

## ORIGINAL ARTICLE

# Exploring the determinants of internal audit: Evidence from ownership structure

 Jaakko Rönkkö<sup>1</sup>  | Mikko Paananen<sup>2</sup> | Jarmo Vakkuri<sup>1</sup>
<sup>1</sup>School of Management, University of Tampere, Tampere, Finland

<sup>2</sup>Lappeenranta University of Technology, School of Business and Management, Lappeenranta, Finland
**Correspondence**

Jaakko Rönkkö, School of Management, University of Tampere, 33014 Tampere, Finland.

Email: ronkko.jaakko.s@student.uta.fi

The internal audit literature suggests that firms can gain significant added value from internal audit in terms of improving governance processes, reducing audit fees, and detecting fraud. Nonetheless, not all firms use internal audit. A growing literature examining the determinants of internal audit has identified a number of different determinants, such as firm size, strong commitment to risk management, existence of an audit committee, and an independent board chair. This paper contributes to the existing literature by examining the effects of ownership structure on the voluntary use of internal audit. The logistic regression model of this study is based on data from 107 firms listed on NASDAQ OMX Helsinki. It shows that ownership structure is a significant determinant of internal audit. Specifically, the paper shows that foreign ownership, dispersed ownership, and state ownership increase the likelihood of a firm using internal audit.

**KEYWORDS**

corporate governance, dispersion of ownership, foreign ownership, internal audit, state ownership

## 1 | INTRODUCTION

The internal audit function has become a central part of corporate governance (Carcello, Hermanson, & Raghunandan, 2005; Goodwin, 2004; Paape, Scheffe, & Snoep, 2003; Sarens, 2009). Past accounting scandals, such as Enron, Parmalat, Ahold, and Lehman Brothers, have emphasized the role of the internal audit as a crucial corporate function. It has been argued that effective internal audits might have helped these firms to avoid such scandals (Arena & Azzone, 2007; Lenz & Sarens, 2012). While the internal audit function provides significant benefits to organizations in terms of improving governance processes (The Institute of Internal Auditors [IIA], 1999; Coram, Ferguson, & Moroney, 2008), detecting fraud (IIA, 1999; Coram et al., 2008; Ege, 2015), and reducing audit fees (Abbott, Parker, & Peters, 2012; Coram et al., 2008; Felix, Gramling, & Maletta, 2001; IIA, 1999; Prawitt, Sharp, & Wood, 2011), it seems that less than half of firms voluntarily choose to use internal audit. There is a nascent literature—known as literature on the determinants of the internal audit—that explores the reasons for such behavior (Goodwin-Stewart & Kent, 2006). The existing literature has shown that the use of internal audit is associated with factors such

as total assets, risk management committees, risk managers, the finance industry (including banks, credit unions, and insurance companies), audit committees, and independent board chairs (Goodwin-Stewart & Kent, 2006).

Meanwhile, little is known about the effects of the ownership structure of firms on the use of internal audit. This can be considered a significant research gap, given that prior research has indicated ownership structure to be a central factor in explaining corporate behavior in general (Burkart, Gromb, & Panunzi, 1997; Desender, Aguilera, Crespi, & García-Cestona, 2013; Prevost, Rao, & Hossain, 2002; Shleifer & Vishny, 1997; Thomsen & Pedersen, 2000). This paper contributes to the existing literature by addressing this research gap. Specifically, we investigate how different aspects of ownership structure seem to affect the voluntary use of internal audit. In this study, using internal audit means a firm establishing its own internal audit function or purchasing internal audit services from an external service provider. The analysis of the paper is based on data from 107 Finnish firms listed on NASDAQ OMX Helsinki. The firms listed on the exchange provide a meaningful sample for the purpose of this research, since the use of internal audit is voluntary in Finland. In

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addition, firms listed on the exchange must announce a corporate governance statement and define the organization of their internal audit or explain if they have not established an internal audit (Securities Market Association, 2015). In contrast, firms that are listed, for example, on the New York Stock Exchange are mandated to arrange internal audit activities no later than the first anniversary of the company's listing date (New York Stock Exchange, 2016).

The results of the study are based on a logistic regression model. They show that the structure of ownership seems to affect the use of internal audit. The results suggest that three out of the four ownership factors that are explored in this paper tend to increase the likelihood of the voluntary use of internal audit: state ownership, foreign ownership, and dispersion of ownership. Furthermore, the results of this study suggest that firm size, organizational complexity, board gender diversity, liquidity, profitability, and growth seem to affect voluntary use of internal audit. However, in contrast to previous studies exploring this theme (Goodwin-Stewart & Kent, 2006), this study relied on prior studies that have used total number of employees as a measure of firm size (Aldrich & Auster, 1986; Andres & Theissen, 2008; Arnegger, Hofmann, Pull, & Vette, 2014; Beck, Demircü-Kunt, & Maksimovic, 2005; Connell, 2001; Hu, 2003; Shalit & Sankar, 1977). It should be noted that, when using an amount of total assets as a measure of firm size, the results related to ownership variables change to a degree. When total assets were used as a measure of firm size, the ownership determinants did not receive statistically significant coefficients. Naturally, this raises some questions about how the way of measuring firm size shapes the results showing the effects of ownership structure on the voluntary use of internal audit. At the same time, it establishes a fruitful basis for further research examining the effects of ownership structure on the voluntary use of internal audit.

This paper is organized as follows: Section 2 introduces the empirical starting point for the analysis; Section 3 positions the paper in the internal audit and ownership structure literature, and introduces the theoretical framework and hypothesis development. Section 4 introduces the data, sample selection, and model specification. Section 5 presents the results. Finally, Section 6 presents our conclusions and the limitations of the study, and makes suggestions for future research.

## 2 | THE INTERNAL AUDIT PROFESSION AND CORPORATE GOVERNANCE REGULATION IN FINNISH FIRMS

The first internal auditors were recruited to Finnish companies in the 1930s (Kuuluvainen, 2016). The 1970s and 1980s were a period of fast growth and internationalization in internal auditing in Finland, and the number of IIA Finland members topped 300 for the first time in history (Kumpusalo, 1996). In the early 1990s, the Finnish economy suffered from a deep economic crisis, and this also negatively affected the number of internal auditors (Kumpusalo, 1996). The accounting scandals in the USA and Europe in the early 2000s turned the trend back on track, and internal audit is slowly starting to find its way as a crucial part of Finnish companies' governance systems. In 2016, IIA Finland had approximately 700 active members (IIA Finland, 2016).

The corporate governance regulation of listed firms in Finland is still evolving. The first corporate governance recommendation in Finland was published in 1997 by the Central Chamber of Commerce and the Confederation of Finnish Industry and Employers (Securities Market Association, 2010). The aim of the recommendation was to clarify the corporate governance practices applied by Finnish companies. In 2010, the Securities Market Association of Finland published the *Finnish Corporate Governance Code*, which aims to ensure that Finnish listed companies apply high-quality corporate governance practices. The Securities Market Association is a cooperation body established by the Confederation of Finnish Industries (EK), the Central Chamber of Commerce of Finland, and the NASDAQ OMX Helsinki Ltd. Corporate governance of listed companies in Finland is based on a combination of laws, the Rules of the Helsinki Stock Exchange, the regulations issued by the Financial Supervisory Authority, and the *Finnish Corporate Governance Code* (Securities Market Association, 2015). The most essential legal provisions are included in the Limited Liability Companies Act (624/2006), the Securities Markets Act (746/2012), the Auditing Act (1141/2015), and the Accounting Act (1336/1997). Internal audit is not required by any of these acts or regulations. However, the Finnish corporate governance recommendation (Hex Plc et al., 2003) and the *Finnish Corporate Governance Code* (Securities Market Association, 2010, 2015) introduce internal audit as an important part of good corporate governance and propose that listed firms arrange internal audit on a voluntary basis.

Finnish listed companies use a one-tier corporate governance model consisting of the general meeting, the board of directors, and the managing director (Securities Market Association, 2010). Very few Finnish listed companies have supervisory boards (Securities Market Association, 2010). Finland as a member state of the EU has adopted Art. 41 of the 8th European Company Law Directive. The 8th Directive assigns the oversight duty regarding the internal audit function to the audit committee. In Finland, the transposition of the 8th Directive into national code was done along with the definition of an audit committee. According to the *Finnish Corporate Governance Code* (Securities Market Association, 2010), the extent of a company's business may require the establishment of an audit committee. The audit committee monitors the efficiency of the company's internal control, internal audit, and risk management systems, among other tasks. Companies that do not establish an audit committee shall assign these duties to the board or to some other committee. The International Standards for the Professional Practice of Internal Auditing accepted by the Institute of Internal Auditors (IIA, 2012) state that, in order to achieve the degree of independence necessary to effectively carry out the responsibilities of the internal audit activity, the chief audit executive should have direct and unrestricted access to both senior management and the board. Furthermore, the standards suggest that the necessary degree of independence can be achieved through a dual-reporting relationship with the board and senior management. As an example of functional reporting to the board, the standards present the board approving decisions regarding the appointment and removal of the chief audit executive. Conclusively, the board or its audit committee makes decisions on the use of internal audit. The maintenance of the internal audit function is the responsibility of the chief audit executive, who is appointed and removed by the board or its audit committee.

NASDAQ OMX Helsinki fulfills the objectives and theoretical setting of this study for several reasons. First, internal audit is not obligatory for firms listed in Helsinki (Securities Market Association, 2010). Second, the state is a significant investor in listed Finnish firms (La Porta, Lopez-De-Silanes, & Shleifer, 1999; Löyttyniemi, 2011). Third, NASDAQ OMX Helsinki is a rather small open market where foreign capital has been a growing source of finance since 1993, when the market was opened to foreign investors (Oikarinen, 2010). In addition, NASDAQ OMX Helsinki is a suitable setting for the study because of the availability of detailed data. The empirical data for this study were mainly collected manually by us from companies' corporate governance statements, investor relations web pages, and financial statements. Ownership data were also drawn from Euroclear Finland's databases. Some ready-calculated financial indicators were drawn from the databases of Balance Consulting Oy, a private financial data service provider, in order to complete the financial data.

### 3 | THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

There is a well-established literature that explores the effects of ownership structure on firm behavior. It has conclusively shown that the structure of ownership is a major determinant of firm behavior. The literature has demonstrated that it is associated with factors such as corporate governance (Bozec & Bozec, 2007; Desender et al., 2013; Shleifer & Vishny, 1997), firm performance (Burkart et al., 1997; Shleifer & Vishny, 1986; Thomsen & Pedersen, 2000), board composition (Rediker & Seth, 1995; Prevost et al., 2002; Bozec & Bozec, 2007), board remuneration (Dogan & Smyth, 2002), firm value (Jensen & Meckling, 1976; Selarka, 2005; Shleifer & Vishny, 1986; Slovin & Sushka, 1993; Perrini, Rossi, & Rovetta, 2008), dividend policies (La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 2000), investor protection (La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 1998), and mergers and acquisitions activities (Coates, 2010), among others. However, there is little information on how the structure of ownership affects the use of internal audit.

Currently, the theoretical discussion on the determinants of the internal audit is rather limited (Wallace & Kreutzfeldt, 1991; Carey, Simnett, & Tanewski, 2000; Goodwin & Kent, 2004; Carcello et al., 2005; Goodwin-Stewart & Kent, 2006). Prior research has investigated voluntary demand for internal audit (Carey et al., 2000; Goodwin & Kent, 2004; Goodwin-Stewart & Kent, 2006; Wallace & Kreutzfeldt, 1991), factors affecting internal audit budgets (Carcello et al., 2005), and the size of the internal audit function (Anderson et al., 2012). A large portion of the prior literature concerning the determinants affecting organizations' decisions to voluntarily arrange audit activities concerns external audits (Chow, 1982; Carey et al., 2000; Knechel, Niemi, & Sundgren, 2008). Prior studies suggest that company size is a relevant determinant affecting the existence of internal audit (Wallace & Kreutzfeldt, 1991; Goodwin-Stewart & Kent, 2006). The determinants of the internal audit examined have included a wide range of factors, such as the complexity of the firm, board composition, audit committee activity, risk management (Goodwin-Stewart & Kent, 2006), management control (Wallace & Kreutzfeldt, 1991), industry,

external audit fee, solvency (Carcello et al., 2005), profitability, and liquidity (Wallace & Kreutzfeldt, 1991; Carcello et al., 2005). However, prior discussion has disregarded the influence of corporate ownership structure on the use of internal audit.

The dominant theoretical framework explaining the existence of internal audit has been agency theory (Adams, 1994; Carey et al., 2000; Carcello et al., 2005; Goodwin & Kent, 2004; Goodwin-Stewart & Kent, 2006; Mihret, 2014). Agency theory suggests that shareholders as principals and managers as agents may have diverging interests (Jensen & Meckling, 1976). Thus, the reasons for companies to arrange audit activities can relate to conflicts of interest among managers, shareholders, and bondholders (Abdel-Khalik, 1993; Anderson, Francis, & Stokes, 1993; Carey et al., 2000; Chow, 1982; DeFond, 1992; Goodwin-Stewart & Kent, 2006). Agency theory suggests that managers tend to have more information about the organization's operations and finances than the owners do (Adams, 1994). The owners thus might aim to mitigate this information asymmetry in order to ensure that agents' decisions are not harmful to principals' interests, or agents might incur bonding costs in order to signal to the principals that they are acting responsibly and in line with the principals' interests (Adams, 1994; Jensen & Meckling, 1976). Information asymmetries might also exist between senior managers and lower level managers (Goodwin-Stewart & Kent, 2006). It can thus be suggested that senior management may delegate their internal control responsibilities to internal audit (Goodwin-Stewart & Kent, 2006). Taken together, internal audit can theoretically be seen as a monitoring cost incurred by owners or a bonding cost incurred by managers (Adams, 1994).

The assurance and management consulting roles of internal audit have also been recognized by the International Standards for the Professional Practice of Internal Auditing reviewed and developed by the IIA (2012). Moreover, the standards suggest that internal audit activity must be independent (IIA, 2012). In order to achieve the necessary degree of independence, the standards state that the chief audit executive should have direct and unrestricted access to both the senior management and the board (IIA, 2012). This can be achieved through a dual-reporting relationship with the board and the management (IIA, 2012). However, the dual-reporting structure also causes problems, as the internal audit tries to serve two masters. As an example of functional reporting to the board, the standards (IIA, 2012) present the board approving decisions regarding the appointment and removal of the chief audit executive. This could also be seen as a mechanism to strengthen the independence of the internal audit from the senior management and as a mechanism to strengthen the relationship between the internal audit and the board of directors. Conclusively, the connection between internal audit and the board representing the shareholders is recognized both theoretically and in practice.

Modern publicly listed corporations typically have multiple shareholders. These principals with various identities and backgrounds might also have conflicting interests as they try to maximize the value of their investments in the corporation (Davis, Schoorman, & Donaldson, 1997). Thus, owners might aim to mitigate these information asymmetries as well, not just the information asymmetry between themselves and managers. The existing literature suggests that different ownership structures can affect the information asymmetry

between owners as principals and managers as agents (Ettredge, Simon, Smith, & Stone, 1994; Menon & Williams, 1994; Collier & Gregory, 1999). Prior studies suggest that internal audit is considered to be a potential solution for information asymmetries between the management and owners (Anderson et al., 1993; Carey et al., 2000; DeFond, 1992). Considering the board of directors' or its established audit committee's strong influence as representatives of shareholders on the decision to use internal audit in a company, the limited literature that explores the effects of ownership structure on the use of internal audit can be questioned. Our study addresses the paucity of research concerning solutions for these agency conflicts by examining the effects of ownership structures on the use of internal audit. However, the relationships between senior management, the different types of owners, and their possible representatives on the board are complex (Brown, Beekes, & Verhoeven, 2011). Thus, this study must acknowledge the possibility of endogeneity and reversed causality when interpreting the relationship between different types of ownership structures and the use of internal audit (Antle, Gordon, Narayanamoorthy, & Zhou, 2006; Brown et al., 2011; Larcker & Rusticus, 2010).

Prior ownership literature has introduced various ownership factors that affect a firm's behavior, such as the voting power of the largest shareholder (Thomsen & Pedersen, 2000), government ownership (La Porta et al., 1999; Thomsen & Pedersen, 2000), foreign ownership (Dahlquist & Robertsson, 2001), and management ownership (Tauringana & Clarke, 2000). Meanwhile, the existing corporate governance literature has examined relations between different corporate governance mechanisms and ownership determinants, such as ownership concentration (Bozec & Bozec, 2007; Kim, Kitsabunnarat-Chatjuthamard, & Nofsinger, 2007), foreign ownership (Leuz, Lins, & Warnock, 2010), dispersed ownership, and director ownership (Collier & Gregory, 1999).

This paper highlights foreign ownership, state ownership, dispersion of ownership, and the influence of a single powerful shareholder as potential ownership structure-related determinants that affect the use of internal audit. These determinants are based on prior studies (Aggarwal, Erel, Ferreira, & Matos, 2011; Carey, Knechel, & Tanewski, 2013; Collier & Gregory, 1999; Connelly, Hoskisson, Tihanyi, & Trevis Certo, 2010; Enns-Jedenastik, 2014; La Porta et al., 1999; Leuz et al., 2010; Shleifer & Vishny, 1997; Thomsen & Pedersen, 2000).

### 3.1 | Foreign ownership

Among other phenomena, foreign ownership (Leuz et al., 2010) has been suggested as a determinant that increases information asymmetry between owners and managers, and consequently increases the demand for monitoring. The prior literature argues that agency conflicts become greater as a company shifts further from its owners' control (Carey et al., 2000; Collis, Jarvis, & Skerratt, 2004; DeFond, 1992). The existing literature suggests that the major reasons influencing firms to arrange audit activities relate to agency conflicts between managers and shareholders (Abdel-Khalik, 1993; Carey et al., 2000; Chow, 1982). It has also been suggested that the geographical diversification of owners can lead to an informational disadvantage for foreign investors (Leuz et al., 2010). Furthermore, several studies indicate that insider owners and the management can

use their control over the company to gain private control benefits at the expense of other shareholders (Leuz et al., 2010; Shleifer & Vishny, 1997; Stulz, 2005; Zingales, 1994). It has also been noted that the management might use a variety of techniques against foreign shareholders in particular, such as declaring shares illegal, causing problems with bringing up issues in shareholder meetings, and losing voting records (Shleifer & Vishny, 1997). Foreign investors might not have sufficient power to protect their voting rights in the same manner as domestic investors with better access to other shareholders and the law courts (Shleifer & Vishny, 1997). Corporate governance mechanisms, including arranging internal audit activities, should provide foreign owners with assurance to protect their investments (Leuz et al., 2010; Shleifer & Vishny, 1997; Stulz, 2005). Only some of the foreign investors could have access to internal audit reports through representatives in the board or its audit committee, as the International Standards for the Professional Practice of Internal Auditing (IIA, 2012) state that the chief audit executive should have a dual-reporting relationship with the board and senior management. However, management might invest in internal audit in order to signal to the shareholders that they are acting responsibly and in line with the shareholders' interests (Adams, 1994).

Leuz et al. (2010) suggest that foreign investors avoid investing in companies with poor governance. Poor corporate governance is likely to increase the monitoring costs faced by foreign investors and consequently reduce the return on invested capital (Leuz et al., 2010). Monitoring is required in order to hinder managers and controlling owners from providing opaque financial information and earnings management (Leuz Nanda, & Wysocki, 2003). Consequently, this might affect the demand for internal audit as management shifts further from the foreign owners' control (Adams, 1994; Carey et al., 2000; Goodwin-Stewart & Kent, 2006).

Aggarwal et al. (2011) state that foreign institutional investors export good corporate governance practices and have a significant role in improving governance. Furthermore, foreign institutional investors seem to affect which corporate governance mechanisms are in place in companies they have invested in (Aggarwal et al., 2011). Exporting good governance should protect the shareholder rights of foreign investors when insiders tend to pursue their own interests (Stulz, 2005; Leuz et al., 2010). These findings might indicate that companies with a high foreign ownership stake use internal audit as part of a high-quality governance system, while several studies have recognized the internal audit as a central part of corporate governance (Carcello et al., 2005; Goodwin, 2004; Paape et al., 2003; Sarens, 2009). An internal audit might provide potential added value to foreign institutional owners by ensuring reliable financial reporting when managers might aim to misrepresent the firm's performance for their own benefit (Leuz et al., 2003). This study complements prior research by investigating whether the use of internal audit as a central part of corporate governance is connected to the proportion of company shares owned by foreign investors. Given these arguments, we expect a higher foreign ownership percentage to be positively associated with the use of internal audit. This leads to the following hypothesis:

- H1.** *The higher the foreign ownership percentage, the higher the probability that a firm uses internal audit.*

### 3.2 | State ownership

A growing body of literature has been exploring the behavior of state-owned enterprises. Several prior studies have noted that state ownership is a crucial factor affecting a firm's behavior (Connelly et al., 2010; Enns-Jedenastik, 2014; La Porta et al., 1999; Shleifer & Vishny, 1994). The prior ownership literature argues that states may pursue possible political objectives using state-owned firms (La Porta et al., 1999; Shleifer & Vishny, 1994). The potential agency problem in state-owned listed companies is that managers may not run the company as intended by politicians, and the achievement of political objectives might be endangered. Furthermore, agency theory suggests that financiers, such as shareholders, have difficulties in assuring the spending of their funds by management (Shleifer & Vishny, 1997). Thus, politicians might have an interest in applying risk management and an effective internal control system as part of a high-quality corporate governance structure in order to find out whether the funds have been used as intended (Carey et al., 2013).

The Organization for Economic Co-operation and Development's ([OECD's], 2004) *Principles of Corporate Governance* introduces internal audit as an important part of good corporate governance. These principles aim to develop professional and ethical behavior in order to stabilize financial markets and economic growth. Several member countries have introduced their own policies for steering the activities of state-owned companies. Among other countries, the Finnish Prime Minister's Office (2011) has published a state ownership policy for the daily steering activities of state-owned companies. The policy outlines that state-owned companies are expected to be familiar with both domestic and foreign corporate governance codes. In addition, the policy makes it clear that state-owned companies are expected to comply with the best practices of corporate governance as presented by the codes. Thus, the board or its audit committee might signal to the government owner that it pursues to comply with the best practices of corporate governance by using internal audit. On the other hand, the state might pursue appointing a representative to the board of directors and affect the use of internal audit through that board member.

Both the *OECD Principles of Corporate Governance* (OECD, 2004) and the *Finnish Corporate Governance Code* (Securities Market Association, 2010) introduce internal audit as an important part of good corporate governance. Therefore, we expect that state ownership has a positive effect on the voluntary use of internal audit. This leads to the following hypothesis:

**H2.** *If the state is an owner of a listed company, there is a higher probability that the firm uses internal audit.*

### 3.3 | Dispersion of ownership

As the investor base of a firm grows, the separation of ownership and control increases (Carey et al., 2013). Consequently, there are considered to be more complicated traditional agency conflicts in entities with larger owner bases (Carey et al., 2013; Collier & Gregory, 1999). In companies with many investors, owners are often smaller and poorly informed of their control rights (Shleifer & Vishny, 1997). Therefore, dispersion of ownership—and the separation of ownership and control this can create—might create a demand for audit (Carey et al., 2013).

The prior literature states that dispersed ownership commits shareholders to lower levels of monitoring and control (Burkart et al., 1997). An internal audit might be one solution to guarantee the shareholders' interests in companies with larger owner bases, by reducing agency conflicts between managers and minor shareholders (Adams, 1994; Carey et al., 2000; Goodwin-Stewart & Kent, 2006).

Corporate governance researchers have realized that, in addition to the traditional depiction of the agency model, this theory has other implications (La Porta et al., 1998; Young, Peng, Ahlstrom, Bruton, & Jiang, 2008). The principal–principal theory suggests that conflicts of interest might exist between different sets of principals, such as controlling shareholders and minority shareholders (Dharwadkar, George, & Brandes, 2000; Young et al., 2008). These conflicting interests between owners with various identities and backgrounds might occur as they try to maximize the value of their investment (Davis et al., 1997). Thus, an internal audit might also be established in order to mitigate information asymmetries between different owners. Furthermore, it must be noted that several smaller blockholders might work together and enhance their control, as information asymmetries exist between different groups of owners (Connelly et al., 2010). The possible collaboration between smaller blockholders might exist to the extent to which their interests are aligned (Connelly et al., 2010). This is to be recognized, as the prior literature suggests that the presence of several smaller blockholders is actually more common than the presence of a single majority blockholder (Maury & Pajuste, 2005). In this study, the dispersion of ownership is measured by the total number of shareholders. This paper addresses the discussion of ownership dispersion and the separation of ownership and control by testing the total number of shareholders in relation to internal audit. We expect dispersed ownership to be positively associated with the use of internal audit. The following hypothesis is therefore tested:

**H3.** *The more dispersed the ownership structure, the higher the probability that a firm uses internal audit.*

### 3.4 | Influence of a single powerful shareholder

In the prior ownership literature, voting rights in firms, and especially the voting rights of the principal shareholders, are acknowledged as a determinant of corporate behavior and performance (La Porta et al., 1999; Thomsen & Pedersen, 2000). In addition, the existing governance literature argues that large shareholders have a central role in corporate governance (La Porta et al., 1999; Shleifer & Vishny, 1986, 1997). Large shareholders are further introduced as active decision-makers in corporate governance issues (La Porta et al., 1999; Connelly et al., 2010). Ownership concentration among large shareholders is also considered a governance mechanism as such (Kim et al., 2007).

The Finnish Limited Liability Companies Act (624/2006) is based on strong principles and promotes a strong ownership role. One of the main principles is that of majority rule, which states that decisions are based on the majority vote. Strong shareholders also have other rights in listed firms in Finland. According to the Finnish Limited Liability Companies Act, shareholders owning no less than 10% of the company's shares have particular rights, such as demanding an extraordinary general meeting to be called to address a specific issue, demanding a minority dividend to be distributed, bringing an action

against the company's directors or another shareholder, and proposing that a special audit be carried out. Taking on board these arguments, NASDAQ OMX Helsinki provides a suitable environment to examine a single powerful shareholder's influence on firm behavior, such as the voluntary use of internal audit.

Prior studies suggest that ownership concentration can be seen as a substitute for other control devices and decrease the need for corporate governance mechanisms, and this situation is especially found in European social democracies pressing firms to favor employment instead of invested capital (Roe, 2003; Bozec & Bozec, 2007). Furthermore, the substitution effect argument suggests that a powerful controlling shareholder increases monitoring by owners and consequently decreases the benefits of other governance mechanisms (Bozec & Bozec, 2007), in which internal audit function is suggested to be an important element by previous studies (Carcello et al., 2005; Goodwin, 2004; Paape et al., 2003; Sarens, 2009). In addition, the existing literature has examined relations between ownership concentration and other corporate governance mechanisms, such as board independence (Kim et al., 2007), and board turnover (Franks & Mayer, 2001). Kim et al. (2007) present a negative relation between higher ownership concentration and independent members of the board. Other findings also state that concentrated ownership or the existence of large blockholders increase direct monitoring of, and interference in management by, the shareholders (Burkart et al., 1997; Connelly et al., 2010). Blockholders are also suggested to have incentives to enjoy benefits not shared with minority shareholders (Connelly et al., 2010). These findings suggest that a high ownership concentration might decrease the need for or interest in an improved internal control system, and accordingly the emphasis on using internal audit when the owner's observability of the management's actions increases; see Carey et al. (2000), Collier and Gregory (1999), Collis et al. (2004), and DeFond (1992). We therefore explore the effects of a single powerful shareholder on the use of internal audit. In this study, the voting power of the largest single shareholder describes the concentration of ownership. This variable is based on the prior literature (Bozec & Bozec, 2007; Kinkki, 2008; Thomsen & Pedersen, 2000). Despite arguments suggesting that a dominant shareholder might have greater incentive to implement good corporate controls, we draw on evidence from previous studies (Bozec & Bozec, 2007; Kim et al., 2007; Roe, 2003) and expect concentration of ownership to be negatively associated with the use of internal audit. This leads to the following hypothesis:

**H4.** *The stronger the voting power of the largest shareholder, the lower the probability that a firm uses internal audit.*

The hypotheses of the potential ownership structure-related determinants affecting the use of internal audit are presented in Table 1.

## 4 | EMPIRICAL ANALYSES

### 4.1 | sample selection

Our statistical analyses are based on an original sample of 121 firms listed on the NASDAQ OMX Helsinki in 2012. The original sample

**TABLE 1** Expected logistic regression results

Variable	Variable type	Expected sign
PROFIT	Control	+
SOLV	Control	+
LIQUID	Control	+
GROWTH	Control	+
SIZE	Control	+
GENDER	Control	?
AUDITCOM	Control	+
INDEP	Control	+
COMPL	Control	+
DAYS	Control	+
INDUSTRIALS	Control	?
CONSGOODS	Control	?
TECHNOLOGY	Control	?
CONSSERVICES	Control	?
BASICMATER	Control	?
FINANCIALS	Control	?
OTHERS	Control	?
MAJOR	Independent	-
STATE	Independent	+
FOREIGN	Independent	+
DISPER	Independent	+

was reduced by 14 firms. Four banks and one insurance company were excluded because their financial indicators were not comparable to the other sample firms. The banks and the insurance company did not provide current ratio information in their financial statements. Nine firms were further excluded to eliminate incomplete information. Three of these did not report the return on equity ratio and three others did not report the current ratio in their financial statements. Two of the excluded firms were registered in Sweden and reported according to Swedish legislation. One excluded firm did not report the number of independent members on the board. As a result, the final sample consisted of 107 firms. The dataset was collected from multiple sources. First, we used corporate governance statements to draw out information on the use of internal audit, and the composition of the boards of directors and audit committees. Second, the financial indicators of solvency, liquidity, and profitability were collected from the financial statements of the firms. Information on personnel was also collected by the authors from the firms' financial statements. Third, we drew some ready-calculated financial indicators concerning revenues generated by foreign operations from the databases of Balance Consulting Oy, which is a local private financial data service provider. The growth information, measured by change in revenues, was also drawn from the databases of Balance Consulting Oy. Fourth, the number of days that a firm had been publicly listed on NASDAQ OMX Helsinki was gathered from the Finnish online newspaper Kauppalehti.fi's database. The sources of the collected variables are presented in Table 2.

Fifth, we gathered the ownership structure data concerning major shareholders and the total number of shareholders from the investor pages of the sample firms. Sixth, we used the databases of

**TABLE 2** Sources of the collected data

Variable	Variable type	Data source
IAUDIT	Dependent	Corporate governance statement
PROFIT	Control	Financial statement
SOLV	Control	Financial statement
LIQUID	Control	Financial statement
GROWTH	Control	Balance Consulting's database
SIZE	Control	Financial statement
GENDER	Control	Corporate governance statement
AUDITCOM	Control	Corporate governance statement
INDEP	Control	Corporate governance statement
COMPL	Control	Balance Consulting's database
DAYS	Control	Kauppaletti.fi database
INDUSTRIALS	Control	NASDAQ Helsinki official website
CONSGOODS	Control	NASDAQ Helsinki official website
TECHNOLOGY	Control	NASDAQ Helsinki official website
CONSSERVICES	Control	NASDAQ Helsinki official website
BASICMATER	Control	NASDAQ Helsinki official website
FINANCIALS	Control	NASDAQ Helsinki official website
OTHERS	Control	NASDAQ Helsinki official website
MAJOR	Independent	Investor pages of a firm
STATE	Independent	Prime Minister's office Finland's website
FOREIGN	Independent	Euroclear Finland's database
DISPER	Independent	Investor pages of a firm

Euroclear Finland to complete the ownership data by drawing out ready-calculated information on foreign ownership. Seventh, the industry sector root code information was collected from NASDAQ Helsinki's official website. Finally, we collected information on state ownership from the website of the Ownership Steering Department of the Finnish Prime Minister's Office. We checked the collected data manually for completeness and accuracy. In addition, the corporate governance statements and financial statements used for data gathering were audited by the authorized public accountants of the listed companies.

## 4.2 | Model specification

Since the dependent variable (IAUDIT) is a binary variable, we chose to estimate the following logit regression model to examine the effects of determinants of the voluntary use of internal audit:

$$\begin{aligned}
 \text{IAUDIT} = & b_0 + b_1\text{PROFIT} + b_2\text{SOLV} + b_3\text{LIQUID} + b_4\text{GROWTH} \\
 & + b_5\text{SIZE} + b_6\text{GENDER} + b_7\text{AUDITCOM} + b_8\text{INDEP} \\
 & + b_9\text{COMPL} + b_{10}\text{DAYS} + b_{11}\text{MAJOR} + b_{12}\text{STATE} \\
 & + b_{13}\text{FOREIGN} + b_{14}\text{DISPER} + e
 \end{aligned} \quad (1)$$

where

IAUDIT = 1 if a firm uses internal audit by establishing its own internal audit function or purchasing internal audit services from an external service provider, otherwise IAUDIT = 0;

PROFIT is the profitability—that is, return on equity measured as net income divided by shareholders' equity;

SOLV is the solvency—that is, equity ratio measured as total equity divided by total assets;

LIQUID is the liquidity—that is, current ratio measured as current assets divided by current liabilities;

GROWTH is the change in revenues (percent) from financial year 2011 to financial year 2012;

SIZE is the logarithm of firms' total personnel;

GENDER = 1 if a board has a female member, otherwise GENDER = 0 (all boards had at least one male member);

AUDITCOM = 1 if a firm has an audit committee, otherwise AUDITCOM = 0;

INDEP is the share of independent members on the board of directors;

COMPL is the revenues generated by a firm's foreign operations in relation to total revenues;

DAYS is the number of days that a firm has been publicly listed on NASDAQ OMX Helsinki;

MAJOR is the share of ownership of the largest shareholder (0–100%);

STATE = 1 if the state is a shareholder of the firm, otherwise STATE = 0;

FOREIGN is the share of foreign shareholders out of total shareholders (0–100%);

DISPER is the logarithm of total number of shareholders.

IAUDIT, the dependent variable of the model indicates whether a firm uses internal audit. It received a value of 1 if the firm used internal audit, or 0 otherwise. A similar measure was used by Goodwin-Stewart and Kent (2006).

The model included four ownership-specific independent variables that were drawn from different data sources. First, it included the share of ownership of the largest shareholder (MAJOR), which reflects the influence of a single powerful shareholder. This was measured as the share of voting power of the largest shareholder (0–100%). The same measure has been used in prior literature (Bozec & Bozec, 2007; Kinkki, 2008; Thomsen & Pedersen, 2000). Information on the largest shareholder was drawn from the firms' investor pages. Second, the model included a state ownership variable (STATE), which indicated whether the Finnish government has an ownership stake in the sample firm. This was measured as a binary variable based on existing literature (Lu, Thangavelu, & Hu, 2016; Rugman, 1983). It had a value of 1 if the government was a shareholder of the firm, or 0 otherwise. The Finnish government has traditionally been rather active in owning firms with a strategic interest, such as energy producers, oil refiners, and aviation companies. In 2012, it had holdings in 15 such firms that were listed on NASDAQ OMX Helsinki. Third, the dispersion of ownership was measured as a logarithm of the total number of shareholders (DISPER). A similar measure of dispersion has been used in past research literature (Collier, 1993; Cooke, 1989; Lloyd, Jahera, & Page, 1985; Rozeff, 1982). Fourth, the model included a variable that measured the effect of foreign ownership (FOREIGN) on the likelihood

of using internal audit. This was measured as the share of foreign shareholders out of total shareholders (0–100%).

The model also included a group of control variables. The prior literature has suggested that financial performance might have an impact on the ability of firms to invest in internal audit (Carcello et al., 2005; Wallace & Kreutzfeldt, 1991). That is to say, good financial performance might increase the likelihood of firms investing in internal audit. Given this argument, we controlled for the financial performance of firms in the model on three fundamental levels (Altman, 1968): (i) we formulated a variable of profitability (PROFIT), which was measured as the operating profit margin of the firms; (ii) we constructed a variable of liquidity (LIQUID), which was measured as the current ratio of the firms; and (iii) we formulated a variable of solvency (SOLV), measured as the equity ratio. The financial performance information was drawn from the financial statements of the firms. In addition to financial performance, a number of other control variables were included in the model. The prior research indicates that organizational complexity might lead to greater decentralization and a greater demand for monitoring (Carcello et al., 2005), causing pressure on firms to use internal audit. It was therefore controlled in this study as well. The prior internal audit literature has identified several company characteristics that reflect organizational complexity and greater decentralization, such as proportion of foreign subsidiaries, number of subsidiaries, or number of business segments (Carcello et al., 2005). We chose the ratio between the revenues of foreign operations and total revenues as a measure of complexity (COMPL), owing to data availability. A similar measure has been used in past research literature (Desender et al., 2013). It was expected to be positively related to the use of internal audit.

Prior studies have also suggested that firm size is an important determinant of the use of internal audit (Goodwin-Stewart & Kent, 2006), and the existence of an internal audit department (Wallace & Kreutzfeldt, 1991) and internal audit budgets (Carcello et al., 2005; Anderson et al., 2012); large firms are more likely to use internal audit, for example. This was therefore controlled in the model. Prior studies have introduced proxies of size such as total assets (Anderson et al., 2012; Carcello et al., 2005; Goodwin-Stewart & Kent, 2006) or total revenues (Wallace & Kreutzfeldt, 1991). Nevertheless, the professional literature states that the use of internal audit is importantly related to number of employees, among other factors (Securities Market Association, 2010, p. 24). There is also evidence that the internal audit effectiveness literature suggests that the ratio between the number of internal auditors and the number of total employees in a company is a significant determinant of internal audit effectiveness (Arena & Azzone, 2009). We therefore constructed an employee-related size variable (SIZE), which was measured as a logarithm of the number of total personnel. This is a well-established measure that has been used in a number of prior studies (Aldrich & Auster, 1986; Andres & Theissen, 2008; Arnegger et al., 2014; Beck et al., 2005; Connell, 2001; Hu, 2003; Shalit & Sankar, 1977). It is also generally used for statistical purposes to classify firms based on their size; for example, statistical offices across Europe use it to determine firm size (Eurostat, 2017). However, it must be noted that the robustness of our model is sensitive to the size proxy.

It has been suggested that the existence of an audit committee and an independent board chair are associated with the use of

internal audit (Goodwin-Stewart & Kent, 2006). Prior research suggests that the existence of an audit committee demonstrates a demand for internal audit quality (Abbott, Parker, Peters, & Rama, 2007), and that director independence is related to an effective monitoring environment (Adams & Ferreira, 2009; Carcello & Neal, 2000). We formulated a binary variable to measure whether a firm had an audit committee (AUDITCOM). It had a value of 1 if the firm had a committee, or 0 otherwise. This was expected to be positively associated with the use of internal audit. Furthermore, we formed a variable to measure the independence of board members (INDEP), which was measured as the share of independent members on the board of directors. A high share was also expected to have a positive effect on the likelihood that a firm used internal audit. We also controlled for whether the fact that a board has both genders represented has an impact on the use of internal audit. Prior research suggests that board-level gender diversity improves governance and monitoring over a homogeneous board (Abbott, Parker, & Presley, 2012b). However, we did not have any expectations about the relation between board gender diversity and use of internal audit. The establishment of an audit committee, having independent members on the board, and having both genders represented on the board are all recommended by the *Finnish Corporate Governance Code* (Securities Market Association, 2010).

We also controlled for the number of days a firm has been listed on the stock exchange. It was expected that a long history increases the likelihood that a firm uses internal audit. Finally, the existing literature suggests that industry-specific determinants are associated with the existence of an internal audit function (Goodwin & Kent, 2004; Wallace & Kreutzfeldt, 1991) and internal audit budgets (Carcello et al., 2005). Drawing on these findings, we classified the firms into seven groups according to NASDAQ Helsinki's sector root codes. The sectors examined in this study are industrials, consumer goods, technology, consumer services, basic materials, financials, and, due to the low number of observations, "others," including oil and gas, health care, telecommunications, and utilities.<sup>1</sup> We also collected information on external audit service providers in order to control for Big 4 companies. The Big 4 variable had to be excluded from the regression model due to the fact that all except two of the companies in our model had a Big 4 company as an external auditor. Correlations of the variables are presented in Table 3.

## 5 | RESULTS

Table 4 presents the descriptive statistics for the variables used in the regression model. It shows that as many as 41.1% of the sample firms had used internal audit (IAUDIT).<sup>2</sup> Furthermore, 59.9% of the sample firms had decided not to use internal audit. The sample firms explained the reasons for not using internal audit in their corporate governance statements, as suggested by the *Finnish Corporate Governance Code* (Securities Market Association, 2010). Company size, stage of development and operational scope of the company, and purchasing of larger external audit services, among others, were presented as reasons for not implementing internal audit. Our figure is relatively close to previous findings on the voluntary use of

TABLE 3 Pearson correlation coefficients

	IAUDIT	PROFIT	SOLV	LIQUID	GROWTH	SIZE	GENDER	AUDITCOM	INDEP	COMPL	DAYS	MAJOR	STATE	FOREIGN	DISPER
IAUDIT	1.0000														
PROFIT	.2007*	1.0000													
SOLV	-.1322*	.4321*	1.0000												
LIQUID	-.1191*	.0403	.3608*	1.0000											
GROWTH	.0407	.3756*	.1470*	-.5428*	1.0000										
SIZE	.5475*	.2888*	-.1399*	-.3135*	.2783*	1.0000									
GENDER	.2593*	.3261*	.0393	-.2412*	.2788*	.4647*	1.0000								
AUDITCOM	.4335*	.0937	-.0996	.0317	-.0796	.4968*	.2335*	1.0000							
INDEP	.1876*	.2779*	.0521	-.0874	.1350*	.3924*	.1789*	.3067*	1.0000						
COMPL	.2534*	.1761*	.1273*	-.0687	.2457*	.3152*	.1850*	.0995	.1438*	1.0000					
DAYS	-.0059	-.0488	.0345	.1151*	-.1298*	.0148	-.0763	-.1889*	-.1772*	-.0383	1.0000				
MAJOR	-.0724	-.0529	-.0025	.1669*	-.1337*	-.2137*	-.2044*	-.1166*	-.3907*	-.1177*	.1076*	1.0000			
STATE	.3869*	.0278	-.0948	-.0498	.0294	.2732*	.1616*	.3291*	.2784*	-.0445	-.1068*	.0137	1.0000		
FOREIGN	.3476*	-.2580*	-.1791*	.0672	-.2055*	.2194*	.1087*	.2789*	-.0742	.1064*	.0387	-.0842	.1932*	1.0000	
DISPER	.5181*	.0253	-.0093	-.0322	-.0340	.6319*	.3485*	.5326*	.4293*	.2071*	-.0408	-.2025*	.4176*	.3311*	1.0000

\* $p > .1$ .

internal audit. Based on their Australian sample, Goodwin-Stewart and Kent (2006) found that 34.1% of firms voluntarily used internal audit.

In the following we summarize the descriptive statistics for the independent variables used in the model. The share of foreign ownership in the sample firms was 19.1% on average, ranging from 0.01 to 90.8% (FOREIGN). The proxy for ownership dispersion received a value of 3.9, which indicates that the sample firms had 17,691 shareholders on average (DISPER). As normal values, the range of number of shareholders was 247 to 224,204. The descriptive statistics further indicate that 12.2% of the sample firms were partly owned by the state (STATE). The Finnish government has, among its financial interests, invested in firms with a special strategic interest, such as energy producers, oil refiners, and aviation companies. In 2012, the Finnish government had holdings in 15 such firms listed on NASDAQ OMX Helsinki. Table 4 also shows that, on average, the voting power of the largest shareholder in the sample firms was 26.0% (MAJOR). This value ranged from 2.1 to 78.9%. The correlations are presented in Table 3.

Table 5 presents the logistic regression results. The area under the ROC curve for the logistic regression model is 0.9531. Table 6 presents the logistic regression results of a separated model with only the independent variables, and Table 7 presents the logistic regression results of a separated model with only the control variables. The results indicate that ownership structure matters when it comes to the use of internal audit. Three out of four ownership-related determinants appeared to be statistically significant. First, DISPER received a positive and statistically significant coefficient ( $p < .05$ ), indicating that the more shareholders the firm has the more likely it is to use internal audit; in other words, dispersed ownership seems to increase the likelihood that a firm uses internal audit. This result is in line with our hypothesis stating that dispersed ownership might increase the need for internal audit as the separation of ownership and control increases. Second, as expected, FOREIGN also received a positive and significant coefficient ( $p < .05$ ). This suggests that a high share of foreign ownership seems to increase the probability that a firm uses internal audit on voluntary basis. The result matches our hypothesis. Third, as hypothesized, STATE also had a statistically significant positive coefficient ( $p < .05$ ). This indicates that state ownership increases the probability that a firm uses internal audit. The result is in line with national and international policies suggesting that state-owned companies are expected to comply with the best practices of corporate governance. MAJOR received an insignificant coefficient, so the voting power of a major individual shareholder does not seem to have any significant impact on the use of internal audit. In addition, our model included a number of control variables, and many of them received statistically significant coefficients.

As expected, SIZE received a positive and statistically significant coefficient ( $p < .05$ ).<sup>3</sup> The result is in line with the prior literature (Carcello et al., 2005; Goodwin-Stewart & Kent, 2006; Wallace & Kreutzfeldt, 1991). However, it should be noted that this study used a logarithm of the total number of employees as a proxy of size. With alternative proxies of size, total assets or total revenues, the ownership determinants did not receive statistically significant coefficients. As expected, COMPL had a positive and significant coefficient ( $p < .05$ ).

**TABLE 4** Descriptive statistics

Variable	Obs.	Mean	Std. dev.	Min.	Max.
IAUDIT	107	.4112	.4943	.0000	1.0000
PROFIT	107	-5.4344	121.19	-985.85	580.80
SOLV	107	44.960	19.875	-64.000	93.800
LIQUID	107	1.8368	4.2842	0.0800	44.340
GROWTH	107	0.9953	25.503	-149.9	89.7
SIZE*	107	3.0663	0.8454	0.0000	4.5852
GENDER	107	.8411	.3673	.0000	1.0000
AUDITCOM	107	.5607	.4986	.0000	1.0000
INDEP	107	.7177	.2251	.0000	1.0000
COMPL	107	44.582	37.706	0.0000	99.800
DAYS	107	6,246.8	3,025.2	1,011.0	25,811.0
MAJOR	107	25.987	18.043	2.0800	78.900
STATE	107	.1215	.3282	.0000	1.0000
FOREIGN	107	19.068	21.848	0.0100	90.770
DISPER**	107	3.8637	0.6009	2.3927	5.3506
*SIZE (normal values)	107	4,406.5	7,232.6	1.0000	38,477
**DISPER (normal values)	107	17,691	29,527	247	22,4204
		Yes (%)	No (%)		
INDUSTRIALS		39	61		
CONSGOODS		13	87		
TECHNOLOGY		16	84		
CONSSERVICES		8	92		
BASICMATER		8	92		
FINANCIALS		8	92		
OTHERS		8	92		

**TABLE 5** Logistic regression results

Variable	Variable type	Expected sign	Coefficients	z-value	p-value
PROFIT	Control	+	0.040	1.44	.075*
SOLV	Control	+	0.030	0.79	.215
LIQUID	Control	+	-1.872	-2.48	.007***
GROWTH	Control	+	-0.0449	-1.53	.063*
SIZE	Control	+	2.300	1.87	.031**
GENDER	Control	?	-2.406	-1.66	.048**
AUDITCOM	Control	+	-1.142	-1.09	.138
INDEP	Control	+	-1.738	-0.72	.236
COMPL	Control	+	0.023	1.97	.025**
DAYS	Control	+	-0.000	-0.85	.198
MAJOR	Independent	-	0.012	0.40	.345
STATE	Independent	+	3.290	1.72	.043**
FOREIGN	Independent	+	0.040	1.69	.046**
DISPER	Independent	+	2.757	2.15	.016**
Number of obs					107
Pseudo R <sup>2</sup>					.604
Log likelihood					-28.709

\* $p < .1$ ,\*\* $p < .05$ ,\*\*\* $p < .01$ ;  $p$ -values are one-tailed.

The more complex the organization's structure is, the more control it tends to require. Identical results have been found in prior studies (Carcello et al., 2005; Wallace & Kreutzfeldt, 1991). GENDER received

a negative and also statistically significant coefficient ( $p < .05$ ), although we had no expectations on this. Nevertheless, the result suggests that if a firm's board has both female and male directors it is more

**TABLE 6** Logistic regression results, independent variables only

Variable	Variable type	Expected sign	Coefficients	z-value	p-value
MAJOR	Independent	-	0.003	0.26	.398
STATE	Independent	+	1.961	1.74	.041**
FOREIGN	Independent	+	0.021	1.97	.025**
DISPER	Independent	+	1.994	3.52	.000***
Number of obs					107
Pseudo R <sup>2</sup>					.293
Log likelihood					-51.221

\* $p < .1$ ,\*\* $p < .05$ ,\*\*\* $p < .01$ ;  $p$ -values are one-tailed.**TABLE 7** Logistic regression results, control variables only

Variable	Variable type	Expected sign	Coefficients	z-value	p-value
PROFIT	Control	+	0.036	1.88	.030**
SOLV	Control	+	-0.006	-0.19	.423
LIQUID	Control	+	-0.946	-1.72	.043**
GROWTH	Control	+	-0.027	-1.38	.084*
SIZE	Control	+	1.677	2.96	.002***
GENDER	Control	?	-0.304	-0.32	.376
AUDITCOM	Control	+	0.838	1.28	.101
INDEP	Control	+	0.272	0.19	.426
COMPL	Control	+	0.118	1.46	.073*
DAYS	Control	+	0.000	0.15	.441
Number of obs					107
Pseudo R <sup>2</sup>					.408
Log likelihood					-42.937

\* $p < .1$ ,\*\* $p < .05$ ,\*\*\* $p < .01$ ;  $p$ -values are one-tailed.

probable that the firm does not use internal audit. In contrast to our expectation, LIQUID received a negative and significant coefficient ( $p < .001$ ), so the results seem to indicate that poor liquidity tends to increase the likelihood of the use of internal audit. GROWTH also received a negative and significant coefficient ( $p < .1$ ), in contrast to our expectation. The results of this study suggest that lower growth rates of total revenues seem to increase the likelihood of the voluntary use of internal audit. As expected, PROFIT had a positive and statistically significant coefficient ( $p < .1$ ). So, the logistic regression results of this study seem to indicate that if a firm is more profitable it is more probable that the firm has voluntarily used internal audit. All of the other control variables received statistically insignificant coefficients.

## 6 | CONCLUSIONS AND DISCUSSION

The importance of the role of internal audit in good corporate governance is widely recognized. However, despite the potential benefits and suggestions from regulators, less than half of the firms examined seem to have voluntarily used internal audit. We further noted that while there are a few studies that have investigated the determinants

of internal audit, the effects of ownership structure on the use of internal audit have remained quite unexplored. This was considered a significant research gap, considering that prior research has indicated that ownership structure tends to shape the behavior of firms (Bozec & Bozec, 2007; Dogan & Smyth, 2002; La Porta et al., 2000; Prevost et al., 2002; Rediker & Seth, 1995). The ownership determinants examined in this study include foreign ownership, state ownership, dispersion of ownership, and the influence of a single powerful shareholder.

From a research perspective, five important conclusions can be drawn based on the statistical analyses of this study. First, the ownership structure in general seems to affect the use of internal audit. According to our analysis, three out of four ownership-related determinants are statistically significant, which indicates that ownership structure is related to the voluntary use of internal audit. The results of this study are in line with prior literature suggesting that ownership structure does affect corporate governance (Bozec & Bozec, 2007; Desender et al., 2013; Shleifer & Vishny, 1997). Second, as hypothesized, state ownership increases the likelihood that a firm uses internal audit. This finding has a solid theoretical basis, as several prior studies have noted that state ownership is a crucial factor affecting a firm's behavior (Connelly et al., 2010; Enns-Jedenastik, 2014; La Porta et al., 1999; Shleifer & Vishny, 1994). Furthermore, prior literature suggests that politicians might have an interest in using internal audit as part of a high-quality corporate governance system in order to find out whether the funds have been used as intended (Carey et al., 2013). Third, as we hypothesized, our results indicate that the more dispersed the ownership structure is the more likely it is that the firm uses internal audit. The dispersion of ownership was measured by the total number of shareholders. This finding has a solid theoretical basis; it is believed that internal audit might be one solution to guarantee shareholders' interests in firms with dispersed owner bases by reducing the information asymmetry between managers and minor shareholders (Adams, 1994; Carey et al., 2000; Goodwin-Stewart & Kent, 2006). However, it must be noted that, to the extent to which their interests are aligned, several smaller blockholders might work together and enhance their control, as information asymmetries exist between different groups of owners (Connelly et al., 2010). This is to be recognized when interpreting the effects of dispersed ownership on the use of internal audit. Fourth, as hypothesized, we discovered that a high share of foreign ownership increases the likelihood of the use of internal audit. This finding is in line with suggestions that foreign

investors avoid investing in companies with poor governance (Leuz et al., 2010). On the other hand, investors such as foreigners or the state might be willing to affect the use of internal audit after the investment decision. As suggested by the prior corporate governance literature, this must be recognized when interpreting the results of this study (Brown et al., 2011). Finally, our analysis does not support the theory that powerful, concentrated shareholders might decrease the emphasis on using internal audit when the owner's observability of management increases; see Carey et al. (2000), Collier & Gregory (1999), Collis et al. (2004), and DeFond (1992). However, we suggest further examination of this hypothesis in different market settings.

The results of this study indicate an association between the size of the firm and the use of internal audit. The result is in line with prior literature (Wallace & Kreutzfeldt, 1991; Carcello et al., 2005; Goodwin-Stewart & Kent, 2006). As suggested in existing literature, in light of the findings of this study it can be speculated that smaller firms might not regard internal audit as being cost effective (Goodwin-Stewart & Kent, 2006). However, as an important limitation, it should be noted that the robustness of our model is sensitive to the size proxy, total number of employees. In addition to firm size, other organizational characteristics should be recognized when examining the potential determinants of the voluntary use of internal audit. Consistent with prior studies, we found an association between the complexity of the organization's structure and the use of internal audit (Carcello et al., 2005; Wallace & Kreutzfeldt, 1991). Our results indicate that more complex organizations seem to require more control in the form of internal audit.

From a practice perspective, the results provide regulators, management, boards, and investors with a comprehensive outlook on the voluntary use of internal audit in listed companies. The results of this study might be useful for market regulators that are considering making internal audit mandatory. This paper provides useful information on determinants affecting firms' decisions to voluntarily use internal audit and widens the discussion to ownership determinants. Thus, management and boards can obtain useful information from the results of this study when making decisions on whether to use internal audit. Our results suggest that certain types of investors, such as foreigners, tend to be shareholders in companies that use internal audit. Moreover, higher foreign ownership seems to increase the likelihood that a firm decides to use internal audit. This might be due to the prior findings stating that foreign owners export good corporate governance (Aggarwal et al., 2011). Internal audit might also help a company in attracting new foreign shareholders, as they might be more willing to invest in companies with internal audit. Furthermore, officers preparing and implementing governmental ownership policies can benefit from the results of this study, as they suggest that state ownership seems to increase the likelihood that a company uses internal audit. The result suggests that state owners seem to implement internal audit in firms they invest in. This result is in line with OECD (2004) and the state ownership policy guidelines of the Finnish Prime Minister's Office (2011), suggesting that state-owned companies comply with the best practices of corporate governance. Furthermore, the *Finnish Corporate Governance Code* (Securities Market Association, 2010) also introduces internal audit as an essential part of good corporate governance. Thus, state-owned companies listed on NASDAQ OMX

Helsinki seem to comply with the best practices of corporate governance. From the investors' point of view, investors such as foreigners and minor investors might gain useful information from the results of this study when selecting potential investment targets, as this study suggests that these different types of investors tend to prefer companies which use internal audit. In addition, the results of this study provide useful information for internal audit practitioners, as our results indicate that, despite the potential benefits, less than half of the sample firms voluntarily used internal audit. In light of these findings, it can be speculated as to whether the internal audit is really seen as a crucial part of high-quality corporate governance systems, as suggested by corporate governance regulation.

Some further limitations to this study should be noted. Despite it being rather comprehensive, our data were based on a single year and included firms listed on a single market. We believe that a larger multiyear dataset might bring useful new information into the evolving research field of examining the determinants affecting the voluntary use of internal audit. We also encourage researchers to further examine these phenomena on larger stock exchanges and in different countries with various corporate governance systems. This paper contributes to the internal audit research field by introducing four dimensions of company ownership structure. However, new aspects of ownership structure are needed in order to build a deeper understanding of internal audit determinants. Among the possible variables to consider are management ownership, board ownership, and institutional ownership. Furthermore, some of the variables used in the model might not be good proxies for the determinants measured. In particular, in contrast to previous studies exploring the voluntary use of internal audit (Goodwin-Stewart & Kent, 2006), this study relied on prior studies using total number of employees as a measure of firm size (Aldrich & Auster, 1986; Andres & Theissen, 2008; Arnegger et al., 2014; Beck et al., 2005; Connell, 2001; Hu, 2003; Shalit & Sankar, 1977). However, when using total assets or total revenues as a proxy of firm size, the ownership determinants did not receive statistically significant coefficients. Thus, it can be speculated as to what the actual effects of ownership structure are on the voluntary use of internal audit. On the other hand, it also creates interesting possibilities for further research examining the effects of ownership structure on the voluntary use of internal audit. Additional research using a refined model and variables is needed to fully understand the effect of a firm's ownership structure on using internal audit. Furthermore, this study has not addressed the question of whether the use of internal audit is a possible reason for the investment decision or follows the investment decision of a certain type of investor. As suggested in the prior literature, we must also note the possibility of endogeneity when interpreting the results of this study (Antle et al., 2006; Brown et al., 2011; Larcker & Rusticus, 2010). The results of this study can be interpreted in different ways. The shareholder structure might affect the voluntary use of internal audit, or the specific types of shareholder might invest in companies with internal audit.

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## ENDNOTES

- <sup>1</sup> The utilities sector was found by Carcello et al. (2010) to be positively related to internal audit budgets. However, owing to the fact that there was only one firm representing the utilities sector in our analysis, the sector was included in the “others” group.
- <sup>2</sup> A total of 44 of the firms in our sample used internal audit. Nine of these firms had purchased internal audit services from external service providers, and 35 firms had their own internal audit function.
- <sup>3</sup> In this study, a logarithm of the total number of employees was used as a proxy of size. The results were affected when a natural logarithm of total assets or natural logarithm of total revenues was used as an alternative proxy of size. With these alternative proxies of size, the ownership determinants did not receive statistically significant coefficients. The correlations between the logarithm of total revenues or total assets and three out of four ownership determinants (state ownership, foreign ownership, and dispersion of ownership) were significant at the <0.1 level.

## ORCID

Jaakko Rönkkö  <http://orcid.org/0000-0002-7997-0717>

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**Jaakko Rönkkö**, CIA, APA, CPFA, is a lecturer in internal auditing, external auditing, and internal control systems at the University of Tampere, Finland, where he is also preparing his PhD. He has 10 years of practical experience in auditing and internal auditing mainly with the Big 5 auditing firms. His primary research interests are in internal auditing, external auditing, and corporate governance.

**Mikko Paananen**, PhD, has 8 years of practical experience in auditing, internal auditing, and risk management with the Big 5 auditing firms. He holds a PhD from Lappeenranta University of Technology, Finland.

**Jarmo Vakkuri**, PhD, is a professor in public financial management program, at the University of Tampere, School of Management.

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