

AGENCY THEORY AS A PREDICTOR OF THE SIZE OF THE INTERNAL AUDIT FUNCTION IN BELGIAN COMPANIES

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Abstract

Agency theory has been used in the literature to investigate information asymmetry between principals (shareholders) and agents (management). This study formulates an agency model to identify the determinants of the size of the internal audit function (IAF) in Belgian companies. Data were collected from annual reports of a large sample of Belgian companies, supplemented with survey data from Chief Audit Executives of these companies. Overall, we find a significant explanatory power for the agency model. In particular, the model reveals a positive relationship between the diffusion of ownership and the size of the IAF, confirming the monitoring role of the IAF in reducing *external* principal/agent problems. The results also indicate a positive relationship between company size as well as the number of reporting levels and the size of the IAF, suggesting a monitoring role for internal audit in reducing *internal* principal/agent problems. Both results support the growing monitoring role of internal audit in corporate governance.

Keywords: internal auditing, Belgium, agency theory, staffing size.

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Introduction

The objective of this study is to investigate the factors that are associated with the size of the internal audit function (IAF) in Belgian companies. The study is important because while internal auditing has gained increasing importance in recent years as an important corporate governance mechanism (Carcello, Hermanson, and Raghunandan, 2005a), surprisingly little is known about the factors that are associated with the size of the IAF. This is a particularly important issue for Belgium (and by extension, Continental Europe) because the internal audit profession is growing rapidly as an important corporate governance mechanism. For example, at the time of this study, Belgian companies listed on the New York Stock Exchange (NYSE) and those operating in the financial industry were required to have an IAF, but there is increasing pressure for other public companies to also have an IAF.

While the literature on the application of the agency theory to determine the size of the IAF is rare, an established line of research uses the agency theory to address the role of external auditing in organizations (cf. DeAngelo, 1981; Watts and Zimmerman, 1983). A conclusion from this literature is that the provision of audited financial statements is an effective monitoring response to agency costs. Internal auditing is also considered as a monitoring response to agency costs (Anderson, Francis and Stokes, 1993; DeFond, 1992; Ettredge, Reed and Stone, 2000). However, very few studies have used the agency theory to explain the importance of internal auditing in organizations (Adams, 1994). We use the agency theory to investigate the size of the IAF in Belgium, where the demand for internal auditing is primarily voluntary at the time of this study. The study adds to the literature in Anglo-Saxon countries that have investigated the demand for internal auditing in organizations (e.g., Anderson *et al.*, 1993; Carey, Simnett and Tanewski, 2000; Wallace and

Kreutzfeldt, 1991). We provide initial evidence from a non-Anglo-Saxon European country. Our results benefit companies interested in assessing the current size of their IAF as well as those interested in establishing an IAF for the first time.

The remainder of the paper proceeds as follows. The background literature leading to the research hypotheses are presented in the next section. This is followed by a section detailing the research method. The next two sections provide the empirical results and conclusions from our study.

Background Literature and Hypotheses

According to the agency theory a company consists of a nexus of contracts between the owners of economic resources (the principals) and managers (the agents) who are charged with using and controlling those resources (Jensen and Meckling, 1976). Agency theory posits that agents have more information than principals and that this information asymmetry adversely affects the principals' ability to monitor whether or not their interests are being properly served by agents. Furthermore, an assumption of agency theory is that principals and agents act rationally and use contracting to maximise their own wealth. A consequence of this assumption may be the "moral hazard" problem (Jensen and Meckling, 1976), where to maximize their own wealth; agents may face the dilemma of acting against the interests of their principals. Since principals do not have access to all available information at the time a decision is being made by an agent, they are unable to determine whether the agent's actions are in the best interest of the firm. To reduce the likelihood of this problem (called adverse selection) and the moral hazard problem, principals and agents engage in contracting to achieve pareto-optimality, including the establishment of monitoring processes such as internal auditing (Adams, 1994). Specifically, internal auditing is considered a bonding cost borne by agents to satisfy the principals' demands for accountability (Sherer and Kent, 1983;

Watts, 1988). Like any cost of running the business, the cost of the IAF is paid by principals to protect their economic interests. However, surprisingly we know very little about the extent of this cost to organizations. We use the agency theory to model the size of the IAF as a proxy for its cost. In the following sections we identify the variables to include in the model and state our hypotheses.

Diffusion of Ownership

DeFond (1992) and Francis and Wilson (1988) discuss the importance of the separation of ownership and control. Specifically, the more diffused the ownership of a company, the higher the divergence in preferences of the owners and managers and the lower the observability and control of agents' actions by the principals. Thus, as the diffusion of ownership increases, so does the demand for monitoring. An implication of this conclusion is that larger IAFs will be needed to monitor the owners' interests in more diffused ownership structures. Thus, we present our first hypothesis as:

H1: The size of the IAF is positively related to diffusion of ownership.

Management Share Ownership

DeFond (1992) argues that the greater the ownership interest of managers, the more closely aligned their preferences are with those of the outside owners. Since owner-managers have an opportunity for entrepreneurial gains, they have incentives to increase the value of the firm rather than shirk (Francis and Wilson, 1988). While managers typically own a relatively small proportion of their companies' shares, this proportion has increased in recent years due to the increasing popularity of stock-based compensation contracts (Bolton, Scheinkman and Xiong, 2006). The larger the proportion of ownership, the more aligned will be the interests of managers and shareholders. This is because managers with small or negligible stock ownership may engage in the moral hazard problem and allocate resources in ways that are

not consistent with the interests of non-managing shareholders (Chow, 1982). This conclusion is the basis for our second hypothesis as follows:

H2: The size of the IAF is inversely related to management share ownership.

Leverage

Jensen and Meckling (1976) argue that similar to the principal/agent problem between shareholders and management, there is a conflict between debt holders and management (also see DeFond, 1992). Specifically, as the proportion of debt in a company's capital structure increases, so does the need for monitoring through auditing (cf. Chow, 1982; Francis and Wilson, 1988). Prior research (e.g., Abdel-Khalik, 1993; Blackwell, Noland, and Winters, 1998; Chow, 1982) reports evidence in support of a positive association between the level of debt and the demand for external auditing. This result is based on the importance of accounting numbers in debt covenants, which reduces the information asymmetry between debt holders and management. As Watts and Zimmerman (1986) argue, auditor assurance reduces lenders' monitoring costs. Carcello *et al.* (2005b) report that an increased proportion of debt also affects a company's investment in its internal auditing. Thus, we posit a positive relationship between the proportion of debt and the size of the IAF.

H3: The size of the IAF is positively related to financial leverage.

Company Size

Fama (1980) used agency theory to examine the hierarchical relationships in large, multi-division companies. In this context, the company's top management is viewed as the principal who delegates responsibility and authority to subordinate managers (agents) for effective utilisation of a portion of the firm's resources, leading to the possibility of moral hazard problems between divisions and top management. Top management tries to mitigate

this problem by instituting organisational controls, including internal auditing (San Miguel, Shank and Govindarajan, 1977).

This argument suggests that there is more need for internal auditing in large multi-divisional companies than in smaller ones (Chow, 1982; Abdel-Khalik, 1993). For example, Abdel-Khalik (1993) suggests that it is more difficult for top management in larger firms to oversee the firm, which creates a greater demand for internal auditing to compensate for the loss of control. On the cost side, larger companies have opportunities to take advantage of economies of scale when investing in the fixed costs of an IAF (Anderson *et al.*, 1993). In support of these arguments, a recent paper presents a positive correlation between company size and the demand for both external and internal auditing (Carcello *et al.*, 2005b). This leads to our hypothesis 4 as follows:

H4: The size of the IAF is positively related to company size.

Number of Reporting Levels

In general, the operations of a company with only one or few levels of hierarchy are primarily controlled by means of direct supervision and personal observation. However, as companies grow, multilayered hierarchies evolve and authority is often delegated down the chain of command (Abdel-Khalik, 1993). The reduced observeability in hierarchies can cause loss of control (Williamson, 1967; Williamson and Ouchi, 1981). This loss of control is due to three factors. First, observeability of subordinates' actions decreases as the chain of command expands. Second, the longer the chain of command, the more likely that communication will become distorted (Katz and Kahn, 1966). Third, communication down the chain of command passes through several filters, which subject it to summarisation, misinterpretation, and possible intentional manipulation (Williamson and Ouchi, 1981). Thus, as the number of hierarchical levels in the company increases, the demand for monitoring also grows

(Williamson 1967). The increased demand for monitoring in turn indicates the need for a larger IAF. This is reflected in Hypothesis 5.

H5: The size of the IAF is positively related to the number of reporting levels within the company.

Organisational Complexity

Finally, organisational complexity is often associated with greater decentralisation, which in turn leads to greater demand for monitoring (Carcello *et al.*, 2005b). Wallace and Kreutzfeldt (1991) found evidence that the more decentralised the company, the greater propensity to establish an IAF. We use organisational complexity as a construct in which the effects of various factors ranging from the industry in which the company operates to mergers and acquisitions, to international operations are taken into consideration. These factors result in more internal information asymmetry problems due to various cultural backgrounds (e.g., the culture prevalent in the industry, integrating different cultures in mergers and acquisitions, and different languages in international settings). Taken together, we present our final hypothesis as:

H6: The size of the IAF is positively related to organisational complexity.

The six hypotheses listed above are summarized in Exhibit 1.

[INSERT EXHIBIT 1 HERE]

Research Method

Data Collection

We selected all Belgian companies that were known to have an internal audit function¹. We used the membership database of the Belgian Institute of Internal Auditors (IIABEL) for this purpose from which we identified 260 companies².

We collected two sets of data about each company. First, we sent a questionnaire in late 2005 to the heads of the internal audit department of the 260 target companies to collect data on the size of their department as well as data on agency variables. We followed up in early 2006 by e-mails and phone calls to improve participation. This process resulted in 85 completed responses, of which 12 were deemed unusable because they did not provide data on one or more of the agency variables. The remaining 73 questionnaires, representing 28.08 percent of the target population were deemed usable. This response rate compares favourably with recent studies of internal auditors in the US (e.g. 24.86 percent in Carcello *et al.*, 2005b)³.

Second, for the usable sample of 73 companies, we collected financial data from the following sources: for domestic Belgian companies, we used the 2005 annual reports from the Belfirst database to collect financial data. For Belgian subsidiaries of companies located in other European countries, we used the Amadeus database. Both Belfirst and Amadeus

¹ Since we are investigating the size of the IAF, by definition our study is limited to companies that have already established an IAF. A benefit from this study is to provide guidance to companies that have no IAF and are interested in establishing one in the future. The results can also help establish benchmarks for companies that already have an IAF to assess the propriety of the size of their IAF.

² To assure completeness of our database, we also used the Belfirst database (Bureau Van Dijk), containing the annual accounts of approximately 300,000 Belgian companies, to develop a list of companies that can reasonably be assumed to have an IAF (for e.g. > 1,000 employees). This search resulted in a list of 175 companies. The list was almost entirely represented by the membership database of the IIABEL. Thus, we are confident that we have reasonably identified the population of Belgian companies with an IAF.

³ Armstrong and Overton (1977) suggest comparing key constructs between early and late respondents in order to test for non-response bias. We considered late responses as a proxy for non-respondents and compared them with those received during the previous period. With one exception, the analysis revealed no significant differences (e.g., number of employees rendered $p = .737$ and total assets rendered $p = .109$). The only exception was management share ownership, which was significantly higher for the group of late respondents than early respondents ($p = .007$). However, including a dummy variable for response timing in the multi-variate regression model was not significant ($p = .140$). Thus, we conclude that the data were not affected significantly by non-response bias.

databases are published by Bureau Van Dijk in Belgium. Finally, for Belgian subsidiaries of US-based companies, we hand-collected the data from their 2005 annual reports⁴.

Variables

In the questionnaire, chief audit executives (CAEs) or heads of audit departments were asked to indicate the full-time equivalent (FTE) number of their IAF staff, excluding the number of outside service providers. To reduce variation (cf., Hair, Anderson, Tatham, and Black, 2005), we use the natural logarithm of the FTE scaled *IAF staff* as our dependent variable.

The explanatory variables of the study are as specified in the research hypotheses. Specifically, consistent with Francis and Wilson (1988), we include *diffusion of ownership* as the largest individual percentage of stock ownership at the end of 2005. The smaller the percentage, the more diffused the ownership structure. We obtained this number from annual reports⁵. *Management share ownership* is measured by the percentage of shares that was owned by managers at the end of 2005 (cf. Chow, 1982). For non-US companies, we asked for this data via the survey of the heads of internal audit departments⁶. For *leverage*, we use the standardized measure (total debt to total assets) used in the literature (Carey *et al.*, 2000; Chow, 1982). These data were obtained from the 2005 annual reports.

Consistent with the literature, we use the natural logarithm of total assets as reported in the 2005 annual report as a measure of *company size* (cf. Carey *et al.*, 2000; Chow, 1982; Wallace and Kreutzfeldt, 1991). Finally, we used the survey of CAEs or heads of internal

⁴ The dual source of data should mitigate concerns for the possibility of a common methods variance bias. According to Hair *et al.* (2005), common methods variance bias can occur when dependent and independent variables all come from a single source.

⁵ The survey of heads of internal audit departments also asked for this percentage. However, this response was used only for companies whose annual report did not reveal the data.

⁶ We assumed that CAEs, given their independent and objective position, are able to provide a reliable figure for management share ownership. Nevertheless, we agree that publicly available data would probably be more reliable.

audit departments for the *number of reporting levels*⁷ and *organisational complexity*. For example, we asked whether the industry in which the company operated was complex, whether the company recently engaged in a merger and/or acquisition, or was operating internationally. When the answer to these three questions was positive, we deemed organisational complexity to be high (value 1); otherwise, it was viewed as not complex (value 0).

In addition to the explanatory variables, we used six control variables. Since the New York Stock Exchange (NYSE) requires all listed companies to have an internal audit function regardless of the size of the company, we use a dummy variable (0/1) to control for Belgian companies that are *listed on the NYSE* or whose parent companies are listed on NYSE. Second, a control variable is used to reflect the regulatory nature of the industry. As Wallace and Kreutzfeldt (1991) argue, some industries face substantial regulatory scrutiny that may increase the need for internal auditing. For example, financial institutions are highly regulated and have compliance risks that exceed many other industries (Basel Committee, 2001). Thus, we control for this variable by including a dummy variable (0/1) for companies operating in the *financial sector* (banks and insurance companies).

Third, we control for the *age of the internal audit function*. In comparison to well-established IAFs, recently established IAFs may be smaller. Fourth, we take into account the potential impact of the *position of the IAF in the company* by including a dummy variable (0/1) indicating whether the IAF is working at corporate level or not. It can reasonably be assumed that IAFs working at corporate level would be larger compared to IAFs working on a local level. Fifth, a dummy variable (0/1) is included to indicate whether the *company is a Belgian domestic company or not*. It could be that, given the relatively low maturity of the

⁷ It should be noted that we asked the CAEs or heads of internal audit departments for the number of reporting levels within that part of the company that falls within the scope of their IAF. By doing this, we avoid CAEs or heads of internal audit departments providing the number of reporting levels within the whole group whereas their IAF only operates at local level or vice versa.

internal audit profession in Belgian, the IAFs in Belgian domestic companies are smaller than the IAFs in Belgian subsidiaries of European or US companies. Finally, we also control for the potential bias effect of *outsourcing internal audit tasks* on the size of the IAF by including a dummy variable (0/1) which indicates whether the IAF outsources a portion of their tasks or not. IAFs that are currently outsourcing a portion of their tasks would probably have a lower number of internal audit staff members, given the presence of outside service providers. Data for these control variables were collected through the survey of heads of internal audit departments.

Model Specification

Based on the variables identified above, we formulate our agency model as follows:

(expected signs are between parentheses):

$$\text{Ln (IAF_Staff)} = a_0 + a_1 \text{ Finance} + a_2 \text{ NYSE} + a_3 \text{ Age_IAF} + a_4 \text{ Position_IAF} + a_5 \text{ Belgian_domestic} + a_6 \text{ Outsourcing} + a_7 \text{ Dif_Owner} + a_8 \text{ Mgt_Stocks} + a_9 \text{ Leverage} + a_{10} \text{ Ln (Total_Assets)} + a_{11} \text{ Report_Level} + a_{12} \text{ Org_Complex}$$

Where:

Ln (IAF_Staff)	Size of the internal audit function measured by the logarithm of the number of internal auditors (FTE), excluding outside service providers
Finance (+)	Company operates in the financial sector (bank or insurance company): Dummy variable (0/1)
NYSE (+)	Company or parent company is listed on the NYSE: Dummy variable (0/1)
Age_IA (+)	Age of the internal audit function
Position_IAF (+)	Position of the IAF on the corporate level or not: Dummy variable (0/1)
Belgian_Domestic (-)	Belgian domestic company or not: Dummy variable (0/1)
Outsourcing (-)	IAF outsources part of their tasks or not: Dummy variable (0/1)
Dif_Owner (-)	Diffusion of ownership measured by the largest individual percentage of stock ownership
Mgt_Stocks (-)	Management share ownership measured by the percentage of shares owned by managers
Leverage (+)	Leverage measured by the proportion of long-term debt compared to total assets
Ln (Total_Assets) (+)	Company size measured by the logarithm of total assets

Report_Level (+)	Number of reporting levels between top management and the lowest operating unit
Org_Complex (+)	Organisational complexity measured by industry complexity, recent involvement in merger/acquisition and operation on an international scale: Dummy variable (0/1)

Results

Descriptive Statistics

Table 1 presents descriptive data about the Dummy variables used in this study. First, as presented in Panel A, 26 percent of the respondents operated in the financial sector (bank or insurance company). Second, of all respondents, 22 percent were listed on the NYSE (Panel B). Third, 77 percent of all participating IAFs were operating at the corporate level (Panel C). Fourth, Panel D shows that 44 percent of the responding companies were domesticated in Belgium. Fifth, 33 percent of the responding IAF outsourced part of their tasks (Panel E). Finally, as reported in Panel F, 26 percent of the companies in our sample were deemed to be complex organisations.

[INSERT TABLE 1 HERE]

Descriptive statistics on dependent and independent variables are presented in Table 2. As presented, the size of the IAF in our sample ranged from 1 to 130 FTE, with an average of 10.71 employees. Besides, the age of the IAF in our sample ranged from 1 to 20 years, with an average of 6.28 years. The remaining numbers in Table 2 provide descriptive statistics on explanatory variables that are investigated in the following sections through multi-variate analysis.

[INSERT TABLE 2 HERE]

Multi-variate Statistics

Table 3 presents a correlation matrix for independent and control variables. All correlation coefficients are below |.468|. All tolerance values are higher than 0.5, which is above the common cut-off threshold. All variance inflation factor values are below the threshold of 2. Hence, multi-colinearity is not a significant problem (Hair *et al.*, 2005).

[INSERT TABLE 3 HERE]

The ordinary least square (OLS) regression analysis was used to simultaneously test for the effects of various explanatory and control variables. The results are presented in Table 4. Only control variables are included in Model 1, while all agency variables and control variables are included in Model 2. Model 1 is significant (F-value = 5.678, $p = .000$) and explains 31 percent of the size of the IAF.

[INSERT TABLE 4 HERE]

Model 2 in Table 4 tests the agency model and returns a highly significant result (F-value = 15.330, $p = .000$) that explains 73 percent of the size of the internal audit function. This statistic compares favourably with those reported in prior studies (Anderson *et al.*, 1993; Carcello *et al.*, 2005b; Carey *et al.*, 2000; Chow, 1982). For example, in comparison to our adjusted R^2 of 73 percent, the R^2 reported by Carcello *et al.* (2005b) was 43 percent⁸.

The OLS regression Model 2 provides support for three of the six hypotheses. Specifically, we find a highly significant ($p = .003$) negative coefficient, thereby confirming a negative association between the largest percentage of individual share ownership, being a

⁸ While Carcello *et al.*'s (2005b) dependent variable was internal audit budget; ours was the size of the IAF. These two constructs are theoretically positively correlated.

proxy for diffusion of ownership, and the size of the IAF (H1). In other words, the more diffused the ownership structure of the company, the larger the IAF.

The next variable supported by Model 2 is company size (H4), which is a highly significant explanatory variable ($p = .000$), indicating that the larger the company, the larger the IAF. The number of reporting levels (H5) is also statistically significant ($p = .034$), thus, the larger the number of reporting levels within the company, the larger the IAF. The remaining three variables, management share ownership (H2), leverage (H3), and organisational complexity (H6) were found to be insignificant variables for the size of the IAF.

Of the control variables in Model 2, only one was highly significant. Specifically, companies listed on the NYSE have significantly larger IAFs than the remaining companies in our sample ($p = .014$). Also, marginal support was found for the assumed negative impact of outsourcing internal audit tasks on the size of the IAF. The marginally significant negative coefficient ($p = .064$) indicates that IAFs that outsource part of their tasks have a lower number of internal staff.

Additional Analysis

In order to test the robustness of the results, alternative measures were included in the agency model. First, total debt was replaced by long-term debt to measure *leverage* (cf., Carcello *et al.*, 2005b; DeFond, 1992; Francis and Wilson, 1988), which leads to the same results⁹. Second, Ln (total assets) was replaced by Ln (total revenues) to measure *company size*, which also leads to the same results for the agency variables¹⁰. Third, the three dimensions of *organisational complexity* (high industry complexity, recent involvement in

⁹ Adjusted R² of 72 percent ($F = 14.957$; $p = .000$); significant variables: NYSE ($p = .004$), Outsourcing ($p = .045$), Diffusion of Ownership ($p = .045$), Company Size ($p = .000$) and Number of Reporting Levels ($p = .040$).

¹⁰ Adjusted R² of 64 percent ($F = 10.179$; $p = .000$); significant variables: Finance ($p = .000$), NYSE ($p = .018$), Diffusion of Ownership ($p = .025$), Company Size ($p = .000$) and Number of Reporting Levels ($p = .036$).

mergers/acquisitions and operations on an international scale) were included as separate variables instead of an aggregated variable, which leads, again, to the same results¹¹.

Given that NYSE listing was the only significant control variable in Model 2, we ran the same agency model without the 16 NYSE listed companies to check the remaining explanatory power of the agency variables. The adjusted R² decreased to 58 percent (F = 7.229; p = .000), which was still reasonable. Diffusion of ownership (p = .037) and company size (p = .000) remained highly significant variables in the expected direction, whereas the number of reporting levels became only marginally significant (p = .097) in the expected direction.

Summary and Conclusions

Exhibit 2 summarises the major findings from our study. We find evidence that three agency variables are significantly related to the size of the internal audit function (IAF) in Belgian companies. In particular, we find that larger IAFs are needed to monitor the owner's interests in more diffused ownership structures. This result complements prior studies showing that external auditing plays a monitoring role in reducing *external* principal/agent problems (DeFond, 1992; Francis and Wilson, 1988). This result is also in line with the literature suggesting that internal and external auditing are complementary in reducing principal/agent problems (cf. Ettredge et al., 2000) and that the monitoring role of internal audit in corporate governance is growing (Carcello et al., 2005a; San Miguel *et al.*, 1977).

[INSERT EXHIBIT 2 HERE]

¹¹ Adjusted R² of 73 percent (F = 12.376; p = .000); significant variables: NYSE (p = .016), Outsourcing (p = .039), Diffusion of Ownership (p = .003), Company Size (p = .000) and Number of Reporting Levels (p = .040).

Our second major finding is that companies characterised by a larger number of reporting levels also have larger internal audit functions. Executives of these companies may need the large IAF to deal with their own limited information in monitoring the affairs of their companies (Williamson 1976; Williamson and Ouchi, 1981). Our third finding indicates a significant positive relationship between company size and the size of the IAF, which is also in line with prior research (Anderson et al., 1993; Carcello et al., 2005b).

Results related to control variables indicate that companies (or their parent company) that are listed on the NYSE have significantly larger IAFs. This finding may be a consequence of recent legislation in the United States (e.g., the Sarbanes-Oxley Act of 2002) that requires strengthening the corporate governance of public companies. Finally, as expected our results indicate a negative relationship between outsourcing internal audit tasks and the size of the IAF. Future research may be needed to document the cost-benefit trade offs between expanding the IAF and outsourcing internal audit tasks.

A major limitation of our study is that our sample is limited to Belgian companies. To the extent that Belgian companies are similar to other countries in Continental Europe, one can generalize our results. For example, the positive relationship between company size and the size of the IAF is most likely generalizable to other countries in Europe. However, other variables such as reporting levels may require additional data from other countries. Due to the subjective nature of organisational complexity, investigation of more refined measures of organizational complexity in the future may also be needed. Related to organizational complexity is the risk profile of the organisation that could benefit from the monitoring role of the internal audit function. Consideration of this variable in future research may be a fruitful avenue to provide more refined guidance on the size of the IAF in European countries.

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Exhibit 1:
Relationship between Agency Variables and the Size of the Internal Audit Function

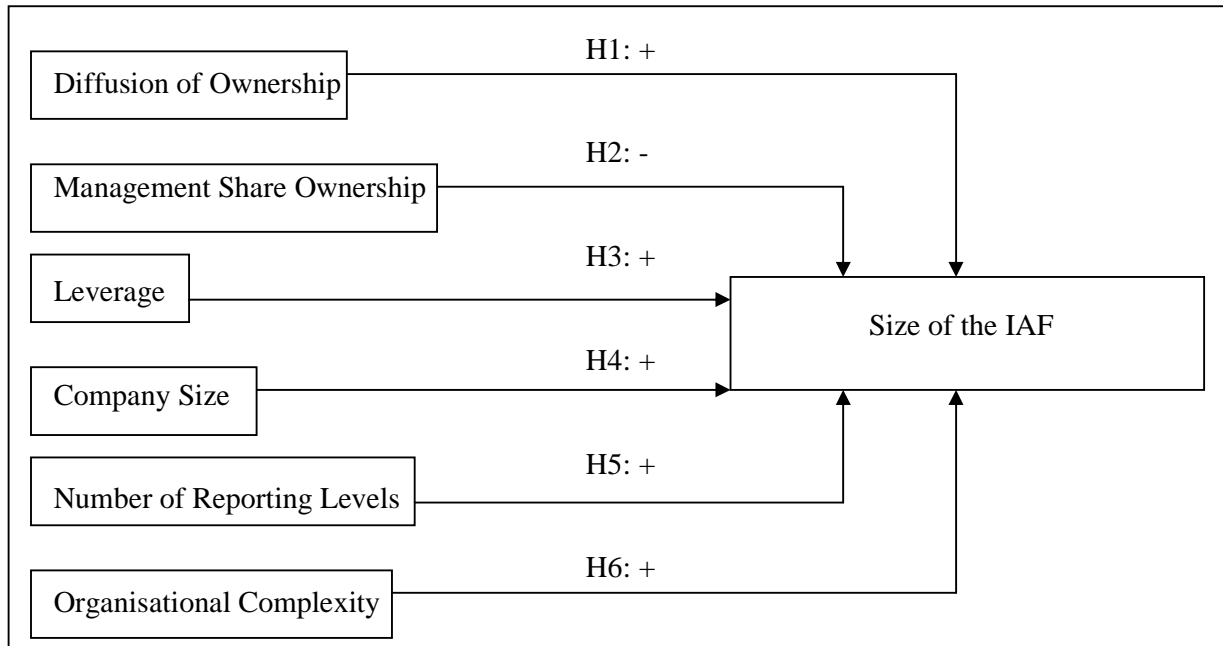


Exhibit 2: Supported Relationships

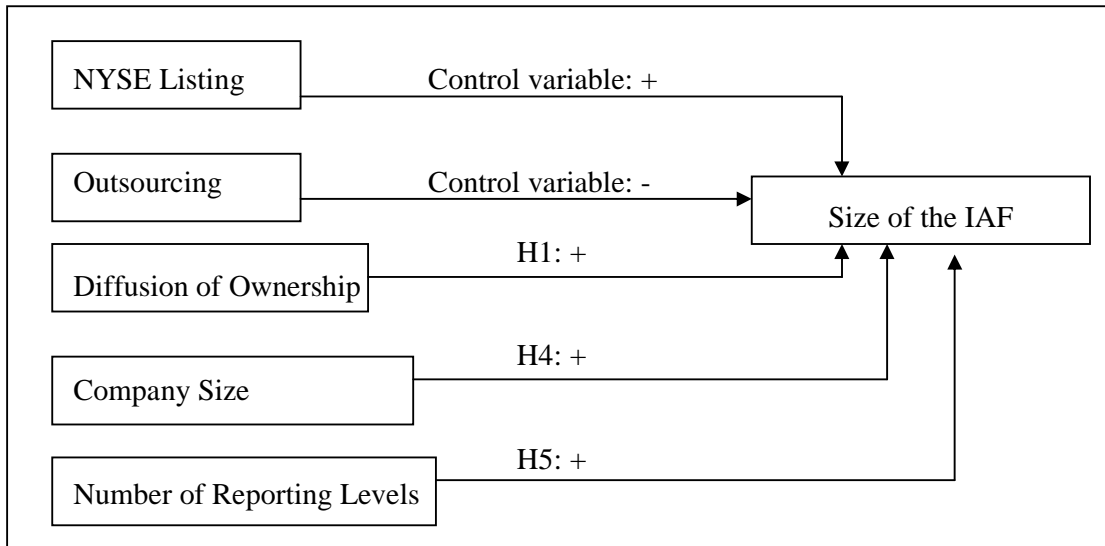


Table 1: Descriptive Statistics for Dummy Variables (n = 73)

	Frequency	Percentage
<i>Panel A : Industry</i>		
Production, energy, utilities	23	31.6%
Telecom, IT, media, entertainment	9	12.3%
Trade, Transport, logistics	9	12.3%
Professional services	13	17.8%
Financial services and insurances	19	26.0%
	73	100%
<i>Panel B : NYSE listing</i>		
Company or parent company listed on the NYSE	16	21.9%
<i>Panel C: Position IAF</i>		
IAF operating at corporate level	56	76.7%
<i>Panel D: Origin of the Company</i>		
Belgian domestic company	32	43.8%
<i>Panel E: Outsourcing</i>		
IAF outsources part of their tasks	24	32.8%
<i>Panel F: Organisational Complexity</i>		
High organisational complexity	19	26.03%

Table 2: Descriptive Statistics for Dependent and Independent Variables (n = 73)

	Min.	Max.	Mean	S.D.
Number of internal auditors	1	130	10.71	21.19
Ln (Number of internal auditors)	0	5	1.42	1.26
Age of the internal audit function	1	20	6.28	5.02
Diffusion of ownership (largest individual percentage of stock ownership)	5.16	100	63.32	29.16
Management share ownership	0	62.65	4.55	10.67
Leverage (total debt / total assets)	10.02	96.99	67.51	21.89
Total assets (in 000 Euro)	9 659	508 761 000	107 000 000	71 834 776
Ln (Total assets)	9	20	14.19	2.07
Number of reporting levels between top management and lowest operating unit	1	10	4.38	1.93

Table 3: Correlation Matrix

	Finance	NYSE	Age_IA	Position_IAF	Belgoan_Domestic	Outsourcing	Dif_Owner	Mgt_Stocks	Leverage	Ln (Total_Assets)	Report_Level	Org_Complex
Finance	1											
NYSE	-.088	1										
Age_IA	.026	.183	1									
Position_IAF	-.264*	.057	.256*	1								
Belgoan_Domestic	-.084	-.468**	.019	.356**	1							
Outsourcing	-.001	.035	.112	.041	.083	1						
Dif_Owner	.115	.029	-.123	-.192	-.183	-.088	1					
Mgt_Stocks	.147	-.098	-.007	.003	.105	-.035	-.173	1				
Leverage	.422**	-.145	.076	-.095	-.141	.074	-.090	.047	1			
Ln (Total_Assets)	.297*	.285*	.244*	.223	-.160	-.090	-.094	-.184	.463**	1		
Report_Level	-.282*	.257*	.462**	.297*	-.119	-.041	-.063	-.072	.108	.389**	1	
Org_Complex	-.067	.214	-.015	.179	-.084	.081	-.296*	-.035	.214	.365**	.061	1

* : p < .05 ** : p < .01

Table 4: OLS Regression Analysis (n = 73)
 Dependent variable: Ln (IAF_Staff)

	Expected Sign	Model 1 Control Variables			Model 2 Agency Variables		
		Coefficient	T-value	p-value	Coefficient	T-value	p-value
Finance	+	.104	.943	.349	.013	.143	.887
NYSE	+	.372	2.921	.005	.216	2.548	.014
Age_IA	+	.210	1.873	.066	.045	.524	.603
Position_IAF	+	.316	2.566	.013	.056	.668	.507
Belgian_Domestic	-	-.029	-.216	.830	.061	.693	.492
Outsourcing	-	-.198	-1.881	.065	-.130	-1.893	.064
Dif_Owner	-				-.224	-3.101	.003
Mgt_Stocks	-				-.108	-1.364	.178
Leverage	+				-.096	-1.206	.233
Ln (Total_Assets)	+				.604	6.747	.000
Report_Level	+				.193	2.175	.034
Org_Complex	+				.052	.692	.492
R ²			.370			.780	
Adjusted R ²			.305			.729	
F-value			5.678 (p = .000)			15.330 (p = .000)	