RESEARCH ARTICLE

Exploring the Nexus between Corporate Tax Avoidance, Organizational Capital, and Firm Characteristics

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Abstract

Tax avoidance practices wield a substantial influence on the fiscal landscape, shaped by the strategic decisions of businesses and their organizational capital (OC), a vital reservoir of strategic assets unique to each firm. This study delves into the nuanced relationship between corporate tax avoidance and OC within the Iranian context, while also examining the moderating effects of firm size and CEO overconfidence. Leveraging a dataset spanning from 2016 to 2021, comprising 142 firms listed on the Tehran Stock Exchange, and employing advanced multivariate regression techniques, our analysis unveils a significant and positive association between tax avoidance strategies and OC. Notably, this relationship remains consistent across firms of varying sizes, indicating that size does not significantly moderate this association. Furthermore, our investigation reveals the influential role of CEO overconfidence in shaping the intricate interplay between tax avoidance and OC. These findings contribute to the ongoing discourse on corporate tax strategies, offering insights applicable to firms of diverse sizes and magnitudes.

Keywords:
Corporate Tax Avoidance, Organizational Capital, CEO Overconfidence, Firm Size, Tehran Stock Exchange

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1. Introduction

Economists argue that taxes constitute a highly suitable and stable source of national income, effectively serving as a tool for enacting economic policies and steering the economy toward key objectives (Daneshvar et al., 2023; Gupta and Jalles, 2022; Seidman and Stomberg, 2017; Gallemore and Labro, 2015). Taxation is a vital and enduring revenue stream for governments, fulfilling the dual role of funding public expenditures and executing financial strategies aimed at equitable income and wealth distribution across society (Arvin et al., 2021; Gurdal et al., 2021). Tax, essentially, represents an amount imposed by the government on a company's profits. However, this imposition presents a trade-off, as taxes paid reduce both profits and shareholders' liquidity. As per the taxation framework, firms must allocate some of their earnings to the government before considering distributions to stakeholders. Corporations and their shareholders are motivated to pursue tax avoidance strategies to optimize shareholder profits (Karami et al., 2016; Mousavi et al., 2012). Recent studies reveal that managers might engage in tax avoidance practices that cater to their interests, which may not always align with the broader interests of shareholders (Jacob et al., 2021; Dyreng and Hanlon, 2021).

Strategic ambiguity within tax structures allows managers to exploit shareholders opportunistically (Desai and Dharmapala, 2006). Determining a firm's payouts is a multifaceted process influenced by various factors. Among these factors, the presence of hidden assets assumes a critical role. These assets encompass intangible elements that might not be readily apparent from a firm's financial statements or public disclosures. Organizational capital (OC) constitutes a distinctive intangible asset inherent to the firm (Dessein and Prat, 2022; Martín-de-Castro et al., 2016; Eisfeldt and Papanikolaou, 2013). It encapsulates the accumulated knowledge, expertise, and unique practices an organization has developed. This intangible asset enhances a firm's ability to navigate complex business environments, adapt to changing circumstances, and ultimately achieve its strategic goals (Barbieri et al., 2021; Saeedi et al., 2020).

While previous studies on tax avoidance document that it is motivated by economic reasons and managerial incentives (Seidman and Stomberg, 2017; Moghaddam and Sahraie, 2017; Amiram et al., 2013; Mughal, 2012; Demeré et al., 2020; Desai, 2004). Recent research indicates that other conditions, such as behavioural factors, are crucial in tax avoidance (Malik et al., 2018; Li et al., 2022). Therefore, it is expected that the attitudes and dispositions of those who directly or indirectly determine the decision to pay corporate tax influence their tax avoidance decisions.

The escalating significance of OC and the pronounced impact of corporate tax avoidance on firm-level outcomes presents a compelling rationale for probing the interplay between OC and corporate tax avoidance. OC applies firm-specific knowledge to business practices and processes, enabling firms to navigate intricate tax regulations adeptly and efficiently capitalize on divergent tax rates, incentives, and circumstances. Consequently, firms enriched with robust OC are inclined to exhibit higher levels of tax avoidance, culminating in enhanced tax efficiency (Hasan et al., 2021). Given that tax avoidance boosts cash flow and post-tax profits, firms with substantial OC may be motivated to engage in further tax avoidance to optimize returns for both managerial bodies and shareholders (Esnaashari and Nourmohammadi, 2018). This study seeks to address a fundamental question building upon the existing body of research: How does OC influence tax avoidance in a manner that translates to reduced tax liabilities for companies with higher OC levels?

Moreover, Literature has emphasized the significance of company size as a determining and moderating factor in various organizational behaviours and outcomes (Sopiyana, 2022; Saragih and Hendrawan, 2021). In this regard, the influence of OC on tax avoidance practices might not be uniform across firms of varying sizes. Larger firms with more extensive resources may have distinct capacities to leverage OC for tax efficiency, potentially impacting the relationship between OC and
tax avoidance. The second question is about the impact of company size on the relationship between OC and tax avoidance.

Finally, tax avoidance activities are often associated with CEO overconfidence stemming from goal congruence (Ilaboya and Aronmwan, 2022; Sumunar et al., 2019; Olsen and Stekelberg, 2016). This is due to the tendency of overconfident CEOs to make decisions based on their own inflated self-perceptions, which can then be adopted by employees within the organization. Overconfident CEOs are more likely to take risks and make bold decisions. Regarding tax planning, they may be more willing to adopt aggressive tax avoidance strategies, believing they can successfully navigate any potential challenges. In addition, CEO overconfidence can shape the utilization of OC within the organization. It may be more inclined to leverage the firm's OC to pursue tax avoidance goals, leading to more effective tax planning. Therefore, the last question is developed: Does CEO overconfidence impact the relationship of OC-Tax avoidance?

The rest of our research is organized as follows: the next section frames the study into a Literature review and hypotheses development. Part three describes the research methodology and the sample selection procedure. Section four then presents the main results and implications drawn from statistical analyses, and eventually, the last district offers the conclusion.

2. Literature review and hypotheses development

2.1 Tax avoidance

There is an expectations gap between management and the tax system. In this respect, tax avoidance is an attempt to achieve management's goals and management' expectations (Zhang et al., 2022; Heidarpour et al., 2010). Fadhila and Handayani (2019) describe tax avoidance as an attempt to evade tax lawfully against the taxpayer because it does not involve tax regulation.

Tax avoidance is a strategy employed to decrease or circumvent tax liabilities, which involves utilizing tax laws in a manner not explicitly outlined by governing bodies. (Hoseini and Safari Gerayli, 2018; Esnaashari and Valizadeh Larijani, 2018). However, shareholders require management to invest in profitable activities other than tax avoidance to avoid costs that impair shareholder interests (Francis et al., 2014; Pasternak and Rico, 2008). Tax avoidance is explained from several theoretical perspectives. Agency theory assumes that conflicts of interest may arise between managers and shareholders, leading to managers engaging in tax avoidance activities to maximize their profits at the expense of shareholders (Francis et al., 2022). The legal perspective defines tax avoidance as using the tax system for personal gain to reduce the amount of tax payable utilizing the law itself (Pasternak and Rico, 2008). The difference between tax laws and accepted accounting principles can lead to legitimate tax avoidance (Slemrod, 2004).

Tax avoidance can also negatively impact a firm's performance; for example, Chen et al. (2010) and Hanlon and Slemrod (2009) found reputational losses, and Salehi et al. (2019) and Graham and Tucker (2006) showed an increase in the litigation risk.

However, the extent of corporate tax avoidance is influenced by the characteristics of governance, managerial motivations, and the level of environmental uncertainty (Armstrong et al. 2015; Goh et al. 2016; Abdelfattah et al. 2020; Huang et al., 2017).

Armstrong et al. (2015) found that firms with more vital governance structures and better alignment between executive and shareholder interests are less likely to engage in tax avoidance. Goh et al. (2016) suggest that tax avoidance behaviours can increase the ambiguity of the firm's information environment and the measurement of uncertainty and information asymmetry. Desai et al. (2004) provide an example of Enron, stating that tax avoidance activities increase the opportunity for firm managers to manipulate earnings, misleading investors. Jbir et al. (2021) document a
significant association between managers' compensation, board members' characteristics, and tax evasion activities. Abdelfattah et al. (2020) show a meaningful positive relationship between corporate tax avoidance and social responsibility. Jihene and Moez (2019) demonstrate a positive relationship between managers' compensation and corporate tax avoidance. Furthermore, a meaningful negative relationship exists between managers’ compensation and tax avoidance in firms that have undergone proper auditing.

2.2 Organizational capital

Firm-level OC is the accumulation of unique knowledge within a firm that enables enhanced operational efficiency, investment decisions, and innovation performance, encompassing various aspects of technology, business practices, processes, and designs (Lev et al., 2009; Sajadi et al., 2023). The concept of OC has been explored from the firm's resource-based view (RBV) and the knowledge-based view (KBV). Following the RBV, OC is recognized as a valuable, scarce, and difficult-to-replicate resource that firms can leverage to gain a competitive edge and achieve superior performance (Barney, 1991). In contrast, the KBV posits that knowledge-based assets and capabilities are the enduring sources of competitive advantage, attainable and nurtured through knowledge creation, transfer, and integration (Beygpanah et al., 2021). As firms accumulate and internalize firm-specific knowledge concerning business practices and processes, their comprehension of the intricate corporate tax code may improve. Although OC is integral to a firm's core competencies, its efficacy is contingent upon its maturity (Eisfeldt and Papanikolaou, 2014).

Two perspectives exist regarding the nature of OC within firms. One school of thought views OC as rooted in an organization's employees and social networks (Eisfeldt and Papanikolaou 2013). Conversely, another perspective perceives OC as residing within the organization, grounded in its practices, processes, and systems, which remain relatively unchanged even when employees are replaced (Lev & Radhakrishnan 2005; Lev et al. 2009). This latter viewpoint aligns with the RBV's notion that critical resources are non-tradable, difficult to imitate, and challenging to substitute (Dierickx and Cool 1989).

At national and firm levels, OC drives growth and competitiveness. Atkeson and Kehoe (2005) determined that institutional capital contributes over 40 percent of the cash flow generated by intangible assets in the US national income accounts. Similarly, on the firm level, some studies point to corporate capital associated with enhanced operational performance, increased investment, and heightened innovation, thereby resulting in favourable future operating outcomes, stock returns, and trading performance (Enache and Srivastava, 2018; Hasan and Cheung, 2018; Li et al., 2018; Lev et al., 2009).

Sajadi and Ghajar Bigi (2021) demonstrated OC's positive and significant impact on cash retention. Similarly, Akbari and Ahmadi (2021) established an essential positive relationship between OC and a firm's value. Furthermore, Badertscher et al. (2013) observed that investment in OC can enhance a firm's financial performance.

2.3 The relationship between tax avoidance and organizational capital

A firm with a higher OC will likely be doing more tax avoidance. Our predictions are based on the following arguments. Previous research has argued that tax avoidance is a crucial business strategy (Cai and Liu, 2009; Hasan et al., 2021). Designing, administering, and complying with tax systems is a knowledge-intensive activity that comes with significant costs and requires substantial economic resources (Hasseldine et al., 2012). Different theories are proposed in the literature for the relationship between tax avoidance and OC: The resource-based view (RBV) theory suggests that firms can use their OC, such as knowledge, skills, and abilities, to create a competitive advantage and
achieve better performance. According to RBV, firms with high OC are more likely to engage in tax avoidance to maximize their after-tax earnings and gain a competitive advantage over their rivals (Hasan et al., 2021).

Agency theory indicates that the relationship between tax avoidance and OC depends on the firm’s ownership structure. In a dispersed ownership structure, where the shareholders are not the key decision-makers, the managers may engage in tax avoidance to maximize their gains. However, in a concentrated ownership structure, where the shareholders have a more significant influence on the firm’s decisions, the managers may have a stronger incentive to avoid tax to maximize the value of the OC (Piekkola, 2014; Shahraki et al., 2019).

Signalling theory suggests that firms use tax avoidance to signal their financial health and reduce information asymmetry. According to this theory, firms with high OC may engage in tax avoidance to signal their superior performance and financial health to investors and stakeholders, thereby reducing information asymmetry and increasing access to capital markets (Hasan et al., 2021; Esnaashari, 2017).

Recent research has examined the relationship between tax avoidance and OC, suggesting that firms with high OC may engage in more tax planning activities to increase their tax efficiency (Hasan et al., 2021). Moreover, key talent and shareholders may share the cash flows generated by OC. Tax avoidance activities can increase cash flows and after-tax earnings, motivating firms with high OC to engage in more tax planning activities (Hasan et al., 2021).

It should be noted that the relationship between tax avoidance and OC is complex and context-dependent. In some cases, tax avoidance may contribute to the growth and development of OC. Chen and Hsu (2013) found that firms with high levels of intangible assets were more likely to engage in tax planning, which can help reduce their tax liability and free up resources for investment in research and development. However, some research has shown that tax avoidance can have a negative impact on OC. Bloomfield (2011) found that firms engaged in higher levels of tax avoidance were more likely to experience a decline in their reputation and brand image, which can ultimately affect their ability to attract and retain skilled employees. Additionally, firms that engage in tax avoidance may be perceived as less socially responsible, negatively affecting their relationships with stakeholders and overall organizational performance (Hanlon and Heitzman, 2010).

Hosseini Mianroudi and Imani (2022) found the impact of OC on the relationship between tax avoidance and firm value. It was found that OC does not significantly affect this relationship. Hasan et al. (2021) found an association between OC, tax avoidance, and firm value. Furthermore, OC was found to have a strong and significant mitigating effect on the relationship between tax avoidance activity and corporate value. In this regard, the first hypothesis is developed as follows:

**H1:** There is a significant impact of OC on tax avoidance behaviour.

### 2.4 The moderating effect of size on tax avoidance and organizational capital

Recent studies have begun to investigate the moderating effect of firm size on the relationship between organizational capital and tax avoidance. Size, often measured by indicators such as total assets or revenue, introduces additional complexities to this dynamic. Numerous studies have found essential links between organizational characteristics, corporate governance structures, management motivations, and tax avoidance (Jibir et al., 2021; Jihene and Moez, 2019; Chen et al., 2014; Huang et al., 2017). Large firms typically have greater access to financial and human resources, enabling them to invest in building and leveraging organizational capital. This may result in a stronger positive relationship between organizational capital and tax avoidance in larger firms. Their size provides them with the capacity to implement complex tax strategies effectively. On the other hand, small firms may face constraints regarding resource availability and expertise. While they may also possess
organizational capital, their ability to translate it into effective tax planning strategies might be more limited compared to their larger counterparts. As a result, the relationship between organizational capital and tax avoidance may be weaker or non-existent in smaller firms.

Taufiq and Tertiarto (2018) found that Company Size does not increase the impact of Intellectual Capital on Corporate Values. Damayanty and Putri (2021) examine the moderating role of capital intensity and tax avoidance. Damayanty and Putri (2021) investigate the moderating effect of company size on the relationship between capital intensity and tax avoidance. It has been found that a company's size can positively impact its capital intensity.

Maula et al. (2019) analyzed the impact of Leverage, Size, and Capital Intensity on tax avoidance. The findings indicated that leverage significantly affected tax avoidance, whereas size and capital intensity did not significantly impact tax avoidance. Susanti (2017) investigated the impact of corporate social responsibility disclosure and firm size on tax avoidance. The study found that only firm size affects tax avoidance.

Abdelfattah and Aboud (2020) explored the relationship between tax avoidance, corporate governance, and social responsibility. Their results showed a clear and important link between corporate tax avoidance and social responsibility. Chen et al. (2014) focused on the relationship between tax avoidance and corporate value. As a result, it was found that an increase in tax avoidance leads to a decrease in corporate value. Huang et al. (2017) examine the relationship between environmental concerns and corporate-level tax avoidance. Managers facing a more uncertain environment will likely engage in tax avoidance activities more frequently. Several studies by Corvino et al. (2019), Hernández et al. (2020), and Saragih and Hendrawan (2021) have demonstrated that the size of a company can moderate the relationship between its characteristics and performance. Moreover, Sopiyana (2022) and Fauzan et al. (2019) have shown that the size of a company and its sales growth can influence its tax avoidance practices. Aminah et al. (2017) discovered that the size of a company, the intensity of its fixed assets, and its leverage do not have an impact on tax avoidance. Therefore, we propose the following hypotheses:

**H2:** The firm's size significantly moderates the relationship between tax avoidance and OC.

### 2.5 The moderating role of CEO Overconfidence on tax avoidance and organizational capital

The connection between overconfidence and tax avoidance is a subject of interest in behavioural economics and finance. Studies suggest that managers who exhibit overconfidence may be more likely to engage in aggressive tax planning and avoidance tactics. This may be due to their belief that tax authorities will not closely scrutinize their decisions or their perceived ability to navigate complex tax laws. Consequently, overconfident managers may take on more significant tax risks, potentially leading to an increased tendency toward tax avoidance practices (Hsieh et al., 2018). Aliani et al. (2017) show a positive correlation between CEO overconfidence and the desire to minimize corporate tax liabilities.

Similarly, Chyz et al. (2019) found a positive link between indicators of corporate tax avoidance and CEO overconfidence. Tax avoidance can be a strategic tool for managing earnings, allowing companies to meet their earnings targets while reducing tax obligations and increasing cash flow (Desai and Dharmapala, 2009). Therefore, CEOs who exhibit overconfidence are more likely to support tax avoidance strategies, resulting in lower effective corporate tax rates (Olsen and Stekelberg, 2016). Studies have shown that a CEO's confidence level can impact the relationship between a company's characteristics and its performance indicators (Wan et al., 2022; Gurdgiev and Ni, 2023). We are interested in investigating whether CEO overconfidence, as a moderating factor, enhances or reduces the impact of organizational culture on tax avoidance. Based on these findings, the third hypothesis can be formulated as follows:
H3: CEO overconfidence has a significant moderating effect on tax avoidance and OC.

3. Research methodology

We obtain financial data from the comprehensive database for issuers' (CODAL) annual files and stock market data from the Rahavard Novin software. Our initial sample includes all available publicly traded firms in the Tehran Stock Exchange (TSE) over six years between 2015 and 2019. We exclude firms from the financial services industry. We then remove observations with missing information and compute dependent, (tax avoidance), independent (i.e., OC), and control variables.

The sample was determined by systematic deletion. So, firms that have the following features were included in the sample:
- The firm was listed before 2015 and remained listed until 2019.
- The firm’s stock did not experience significant trading breaks during the research period (i.e., it did not stop trading on the stock market for more than three months).
- The firm’s financial Year ended on March 20 (Iranian end year)

Based on the criteria, a sample of 142 firms was selected for our analysis.

3.1 Research model and variables’ measurement

To examine the association between tax avoidance and OC, consistent with prior research (Hasan et al., 2021), we estimated model (1).

\[ ETR_{it} = \beta_0 + \beta_1 OC_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 MB_{it} + \beta_6 PPT_{it} + \beta_6 CHREV_{it} + \sum_{industry} + \sum_{year} + \epsilon_{it} \]

Tax avoidance (\( ETR_{it} \)) is measured in the following way (Delgado et al., 2023; Cain et al., 2017; Huang et al., 2016):

\[ ETR_{it} = \frac{TTE_{it}}{PTE_{it}} \]

Where:
- \( TTE_{it} \): Total corporate tax expense of firm i in year t;
- \( PTE_{it} \): the pre-tax profit of firm i in year t;
- \( OC_{it} \): Organizational capital follows Hasan et al. (2021) and Peters and Taylor (2017) to estimate OC based on SG&A expenses. SG&A expenses cover the operating costs of the firm.

It is not included in direct manufacturing costs (or cost of goods sold). In other words, SG&A includes all non-production expenses.

\[ OC_{it} = ABSALSE_{it} - ABCOST_{it} \]

Where:
- \( ABSALSE_{it} \) is the abnormal sale of firm i in year t, measured by the following formula:
  \[ ABSALSE_{it} = REV_{it} - (\beta_0 \times EMP_{it}^{\beta_2} \times PPE_{it}^{\beta_3} \times \epsilon_{it}) \]
  in which \( \beta_3, \beta_2, \beta_0 \) and \( \epsilon_{it} \) are determined by the following:
  \[ \log \left( \frac{REV_{it}}{REV_{it-1}} \right) = \beta_0 + \beta_1 \log \left( \frac{SG&A - CAP_{it}}{SG&A - CAP_{it-1}} \right) + \beta_2 \log \left( \frac{EMP_{it}}{EMP_{it-1}} \right) + \beta_3 \log \left( \frac{PPE_{it}}{PPE_{it-1}} \right) + \epsilon_{it} \]

\( REV_{it-1} \) is sales of firm i in year t (t-1); \( SG&A - CAP_{it} \) is capitalized sale, general and
administrative expenses of the firm \( i \) in year \((t-1)\) and \( EMP_{it(t-1)} \) is the number of employees of the firm \( i \) in year \( t \) (t-1).

\[ ABCOST_{it} = Cost_{it} - (\beta_0 \times EMP_{it}^{\beta_2} \times PPE_{it}^{\beta_3} \times \varepsilon_{it}) \]

in which \( \beta_3, \beta_2, \beta_0 \) and \( \varepsilon_{it} \) are determined by the following:

\[
\log\left( \frac{Cost_{it}}{Cost_{it-1}} \right) = \beta_0 + \beta_1 \log\left( \frac{SG&A - CAP_{it}}{SG&A - CAP_{it-1}} \right) + \beta_2 \log\left( \frac{EMP_{it}}{EMP_{it-1}} \right) + \beta_3 \log\left( \frac{PPE_{it}}{PPE_{it-1}} \right) + \varepsilon_{it}
\]

\( Cost_{it(t-1)} \) is operating expenses of the firm \( i \) in year \( t(t-1) \), and the other variables are presented earlier.

Firm size (\( SIZE_{it} \)): is the logarithm of the annual sale of firm \( i \) in year \( t \) (Rego and Wilson, 2012; Saeedi et al., 2020);

Financial leverage (\( LEV_{it} \)): it is measured through the ratio of total debt to total assets (Huang et al., 2016);

Return on assets (\( ROA_{it} \)): This ratio is calculated by dividing the net profit by the market value (Diyanti Dilami et al., 2015);

Growth (\( MB_{it} \)): It is measured by the ratio of market value to book value (Huang et al., 2016; Moshayekhi and Seyyedifar, 2015);

\( PPT= \) Property, plant, and equipment to total assets (Hasan et al., 2021; Delgado, 2023);

\( CHREV= \) yearly percentage change in sales over the prior Year;

industry is a dichotomous indicator variable based on two-digit TSE industry codes to control for industry-fixed effects. The Year is also a dichotomous indicator variable to control for year-fixed effects.

To examine the effect of size on the relationship between OC and tax avoidance, we split the sample into two groups of large and small firms by median of \( SIZE_{it} \) and estimated model (1) in each group (Hesarzadeh 2022). Furthermore, the effect of CEO overconfidence on this relationship was investigated by model (2):

\[
ETR_{it} = \beta_0 + \beta_1 OC_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 MB_{it} + \beta_6 PPT_{it} + \beta_6 CHREV_{it} + \beta_6 OC_{it} \times OVCON_{it} + \sum_{industry} \sum_{year} + \varepsilon_{it}
\]

Where:

\( OVCON_{it} \): It measures the CEO's overconfidence in their different investment and funding decisions. Thus, it takes the value of one if the firm meets at least one of the following three criteria and zero otherwise: (1) Excess investment is in the top mean of firms within the industry, where excess investment is the residual from a regression of total asset growth on sales growth; (2) Net acquisitions from the statement of cash flows are in the top mean of firms within the industry; (3) The dividend yield is zero (Tehrani and Hesarzadeh 2009; Schrand and Zechman, 2012; Kim and Zhang, 2016).

4. Findings

4.1 Descriptive statistics

Table 1 presents descriptive statistics of the variables used in the regression analyses.
Table 1. Descriptive statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev</th>
<th>Min</th>
<th>Max</th>
<th>Small</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETR</td>
<td>-0.892%</td>
<td>0.083%</td>
<td>4.499%</td>
<td>-12.344%</td>
<td>6.847%</td>
<td>-0.666%</td>
<td>-1.118%</td>
</tr>
<tr>
<td>OC</td>
<td>0.031%</td>
<td>0.398%</td>
<td>11.285%</td>
<td>-21.168%</td>
<td>20.924%</td>
<td>0.440%</td>
<td>-0.378%</td>
</tr>
<tr>
<td>ROA</td>
<td>14.836%</td>
<td>12.218%</td>
<td>14.925%</td>
<td>-29.773%</td>
<td>68.198%</td>
<td>21.951%</td>
<td>7.721%</td>
</tr>
<tr>
<td>LEV</td>
<td>51.893%</td>
<td>53.105%</td>
<td>19.641%</td>
<td>1.386%</td>
<td>95.285%</td>
<td>46.633%</td>
<td>57.153%</td>
</tr>
<tr>
<td>PPT</td>
<td>24.880%</td>
<td>21.023%</td>
<td>17.217%</td>
<td>0.006%</td>
<td>96.851%</td>
<td>21.239%</td>
<td>28.521%</td>
</tr>
<tr>
<td>CHREV</td>
<td>37.048%</td>
<td>24.185%</td>
<td>64.857%</td>
<td>-90.919%</td>
<td>781.554%</td>
<td>40.680%</td>
<td>33.416%</td>
</tr>
<tr>
<td>SIZE</td>
<td>5.378</td>
<td>5.348</td>
<td>0.986</td>
<td>0.699</td>
<td>8.583</td>
<td>6.042</td>
<td>4.714</td>
</tr>
<tr>
<td>MB</td>
<td>5.801</td>
<td>3.354</td>
<td>7.087</td>
<td>0.523</td>
<td>53.559</td>
<td>4.451</td>
<td>7.152</td>
</tr>
</tbody>
</table>

This table displays various statistics related to firms, including their ETR (mean: -0.89%, median: 0.08%) and OC (mean: 0.03%, median: 0.3%), with a standard deviation of 0.11. The mean statistics also indicate that firms have a high level of leverage (LEV = 0.51) and significant growth opportunities (MTB = 5.80), profitability (ROA = 0.14), and change in revenues (CHREV = 0.37). On average, firms have 24.8% of their total assets in physical assets. The table also provides the mean values for small and large firms, with the cutoff being the median size for each year. Small firms have a mean ETR of -0.67%, while large firms have a mean ETR of -1.12%. Additionally, the OC rates for large firms are typically lower than those for small firms. We report the pairwise correlation coefficients for the variables in our model in Table 2.

Table 2. Pairwise correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) ETR</th>
<th>(2) OC</th>
<th>(3) ROA</th>
<th>(4) LEV</th>
<th>(5) SIZE</th>
<th>(6) GB</th>
<th>(7) PPT</th>
<th>(8) CHREV</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) ETR</td>
<td>1.00</td>
<td>0.861***</td>
<td>0.267***</td>
<td>-0.072**</td>
<td>0.234***</td>
<td>0.165***</td>
<td>-0.079**</td>
<td>0.541***</td>
</tr>
<tr>
<td>(2) OC</td>
<td>0.861***</td>
<td>1.00</td>
<td>0.320***</td>
<td>-0.133***</td>
<td>0.260***</td>
<td>0.266***</td>
<td>-0.082**</td>
<td>0.665***</td>
</tr>
<tr>
<td>(3) ROA</td>
<td>0.267***</td>
<td>0.320***</td>
<td>1.00</td>
<td>-0.582***</td>
<td>0.652***</td>
<td>0.195***</td>
<td>-0.255***</td>
<td>0.281***</td>
</tr>
<tr>
<td>(4) LEV</td>
<td>-0.072**</td>
<td>-0.133***</td>
<td>-0.582***</td>
<td>1.00</td>
<td>-0.355***</td>
<td>0.071***</td>
<td>-0.084**</td>
<td>-0.200***</td>
</tr>
<tr>
<td>(5) SIZE</td>
<td>0.234***</td>
<td>0.260***</td>
<td>0.652***</td>
<td>-0.355***</td>
<td>1.00</td>
<td>0.355***</td>
<td>1.00</td>
<td>0.249***</td>
</tr>
<tr>
<td>(6) GB</td>
<td>0.165***</td>
<td>0.266***</td>
<td>0.195***</td>
<td>0.071***</td>
<td>0.355***</td>
<td>1.00</td>
<td>0.071***</td>
<td>0.247***</td>
</tr>
<tr>
<td>(7) PPT</td>
<td>-0.079**</td>
<td>-0.082**</td>
<td>-0.255***</td>
<td>-0.084**</td>
<td>-0.200***</td>
<td>0.249***</td>
<td>1.00</td>
<td>-0.085**</td>
</tr>
<tr>
<td>(8) CHREV</td>
<td>0.541***</td>
<td>0.665***</td>
<td>0.281***</td>
<td>-0.200***</td>
<td>0.249***</td>
<td>0.247***</td>
<td>-0.085**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*** p<0.01, ** p<0.05, * p<0.1

The correlations between ETR and OC were positive and significant, suggesting higher ETR comes with larger levels of OC. There were positive and significant correlations between ROA and ETR as well.

4.2 Research findings

We estimated our model as a pooled-cross-sectional model controlling for industry and year-fixed effects. The results of the hypothesis testing in the research are as follows:

According to Table 3, all models were highly significant, with an adjusted R2 of around 79%. We found a significant positive relationship between OC and tax avoidance in the sample. This confirms our first hypothesis. In both large and small firms, the positive coefficient of OC, as a moderating variable, suggests that an increase in OC is associated with an increase in tax avoidance. However,
the relationship's magnitude is similar regardless of size, so the results in Table 3 do not support our second hypothesis. Among the control variables, the LEV coefficient is positive and significant, while the MB coefficient is negative and significant in all three samples.

The moderating effect of management overconfidence in OC-tax avoidance is illustrated in Table 4.

<table>
<thead>
<tr>
<th>Table 3. The moderating role of size</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL SAMPLE</strong></td>
</tr>
<tr>
<td>OC</td>
</tr>
<tr>
<td>(34.110)</td>
</tr>
<tr>
<td>ROA</td>
</tr>
<tr>
<td>(1.570)</td>
</tr>
<tr>
<td>LEV</td>
</tr>
<tr>
<td>(2.620)</td>
</tr>
<tr>
<td>SIZE</td>
</tr>
<tr>
<td>(0.240)</td>
</tr>
<tr>
<td>MB</td>
</tr>
<tr>
<td>(-2.570)</td>
</tr>
<tr>
<td>PPT</td>
</tr>
<tr>
<td>(0.060)</td>
</tr>
<tr>
<td>CHREV</td>
</tr>
<tr>
<td>(-1.230)</td>
</tr>
<tr>
<td>CONSTANT</td>
</tr>
<tr>
<td>(-1.950)</td>
</tr>
<tr>
<td>Year</td>
</tr>
<tr>
<td>industry</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>R2</td>
</tr>
<tr>
<td>adj. R2</td>
</tr>
<tr>
<td>F-statistic</td>
</tr>
</tbody>
</table>

The dependent variables in columns (1), (2), and (3) are ETR. Standard errors are reported in parentheses. All variables are defined in the "Research model and variables' measurement" section. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

According to the data in Table 4, the average value for overconfidence among CEOs is 0.66, indicating that 66% are overconfident. It's worth noting that CEO overconfidence significantly impacts the relationship between OC and tax avoidance in the overall sample. Our findings are in line with previous research conducted by Ilaboya and Aronmwan (2022), Chyz et al. (2019), and Hsieh et al. (2018), indicating that CEO overconfidence is linked to corporate tax avoidance and diminishes the impact of OC on tax avoidance. These results suggest that the behavior of top decision-makers in a company can impact the organization's overall performance. This trend is consistent among larger companies as well.
Table 4. The moderating effect of CEO Overconfidence

<table>
<thead>
<tr>
<th></th>
<th>TOTAL SAMPLE</th>
<th>SMALL</th>
<th>LARGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>OC</td>
<td>0.446***</td>
<td>0.464***</td>
<td>0.416***</td>
</tr>
<tr>
<td></td>
<td>(26.600)</td>
<td>(17.880)</td>
<td>(19.040)</td>
</tr>
<tr>
<td>OVCON*OC</td>
<td>-0.133***</td>
<td>-0.163***</td>
<td>-0.084***</td>
</tr>
<tr>
<td></td>
<td>(-7.100)</td>
<td>(-5.640)</td>
<td>(-3.440)</td>
</tr>
<tr>
<td>OVCON</td>
<td>-0.007***</td>
<td>-0.005*</td>
<td>-0.007*</td>
</tr>
<tr>
<td></td>
<td>(-3.340)</td>
<td>(-1.450)</td>
<td>(-2.400)</td>
</tr>
<tr>
<td>ROA</td>
<td>0.016</td>
<td>0.018</td>
<td>0.021</td>
</tr>
<tr>
<td></td>
<td>(1.560)</td>
<td>(1.020)</td>
<td>(1.400)</td>
</tr>
<tr>
<td>LEV</td>
<td>0.019**</td>
<td>0.029**</td>
<td>0.012</td>
</tr>
<tr>
<td></td>
<td>(2.790)</td>
<td>(2.660)</td>
<td>(1.280)</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.000</td>
<td>0.003</td>
<td>-0.003</td>
</tr>
<tr>
<td></td>
<td>(-0.080)</td>
<td>(1.230)</td>
<td>(-0.850)</td>
</tr>
<tr>
<td>MB</td>
<td>-0.000*</td>
<td>-0.000*</td>
<td>-0.000*</td>
</tr>
<tr>
<td></td>
<td>(-2.430)</td>
<td>(-2.300)</td>
<td>(-2.370)</td>
</tr>
<tr>
<td>PPT</td>
<td>0.001</td>
<td>-0.007</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>(0.210)</td>
<td>(-0.730)</td>
<td>(0.190)</td>
</tr>
<tr>
<td>CHREV</td>
<td>-0.000</td>
<td>-0.004</td>
<td>0.004*</td>
</tr>
<tr>
<td></td>
<td>(-0.090)</td>
<td>(-1.480)</td>
<td>(2.020)</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>-0.021</td>
<td>-0.048**</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(-1.570)</td>
<td>(-2.970)</td>
<td>(0.020)</td>
</tr>
<tr>
<td>YEAR</td>
<td>fixed</td>
<td>fixed</td>
<td>fixed</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>fixed</td>
<td>fixed</td>
<td>fixed</td>
</tr>
<tr>
<td>N</td>
<td>852</td>
<td>426</td>
<td>426</td>
</tr>
<tr>
<td>R-sq</td>
<td>0.805</td>
<td>0.805</td>
<td>0.842</td>
</tr>
<tr>
<td>adj. R-sq</td>
<td>0.778</td>
<td>0.763</td>
<td>0.808</td>
</tr>
<tr>
<td>F</td>
<td>29.980</td>
<td>19.010</td>
<td>24.800</td>
</tr>
</tbody>
</table>

The dependent variables in columns (1), (2), and (3) are ETR. Standard errors are reported in parentheses. All variables are defined in the "Research model and variables' measurement" section. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

5. Conclusion

The primary objective of this study was to investigate the intricate relationship between tax avoidance practices within firms and OC. The study's findings shed light on a fascinating dynamic: firms with higher levels of OC exhibit a distinct approach to handling tax-related matters. Firstly, firms rich in OC tend to foster a culture of continuous learning and knowledge accumulation. This proactive learning process results in meticulous documentation and archival of critical data. This wealth of codified, integrated, and institutionally ingrained knowledge regarding business performance and processes is a guiding compass for the organization’s future endeavours. In contrast, tax avoidance represents a fundamental corporate strategy, necessitating intricate design, adept management, and adaptable tax systems tailored for knowledge-driven activities. This endeavour often demands substantial financial resources, making it a resource-intensive work.

However, firms with substantial OC efficiently leverage their codified business practices, well-structured processes, and sophisticated systems to streamline tax planning. This optimization helps them identify and capitalize on tax avoidance opportunities at a reduced cost. Consequently, these firms demonstrate a remarkable ability to allocate their corporate profits across various sectors to maximize returns. They benefit from diverse tax rates, exemptions, and credits, further enhancing their tax efficiency. These findings align closely with previous research by Hasan et al. (2021) and Hosseini Mianrudi and Imani (2022), corroborating the positive relationship between OC and tax avoidance.
avoidance strategies. However, the company's size doesn't impact this relationship. This finding does not align with Fauzan et al. (2019) but is aligned with Aminah et al. (2017).

Moreover, an intriguing revelation emerged from this study: the influential role of CEO overconfidence in shaping the organization's expenditure structure concerning tax avoidance. Overconfident CEOs tend to overestimate their decision-making prowess in tax-related matters, exerting a considerable influence on the firm's approach to tax avoidance. This result is consistent with Ilaboya and Aronmwan (2022), Sumunar et al. (2019), Chyz et al. (2019), Aliani et al. (2017), and Desai and Dharmapala (2009).

Indeed, some suggestions for future work based on this study's findings and implications are as follows: Tax reforms can significantly alter the tax landscape, and understanding how firms with different levels of OC adapt to these changes is crucial. Hence, it is essential to explore how tax law and regulation alterations influence the connection between tax avoidance and OC. Additionally, delving into the trade-offs between tax efficiency and the long-term value for shareholders presents an intriguing avenue for future research.

References
56. Hesarzadeh R. (2022). The principles of writing theoretical foundations and testing hypotheses with moderator variables, Ferdowsi University of Mashhad publication, ISSN, pp. 978-964-386-551-1


