD_FEE) ($p < 0.10$ or lower). Finally, Table 2 (Panel B) shows that only moderate levels of collinearity exist between the explanatory variables (e.g., the highest being r = 0.63 for SIZE and BD_IND ($p < 0.01$), which is adequate (Hair et al., 2006).

4.3. Regression results

4.3.1. Tax haven use and pricing of audit and non-audit services – H1

Table 3 presents the FFE panel regression results for the association between tax haven use (THAV_D, THAV_LN and THAV_CNT_LN), and the pricing of audit and non-audit services (AUD_FEE, Columns 1, 2 and 3 and NON_AUD_FEE, Columns 4, 5 and 6). We note that coefficient with *t*-statistics are reported in parentheses, while YEAR dummies are not reported for the sake of brevity. We find the coefficients between the tax haven proxies and the audit and non-audit pricing variables are positive and significant. Table 3 (Columns 1, 2 and 3) show that the coefficients for THAV_D, THAV_LN and THAV_CNT_LN (0.226, 0.376 and 0.430) are positive and significantly associated with AUD_FEE ($p < 0.05$ or lower). This result is consistent with our conjecture that tax haven use provides an additional layer of audit risk for the audit firm, so increases the amount of audit fees paid. Our results are economically significant. For example, the estimated coefficient for Model 1 suggests that audit fees for financial corporations with tax haven use is around 23 per cent higher than for financial corporations with no tax haven use. Finally, for the control variables, we find positive/negative and significant associations between several of the control variables (SIZE, ROA, COM_LOAN, INTANG, BIG4, BD_SIZE, CEO_TENURE, and AUD_CHNG) and AUD_FEE ($p < 0.10$ or lower).

Table 3 (Columns 4, 5 and 6) shows that the THAV_D, THAV_LN and THAV_CNT_LN coefficients (0.133, 0.144 and 0.023) are positive and significantly associated with NON_AUD_FEE ($p < 0.05$). When assessing the economic significance of Model 4, we find that the estimated coefficient suggests that non-audit fees for financial corporations with tax haven use is around 13 per cent higher than for financial corporations with no tax haven use. Hence, the association between tax haven use and non-audit fees is economically meaningful. For the control variables, we find positive/negative and significant associations between some of the control variables (ROA, SECURITIES, CAP_RATIO, INTANG, CEO_TENURE and AUD_SIZE) and NON_AUD_FEE ($p < 0.10$ or lower).

Table 2
Summary statistics.

Panel A: Descriptive statistics

Variables	N	Mean	S.D.	0.25	Median	0.75
AUD_FEE	1,024	11.80	1.60	10.72	11.57	12.44
NON_AUD_FEE	1,024	6.10	5.54	0.00	8.53	10.94
THAV_D	1,024	0.13	0.33	0.00	0.00	0.00
THAV_LN	1,024	0.11	0.33	0.00	0.00	0.00
THAV_CNT_LN	1,024	0.08	0.28	0.00	0.00	0.00
SMRs	1,024	0.25	0.43	0.00	0.00	0.00
CMN	1,024	0.16	0.37	0.00	0.00	0.00
SIZE	1,024	18.60	2.64	17.02	18.61	19.92
LOSS	1,024	0.26	0.44	0.00	0.00	1.00
ROA	1,024	−0.01	0.30	−0.01	0.04	0.08
SECURITIES	1,024	0.74	0.40	0.46	1.00	1.00
COM_LOAN	1,024	0.04	0.14	0.00	0.00	0.00
CAP_RATIO	1,024	11.49	36.57	0.00	0.71	3.81
INTANG	1,024	3.18	8.36	0.00	0.00	1.30
BIG4	1,024	0.57	0.50	0.00	1.00	1.00
BD_SIZE	1,024	1.55	0.37	1.39	1.61	1.79
BD_IND	1,024	0.47	0.50	0.00	0.00	1.00
CEO_TENURE	1,024	1.16	0.93	0.00	1.10	1.95
AUD_SIZE	1,024	0.74	0.44	0.00	1.00	1.00
AUD_CHNG	1,024	0.08	0.27	0.00	0.00	0.00
M&A	1,024	0.12	0.32	0.00	0.00	0.00

Panel B: Pairwise correlations

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
AUD_FEE	1.000										
NON_AUD_FEE	0.52***	1.000									
THAV_D	0.38***	0.18***	1.000								
THAV_LN	0.29***	0.20***	0.85***	1.000							
THAV_CNT_LN	0.34***	0.21***	0.64***	0.58***	1.000						
SMRs	0.53***	0.43***	0.18***	0.24***	0.16***	1.000					
CMN	0.33***	0.21***	−0.040	−0.05*	0.040	0.47***	1.000				
SIZE	0.63***	0.34***	0.010	0.11***	0.19***	0.41***	0.28***	1.000			
LOSS	−0.25***	−0.19***	0.020	0.000	−0.05*	−0.17***	−0.16***	−0.40***	1.000		
ROA	0.12***	0.11***	0.030	0.040	0.05*	0.09***	0.10***	0.40***	−0.52***	1.000	
SECURITIES	0.10***	0.15***	0.030	0.07**	−0.010	0.13***	0.010	0.22***	−0.12***	0.05*	1.000
COM_LOAN	0.20***	0.10***	0.10***	0.06*	−0.07**	0.22***	−0.06*	0.12***	−0.06*	0.030	0.13***
CAP_RATIO	0.54***	0.32***	0.22***	0.14***	0.16***	0.36***	0.13***	0.49***	−0.17***	0.06**	0.15***
INTANG	0.16***	0.13***	0.17***	0.17***	0.11***	0.09***	0.13***	−0.08***	0.020	0.020	−0.05*
BIG4	0.26***	0.24***	0.10***	0.14***	0.08**	0.26***	0.23***	0.23***	−0.11***	0.06**	0.06*
BD_SIZE	0.49***	0.40***	0.18***	0.16***	0.23***	0.35***	0.25***	0.42***	−0.16***	0.13***	0.11***
BD_IND	0.41***	0.31***	0.10***	0.050	0.21***	0.24***	0.23***	0.34***	−0.22***	0.13***	0.050
CEO_TENURE	0.14***	0.040	−0.030	−0.010	0.07**	0.000	0.08***	0.21***	−0.14***	0.11***	0.07**
AUD_SIZE	0.23***	0.15***	0.040	0.06*	0.13***	0.19***	0.10***	0.17***	−0.12***	0.06**	0.11***
AUD_CHNG	−0.11***	−0.09***	0.000	0.030	−0.010	−0.030	−0.010	−0.10***	0.09***	−0.010	−0.10***
M&A	0.040	−0.010	0.06**	0.030	0.06*	0.000	0.030	0.06*	0.050	0.020	0.030
	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	
COM_LOAN	1.000										
CAP_RATIO	0.16***	1.000									
INTANG	−0.06*	0.030	1.000								
BIG4	0.06*	0.07**	0.040	1.000							
BD_SIZE	0.07**	0.10***	0.040	0.09***	1.000						
BD_IND	0.020	0.12***	0.030	0.10***	0.63***	1.000					
CEO_TENURE	0.010	0.06**	0.010	−0.040	0.08**	0.14***	1.000				
AUD_SIZE	0.10***	0.14***	0.13***	0.13***	0.32***	0.32***	0.05*	1.000			
AUD_CHNG	−0.040	−0.020	0.000	−0.15***	−0.06*	−0.07**	−0.030	−0.11***	1.000		
M&A	−0.030	0.000	0.07**	−0.08**	−0.040	0.010	0.050	0.030	0.010	1.000	

N = 1,024 corporation-year observations.
Variables are defined in the Appendix.
***, **, and * denotes statistical significance at the 1%, 5%, and 10% levels (two-tailed tests), respectively.

Overall, the regression results reported in Table 3 consistently show a positive association between tax haven use and pricing of audit and non-audit services, consequently H1 is supported.

Table 3
FFE regression results – Tax haven use and the pricing of audit and non–audit Services (H1).

Variables	AUD_FEE			NON_AUD_FEE		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	9.290***	9.274***	9.277***	−0.232	−0.233	−0.218
	(16.34)	(16.28)	(16.26)	(−0.49)	(−0.49)	(−0.46)
THAV_D	0.226**			0.133**		
	(2.09)			(2.03)		
THAV_LN		0.376***			0.144*	
		(2.83)			(1.78)	
THAV_CNT_LN			0.430**			0.023
			(2.57)			(0.31)
SIZE	0.097***	0.097***	0.098***	0.036	0.036	0.036
	(3.22)	(3.23)	(3.25)	(1.37)	(1.38)	(1.38)
LOSS	−0.142*	−0.141*	−0.144*	0.092*	0.092*	0.091*
	(−1.67)	(−1.65)	(−1.69)	(1.92)	(1.92)	(1.90)
ROA	−0.107	−0.108	−0.114	−0.141***	−0.141***	−0.142***
	(−1.46)	(−1.47)	(−1.54)	(−2.79)	(−2.80)	(−2.79)
SECURITIES	−0.021	−0.022	−0.022	−0.147**	−0.149**	−0.150**
	(−0.23)	(−0.24)	(−0.24)	(−2.13)	(−2.16)	(−2.17)
COM_LOAN	−0.351*	−0.353*	−0.344*	−0.289	−0.290	−0.290
	(−1.76)	(−1.77)	(−1.73)	(−1.55)	(−1.56)	(−1.55)
CAP_RATIO	0.003	0.003	0.003	0.001	0.001	0.001
	(1.23)	(1.23)	(1.18)	(0.85)	(0.86)	(0.86)
INTANG	0.013***	0.013***	0.013***	0.004*	0.005**	0.005**
	(4.14)	(4.38)	(4.49)	(1.87)	(1.98)	(1.96)
BIG4	0.416***	0.416***	0.407***	0.055	0.056	0.056
	(5.15)	(5.15)	(5.10)	(0.82)	(0.82)	(0.82)
BD_SIZE	0.164**	0.166**	0.162**	0.064	0.065	0.065
	(2.07)	(2.10)	(2.05)	(0.91)	(0.93)	(0.92)
BD_IND	−0.013	−0.018	−0.012	−0.029	−0.031	−0.029
	(−0.21)	(−0.30)	(−0.19)	(−0.63)	(−0.67)	(−0.63)
CEO_TENURE	0.050**	0.050**	0.045*	−0.044**	−0.044**	−0.044**
	(2.08)	(2.04)	(1.84)	(−2.03)	(−2.03)	(−2.02)
AUD_SIZE	0.084*	0.085*	0.076	0.096**	0.095**	0.093**
	(1.67)	(1.70)	(1.52)	(2.10)	(2.09)	(2.04)
AUD_CHNG	−0.133**	−0.136**	−0.134**	−0.024	−0.025	−0.025
	(−2.51)	(−2.56)	(−2.56)	(−0.52)	(−0.55)	(−0.53)
M&A	−0.019	−0.020	−0.017	0.009	0.009	0.010
	(−0.35)	(−0.36)	(−0.30)	(0.25)	(0.26)	(0.30)
YEAR FE	Yes	Yes	Yes	Yes	Yes	Yes
FIRM FE	Yes	Yes	Yes	Yes	Yes	Yes
N	1,024	1,024	1,024	1,024	1,024	1,024
Adj. R-sq	0.919	0.919	0.920	0.656	0.656	0.655

Variables are defined in the Appendix.
***, **, and * denotes statistical significance at the 1%, 5%, and 10% levels (two-tailed tests), respectively.

4.3.2. The moderating effect of SMRs – H2

Next, we empirically test whether the positive association between tax haven use (THAV_D, THAV_LN and THAV_CNT_LN), and the pricing of audit and non-audit services (AUD_FEE, Columns 1, 2 and 3, and the NON_AUD_FEE, Columns 4, 5 and 6) is moderated for financial corporations with a SMRs disclosure policy (H2). Table 4 presents the FFE panel regression results for each interaction term (THAV_D*SMRs, THAV_LN*SMRs and THAV_CNT_LN*SMRs). We find that the coefficient of the interaction terms between SMRs and several of the tax haven use variables (THAV_D*SMRs and THAV_LN*SMRs) are negative and significantly associated with auditing pricing (AUD_FEE and NON_AUD_FEE) ($p < 0.05$ or lower). Therefore, the positive association between tax haven use and pricing of audit and non-audit services is moderated for financial corporations with an SMRs disclosure policy, so H2 is supported by our results. Finally, we find positive/negative and significant associations between some of the control variables (SIZE, ROA, COM_LOAN, INTANG, BIG4, BD_SIZE, CEO_TENURE, AUD_SIZE and AUD_CHNG), and the pricing of audit and non-audit services (AUD_FEE and NON_AUD_FEE) ($p < 0.10$ or lower) (see Table 4).

4.3.3. The moderating effect of whistle blower hotline facilities – H3

Finally, we empirically test whether the positive association between tax haven use (THAV_D, THAV_LN and THAV_CNT_LN), and the pricing of audit and non-audit services (AUD_FEE, Columns 1, 2 and 3, and NON_AUD_FEE, Columns 4, 5 and 6) is moderated for financial corporations that have whistle blower hotline facilities. Table 5 reports the FFE panel regression results for each interaction term (THAV_D*CMN, THAV_LN*CMN and THAV_CNT_LN*CMN), along with the other explanatory variables. We observe that the coefficient of the interaction terms between CMN and some of the tax haven use

Table 4
FFE Regression Results – The Moderating Effect of SMRs Policy (H2).

Variables	AUD_FEE			NON_AUD_FEE		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	9.281***	9.268***	9.285***	−0.250	−0.247	−0.210
	(16.28)	(16.22)	(16.21)	(−0.53)	(−0.53)	(−0.45)
THAV_D	0.509***			0.481**		
	(3.28)			(2.25)		
THAV_LN		0.761***			0.696**	
		(3.43)			(2.25)	
THAV_CNT_LN			0.617***			0.164
			(3.51)			(0.95)
SMR	−0.102	−0.106	−0.149	0.194*	0.194*	0.176*
	(−1.00)	(−1.05)	(−1.52)	(1.90)	(1.90)	(1.69)
THAV_D*SMR	−0.418***			−0.535**		
	(−2.65)			(−2.16)		
THAV_LN*SMR		−0.531**			−0.775**	
		(−2.26)			(−2.20)	
THAV_CNT_LN*SMR			−0.291**			−0.317
			(−2.02)			(−1.30)
SIZE	0.097***	0.097***	0.099***	0.033	0.033	0.033
	(3.21)	(3.22)	(3.25)	(1.29)	(1.29)	(1.29)
LOSS	−0.146*	−0.145*	−0.147*	0.097**	0.097**	0.098**
	(−1.72)	(−1.70)	(−1.73)	(2.06)	(2.05)	(2.06)
ROA	−0.108	−0.109	−0.119	−0.135***	−0.135***	−0.139***
	(−1.47)	(−1.48)	(−1.60)	(−2.72)	(−2.71)	(−2.77)
SECURITIES	−0.010	−0.011	−0.017	−0.139**	−0.139**	−0.150**
	(−0.11)	(−0.12)	(−0.19)	(−2.03)	(−2.02)	(−2.18)
COM_LOAN	−0.361*	−0.364*	−0.364*	−0.251	−0.250	−0.259
	(−1.83)	(−1.84)	(−1.86)	(−1.45)	(−1.44)	(−1.49)
CAP_RATIO	0.003	0.003	0.003	0.001	0.001	0.001
	(1.20)	(1.20)	(1.16)	(0.87)	(0.87)	(0.97)
INTANG	0.012***	0.013***	0.014***	0.003	0.003	0.005**
	(3.93)	(4.02)	(4.61)	(1.53)	(1.47)	(1.98)
BIG4	0.415***	0.415***	0.402***	0.057	0.057	0.055
	(5.11)	(5.11)	(5.03)	(0.84)	(0.84)	(0.80)
BD_SIZE	0.165**	0.166**	0.160**	0.065	0.064	0.063
	(2.07)	(2.09)	(2.02)	(0.94)	(0.93)	(0.90)
BD_IND	−0.014	−0.017	−0.011	−0.032	−0.031	−0.030
	(−0.24)	(−0.29)	(−0.19)	(−0.72)	(−0.69)	(−0.66)
CEO_TENURE	0.048**	0.047*	0.041*	−0.049**	−0.049**	−0.047**
	(1.97)	(1.95)	(1.69)	(−2.29)	(−2.29)	(−2.25)
AUD_SIZE	0.092*	0.092*	0.080	0.101**	0.101**	0.093**
	(1.83)	(1.84)	(1.59)	(2.24)	(2.24)	(2.08)
AUD_CHNG	−0.119**	−0.122**	−0.121**	−0.016	−0.015	−0.019
	(−2.24)	(−2.29)	(−2.29)	(−0.34)	(−0.33)	(−0.42)
M&A	−0.021	−0.022	−0.021	0.015	0.015	0.015
	(−0.37)	(−0.39)	(−0.37)	(0.35)	(0.36)	(0.35)
YEAR FE	Yes	Yes	Yes	Yes	Yes	Yes
FIRM FE	Yes	Yes	Yes	Yes	Yes	Yes
N	1,024	1,024	1,024	1,024	1,024	1,024
Adj. R-sq	0.920	0.920	0.920	0.660	0.660	0.657

Variables are defined in the Appendix.
***, **, and * denotes statistical significance at the 1%, 5%, and 10% levels (two-tailed tests), respectively.

variables (THAV_D*CMN, THAV_LN*CMN and THAV_CNT_LN * CMN) are significant and negatively associated with audit fees ($p < 0.05$ or lower). Thus, the positive association between tax haven use and audit fees is moderated for financial corporations with whistle blower hotline facilities, and H3 is supported. Finally, we find positive/negative and significant associations between several of the control variables (SIZE, ROA, COM_LOAN, INTANG, BIG4, BD_SIZE, CEO_TENURE, AUD_SIZE and AUD_CHNG), and the pricing of audit and non-audit services (AUD_FEE and NON_AUD_FEE) ($p < 0.10$ or lower).

4.4. Endogeneity test – Generalized method of moments (GMM) estimator

It is possible that our main regression results in Table 3 may be subject to endogeneity and omitted variable bias (Schultz et al., 2010; Wooldridge, 2010). In Table 3, we use fixed effect model estimators to reduce both endogeneity and omitted variable bias. However, fixed effects estimation usually ignores the endogeneity which is due to unobserved heterogeneities that occur between the unobserved firm characteristics and some other variables, such as corporate governance and audit variables (Agha, 2013; Agha and Eulaiwi, 2020). For instance, the pricing of audit and non-audit services is usually higher

Table 5
FFE Regression Results – The Moderating Effect of Whistle Blower Hotline Facilities (H3).

Variables	AUD_FEE			NON_AUD_FEE		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	9.304***	9.285***	9.297***	−0.230	−0.229	−0.207
	(16.13)	(16.04)	(16.09)	(−0.88)	(−0.88)	(−0.79)
THAV_D	0.390**			0.309**		
	(2.36)			(1.99)		
THAV_LN		0.569***			0.296	
		(3.23)			(1.57)	
THAV_CNT_LN			0.714***			0.194
			(2.98)			(1.21)
CMN	−0.097	−0.094	−0.043	−0.130	−0.141	−0.121
	(−1.06)	(−1.02)	(−0.44)	(−1.14)	(−1.24)	(−1.04)
THAV_D*CMN	−0.301*			−0.329*		
	(−1.80)			(−1.76)		
THAV_LN*CMN		−0.441**			−0.357	
		(−2.17)			(−1.42)	
THAV_CNT_LN*CMN			−0.473**			−0.283*
			(−2.43)			(−1.66)
SIZE	0.096***	0.097***	0.097***	0.034***	0.035***	0.035***
	(3.15)	(3.16)	(3.18)	(2.73)	(2.77)	(2.76)
LOSS	−0.139	−0.137	−0.141*	0.093	0.093	0.091
	(−1.62)	(−1.59)	(−1.65)	(1.50)	(1.50)	(1.47)
ROA	−0.100	−0.102	−0.110	−0.142***	−0.143***	−0.145***
	(−1.31)	(−1.33)	(−1.42)	(−2.88)	(−2.91)	(−2.95)
SECURITIES	−0.018	−0.021	−0.021	−0.137*	−0.142*	−0.144*
	(−0.20)	(−0.23)	(−0.23)	(−1.76)	(−1.82)	(−1.84)
COM_LOAN	−0.404*	−0.407*	−0.384*	−0.299*	−0.304*	−0.296*
	(−1.81)	(−1.83)	(−1.72)	(−1.87)	(−1.90)	(−1.85)
CAP_RATIO	0.002	0.002	0.002	0.001	0.001	0.001
	(0.94)	(0.95)	(0.85)	(0.85)	(0.88)	(0.82)
INTANG	0.013***	0.013***	0.014***	0.004*	0.005**	0.005**
	(4.01)	(4.40)	(4.62)	(1.76)	(2.04)	(2.12)
BIG4	0.415***	0.415***	0.400***	0.059	0.059	0.055
	(5.05)	(5.06)	(4.94)	(1.07)	(1.08)	(1.01)
BD_SIZE	0.156*	0.160*	0.152*	0.066	0.069	0.065
	(1.91)	(1.95)	(1.85)	(1.08)	(1.12)	(1.06)
BD_IND	−0.013	−0.021	−0.012	−0.030	−0.034	−0.029
	(−0.21)	(−0.33)	(−0.20)	(−0.68)	(−0.76)	(−0.67)
CEO_TENURE	0.051**	0.050**	0.041	−0.046**	−0.046**	−0.048**
	(2.02)	(1.98)	(1.60)	(−2.30)	(−2.29)	(−2.36)
AUD_SIZE	0.091*	0.092*	0.080	0.104**	0.102**	0.097**
	(1.75)	(1.78)	(1.53)	(2.31)	(2.27)	(2.16)
AUD_CHNG	−0.126**	−0.130**	−0.121**	−0.012	−0.016	−0.012
	(−2.30)	(−2.40)	(−2.24)	(−0.29)	(−0.40)	(−0.30)
M&A	−0.022	−0.023	−0.021	0.012	0.012	0.013
	(−0.37)	(−0.38)	(−0.35)	(0.31)	(0.33)	(0.34)
YEAR FE	Yes	Yes	Yes	Yes	Yes	Yes
FIRM FE	Yes	Yes	Yes	Yes	Yes	Yes
N	1,024	1,024	1,024	1,024	1,024	1,024
Adj. R-sq	0.903	0.903	0.903	0.659	0.659	0.659

Variables are defined in the Appendix.
***, **, and * denotes statistical significance at the 1%, 5%, and 10% levels (two-tailed tests), respectively.

for banks compared to other financial firms due to central banks regulations. To control for potential endogeneity, we use the GMM model suggested by Arellano and Bond (1991), so we can test the nature of audit and non-audit pricing for the financial firms. Such firms are likely to adopt tax havens strategies over time (Dyreng and Lindsey, 2009), because auditors may charge high prices for audit and non-audit services for financial firms on account of their high levels of business risk.

The system GMM estimator assesses the underlying equations in levels where the first difference of each variable is used as an instrumental variable (IV). For the GMM estimator results to be consistent, it is necessary to have no second order or higher autocorrelations in the error term (Arellano and Bover, 1995; Blundell and Bond, 1998). We also apply the Sargan test to evaluate the validity of the IVs used under the null hypothesis that the instruments are exogenous and hence, valid (Sargan, 1958).

Table 6 reports the GMM estimator regression results between tax haven use (THAV_D, THAV_LN and THAV_CNT_LN), and the pricing of audit and non-audit services (AUD_FEE, Columns 1, 2 and 3 and NON_AUD_FEE, Columns 4, 5 and 6). We find the coefficients between the tax haven proxies and the audit and non-audit pricing variables are positive and significant. Table 6 (Columns 1, 2 and 3) shows that the coefficients for THAV_D, THAV_LN and THAV_CNT_LN (0.283, 0.103 and

Table 6
GMM estimator regression results – Tax Haven use and the pricing of audit and non–audit services (H1).

	AUD_FEE			NON_AUD_FEE		
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	1.244**	1.077***	1.351***	−0.278*	−0.617***	−0.361***
	(2.47)	(3.13)	(2.83)	(−1.95)	(−3.29)	(−2.80)
Lagged dependent variable $_{(t-1)}$	0.768***	0.753***	0.778***	0.440***	0.335***	0.607***
	(11.49)	(15.51)	(13.52)	(5.70)	(3.95)	(8.47)
THAV_D	0.283***			0.107*		
	(3.20)			(1.78)		
THAV_LN		0.103**			0.078**	
		(2.03)			(2.37)	
THAV_CNT_LN			0.597***			0.092**
			(4.61)			(2.00)
SIZE	0.072***	0.077***	0.060***	0.019***	0.023**	0.012**
	(3.91)	(4.43)	(4.48)	(2.92)	(2.38)	(2.06)
LOSS	−0.210***	−0.226***	−0.199***	−0.051	−0.042	−0.012
	(−3.46)	(−3.55)	(−3.36)	(−1.14)	(−0.95)	(−0.29)
ROA	−0.083*	−0.124**	−0.060	−0.012	−0.024	0.001
	(−1.74)	(−2.57)	(−1.36)	(−0.50)	(−0.86)	(0.03)
SECURITIES	−0.039	−0.027	−0.049	0.085**	0.082*	0.065*
	(−1.03)	(−0.58)	(−1.24)	(1.99)	(1.70)	(1.96)
COM_LOAN	0.180	0.301**	0.400***	0.180**	0.107	0.017
	(1.07)	(2.33)	(2.87)	(1.97)	(1.02)	(0.19)
CAP_RATIO	0.001	0.001**	0.001	0.001***	0.002***	0.001**
	(1.15)	(2.53)	(1.64)	(2.83)	(3.05)	(2.20)
INTANG	0.009***	0.010***	0.011***	0.005***	0.006***	0.003*
	(3.18)	(3.54)	(3.59)	(3.04)	(3.68)	(1.83)
BIG4	0.059	0.088*	0.090**	0.105***	0.120***	0.100***
	(1.24)	(1.89)	(2.00)	(2.62)	(2.90)	(3.55)
BD_SIZE	0.207**	0.281***	0.113**	0.148***	0.238***	0.141***
	(2.45)	(4.51)	(2.51)	(2.71)	(3.74)	(2.96)
BD_IND	−0.082**	−0.112***	−0.079**	−0.001	0.003	−0.034
	(−2.50)	(−3.37)	(−2.41)	(−0.03)	(0.06)	(−1.03)
CEO_TENURE	0.049***	0.036**	0.029*	−0.024	0.000	−0.010
	(3.17)	(2.09)	(1.89)	(−1.60)	(0.03)	(−0.94)
AUD_SIZE	0.034	0.021	0.026	0.003	0.025	0.024
	(1.06)	(0.69)	(0.86)	(0.10)	(0.65)	(0.82)
AUD_CHNG	−0.128***	−0.043	−0.096**	0.034	0.027	0.019
	(−2.95)	(−0.88)	(−2.18)	(0.91)	(0.66)	(0.42)
M&A	−0.008	0.021	−0.017	0.030	0.049*	0.067***
	(−0.27)	(0.75)	(−0.63)	(1.10)	(1.87)	(2.93)
YEAR FE	Yes	Yes	Yes	Yes	Yes	Yes
N	881	881	881	881	881	881
M1 test	0.07	0.07	0.09	0.00	0.00	0.00
M2 test	0.12	0.12	0.15	0.66	0.81	0.52
Sargan *p*-value	0.63	0.86	0.86	0.31	0.21	0.14

Variables are defined in the Appendix.
***, **, and * denotes statistical significance at the 1%, 5%, and 10% levels (two-tailed tests), respectively.

0.597) are positive and significantly associated with AUD_FEE ($p < 0.05$ or lower). In addition, Table 6 (Columns 4, 5 and 6) indicates that the THAV_D, THAV_LN and THAV_CNT_LN coefficients (0.107, 0.078 and 0.092) are positive and significantly associated with NON_AUD_FEE ($p < 0.05$ or lower).

The diagnostic statistics for the GMM estimator are also presented in Table 6. The M1 statistic suggests the existence of first order autocorrelations in the error term with the first lag of the depended variable used in the analysis ($p < 0.10$ or lower). However, the M1 statistic confirms the absence of second order autocorrelation in the error term ($p > 0.10$), which is satisfactory (Arellano and Bover, 1995; Blundell and Bond, 1998). Finally, the *p*-value of the Sargan test is not significant ($p > 0.10$), confirming the exogeneity and validity of the IVs employed in our analysis.

Overall, the regression results shown in Table 6 consistently show a positive association between tax haven use and the pricing of audit and non-audit services, so H1 is further supported. We conclude that our main regression results are robust to endogeneity concerns in the form of reverse causality.

5. Conclusion

This study examines whether tax haven use by Australian financial corporations is associated with the pricing of audit and non-audit services. It also analyzes whether the existence of financial corporations' SMRs and whistle blower hotline

facilities moderate the association between tax haven use and the pricing of audit and non-audit services. We find a positive association between tax haven use and the pricing of audit and non-audit services. Our results are also economically significant. For instance, audit fees for financial corporations with tax haven use is about 23 per cent higher than financial corporations with no tax haven use, whereas non-audit fees for financial corporations with tax haven use is around 13 per cent higher than for financial corporations with no tax haven use. Finally, we also observe that the existence of SMRs and whistle blower hotline facilities both moderate the positive association between tax haven use and pricing of audit and non-audit services.

This study makes several contributions to the literature. First, as far as we are aware, this is the first study to explore the association between the use of tax havens by financial institutions and the pricing of audit and non-audit services. Our findings show that financial corporations that use tax havens incur significantly higher audit and non-audit fees. Second, this study contributes to the literature on the determinants of audit risk by analyzing the audit fees implication of tax haven use. Third, this study also explores for the first time how corporate governance mechanisms regarding the existence of SMR policies and whistle blower hotline facilities play in moderating the association between tax haven use and pricing of audit and non-audit services in financial corporations. We offer new evidence showing that SMRs and whistle blower hotline facilities both moderate the positive association between tax haven use and pricing of audit and non-audit services. Finally, the results of this study should be of interest to policymakers and regulators of the financial services industry, as well as tax authorities (e.g., the ATO) based on the current level of scrutiny of that industry and its economic weight.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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