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Self-perception of the internal audit function within the corporate governance system – empirical evidence for the European Union

Abstract

Internal audit (IA) is theoretically considered a key element of modern corporate governance. Surprisingly, the existing knowledge on IA and its relation to the internal corporate governance structure is miscellaneous and rare. Consequently, empirical findings on the internal audit function (IAF) within companies' corporate governance framework in the European Union (EU) are scarce. Due to this, the objective of the empirical analysis is to draw conclusions on the structural and process organization of the IAF within the overall corporate governance structure and the IAF's cooperation with the audit committee (AC). Based on data from 3,294 responses from the 2010 Common Body of Knowledge (CBOK) study on 26 EU-member states conducting structural equation modeling the authors find that IA is an important mechanism of corporate governance structures. IA creates "value added" for the company either within the meaning of revealing problems and grievances or in the sense of precautionary measures. It is a powerful element for management supervision in the one- and two-tier system.

Keywords: corporate governance, internal auditing, audit committee, risk management, structural equation model.
JEL Classification: M42, G34, G32, M40, G30.

Introduction

The role of IA in modern corporate governance is undisputed in both management theory and business practice and implies strong interaction with the AC, which is i.e. highlighted by standards set by the European Commission (EC). In the highlight of the recent financial crisis, EC has announced extensive reforms to improve the quality of corporate governance (EC 2011) and aims to strengthen the role of IA and AC within corporate governance structures. Despite the theoretical and practical relevance of IA within corporate governance only little empirical research has been conducted in this field so far.

Based on 3,294 responses of the 2010 CBOK study from 26 EU-member states, we analyze the position of the IA within corporate governance and its cooperation with the AC. Herein, we draw conclusions on the structural and process organization of the IA within the overall corporate governance structure and the IA's cooperation with the AC. Utilizing a structural equation model, we analyze the relationship and interaction of IA with other corporate governance bodies. Thereby, we prove the influence of the IA on the design and achievement potential of corporate governance in the European Union.

Our study is structured as follows: based on the principal agent theory section 1 explains the function of IA within the corporate governance system and the necessity for an AC. Section 2 presents a state of the art analysis of empirical corporate governance research on the position of IA and the interaction with the AC. Considering the impact of corporate governance activities on firm performance, we examine prior findings on the cooperation between IA and AC. Additionally, prior studies on the integration of IA in risk management and internal control systems are integrated. On this basis, we develop the hypotheses to be tested in our empirical analysis in section 3. In section 4, we describe and specify our research design and the empirical framework and present our results. We discuss our findings in section 5 and derive statements on the position of IA in corporate governance systems in the EU.

1. Internal audit function based on the principal agent theory

The economic requirement to establish an IAF is consistently confirmed by means of the principal agent theory (Anderson et al., 1993; DeFond, 1992; Ettredge et al., 2000; Sarens & Abdolmohammadi, 2011). Hence, the two-staged model developed by Tirole (1986) is of particular importance as an extension of the traditional one-staged concept designed by Ross (1973) and Jensen and Meckling (1976). The two-staged model incorporates not only principal and agent, but also an independent supervising entity. Generally, the shareholders are identified as the principals, who provide the joint stock company with the necessary financial resources (Lentfer, 2005; Petersen, 1989). Due to a lack of available resources in terms of time and professional knowledge, the shareholders delegate their managing function to the executive board (two-tier system) or board of directors (one-tier system), which thereby acts as their agent and is subject to reporting obligations (Jaschke, 1989; Semler, 1995).

Likewise, internal control is assigned to either the supervisory board (two-tier system) or the board of directors (one-tier system). In each system the implementation of an AC serves to render the supervisory activity more effective through the concentration of expert knowledge. In the one-tier system, the executive board is responsible for the daily business. From the perspective of the supervisory board or the non-executive members of the board, the management board or the executive directors can similarly be considered as agents (Welge & Eulerich, 2012). According to the principal agent theory, there are essential information asymmetries and conflicts of interest between management and shareholders, which lead to a risk of adverse selection and moral hazard (Jensen & Meckling, 1976; Jensen & Smith, 1985).

In contrast to the external audit, IA is usually an intra-company (staff) department, which performs audit and advisory services for the management at all levels of the company. Through the provision of effective support to the management in the framework of bonding and monitoring, IA constitutes an important element of the company's internal corporate governance (Freidank & Pasternack, 2011; Sarens & Abdolmohammadi, 2011). Thereby, the design of IA depends particularly on company specifics such as industry, size, scope of international operations and capital market orientation. According to Wallace & Kreutzfeldt (1991), firm size, the density of regulation and market competitiveness are main drivers for the development of an IAF. Similarly, Goodwin-Stewart & Kent (2006) observe that there is a positive relationship between the establishment of an IAF and firm size as well as risk management activities. The purpose of independent and impartial audit and advisory services is to create both, additional value for the organization and to enhance its business processes. Yet, the Institute of Internal Auditing (IIA) requires compliance with the professional principles of integrity, impartiality, confidentiality and professional expertise (Bungartz, 2011).

In the two-tier system, the IAF is to be considered as an agent of the management board. The management board is responsible for the establishment and maintenance of IA. On behalf of the management board, the IAF is assigned to supervise the board's subordinate bodies and, among other things, evaluate the internal control system (Schartmann & Lindner, 2006). In addition, the supervisory board or the AC has to supervise the IA in order to ensure adequate management of the IA by the executive board. However, the competencies of the AC in the two-tier system are not as comprehensive as in the one-tier system, since certain tasks cannot be transferred into the twotier system as a result of the separation into two responsible bodies (Velte, 2009). In particular, direct informational access to the results of the IAF by the supervisory board or the AC is not possible unless the executive board has given its prior consent to such a practice. Consequently, the restricted supply of information to the supervisory board or AC represents an essential disadvantage of the two-tier system. A way to improve the level of information access and cooperation between IA and supervisory board is the adoption of internal information regulations as part of the executive board's internal rules and regulations (Warncke, 2005; Velte, 2011). Within these internal information regulations, issues such as the timely submission of internal audit reports, the participation of the head of IA in supervisory board meetings, and the degree of access to information by the supervisory board can be defined (Kropff, 2003; Huwer, 2008). Moreover, the executive board can be obliged by means of such internal information regulations to submit comprehensive and timely reports to the IAF and the supervisory board. This shall be done prior to the adoption of new organizational procedures and the adoption of new audit and operational schedules, respectively (Huwer, 2008).

On the contrary, the IAF in the one-tier system is qualified as an agent of the board of directors, as the board bears the responsibility for its establishment and maintenance. IA among other things (on behalf of the board) supervisesthe executive directors. This function cannot be delegated. Analogously to the executive board's role in the two-tier system, the board members in the one-tier system are required to supervise the IAF. However, this responsibility is usually delegated to the AC.

2. Empirical corporate governance research on IA

2.1. Cooperation between IA and AC. Previous empirical corporate governance research mainly focused on the relation between IA and AC. Besides effectiveness and efficiency considerations, close cooperation between IA and AC can be motivated economically in line with lean audit. In accordance with this concept, company internal supervision needs to be rationalized in order to be efficient by using synergy effects and avoiding double audits. Expected time saving combined with an ongoing observation of the required quality level meets the capital market's demand for fast information, i.e. for fast close. As a result of stressing the AC's obligation to perform the audit independently and on its own responsibility, however, lean audit can be fulfilled only partially as far as the adoption of results from IA is concerned. In this context, the IA must not replace the activities of the AC and

incentives for the uncritical acceptance of internal audit results by the AC must be encountered.

The fact, however, that the AC partially draws on results from the IAF to perform its audit obligations has been investigated empirically, for instance, by Gramling & Hermanson (2006) as well as McHugh & Raghunandan (1994). In this respect, the relationship is qualified as "symbiotic" in a way that effective AC strengthens the quality of IA and, vice versa, an impartial IA supports the AC for example in identifying critical developments and events in the organization as early as possible (Abbott et al., 2010). However, this requires full independent members of the AC, which is so far only fact on the US capital market as a result of the Sarbanes-Oxley-Act (SOA) (Velte, 2009). In contrast, the EC has the minimum requirement of at least one independent member in the AC. In its recent EC regulation proposal of 2011, capital market oriented organizations shall implement ACs with primarily independent members. Respectively, Raghunandan et al. (2001) provide empirical evidence that ACs with fully independent members and at least one financial expert do share informationbetter with the Chief Executive Auditor (CEA) than those who do not have. Furthermore, the authors provide evidence that they have a higher ability to evaluate the audit results of the IAF. In addition, according to Sarens & Abdolmohammadi (2011) a substitutive relationship between the independent board members and IAF can be identified.

Mat Zain et al. (2006) demonstrate a positive link between the IAF's supervision of the financial accounting process, independence and financial expertise on the AC and the AC's supervision of the IA. Additionally, Carcello and Neal (2000) determine that there is a positive link between the supervision of the IA's budget by the AC and the amount of this budget. Furthermore, the fact that both parties are able to enhance the quality of their supervision activity by means of constructive cooperation was proved empirically by Goodwin & Yeo (2001). At the same time, a close relationship between AC and IAF can essentially increase conflicts with management, which, in turn, does not regard the IAF as a critical monitoring body, but only as an assistant providing advisory services ("value added" services) (Gray, 2004; Anderson, 2003; Hermanson & Rittenberg, 2003). In particular, conflicts can be a result of the IAF's reporting to the management and the AC. Although, direct reporting by the IAF to the AC has a positive impact on the IAF's independence and impartiality. This procedure can create latent mistrust of the management against the IAF and prevent the necessary supply of information from management to IAF (Cohen et al., 2004).

2.2. Integration of IA into risk management and internal control system to realize "value added" (three lines of defense model). As mentioned earlier, the role of IA is traditionally limited to monitoring and supervision. However, recent past has revealed that the IAF might also be a value driver for firm performance (Arena & Azzone, 2009). In IIA's opinion, the core function of the IAF is the provision of impartial advice to the management with regard to risk management and improvement of operational processes (IIA, 2004). The IA's task is to support management in unveiling and controlling key risks and, moreover, ensure the effectiveness of the internal control system. Thus, the quality of the internal audit process is supposed to contribute to the avoidance of critical developments and events within the company (Ge & McVay, 2005; Krishnan, 2005; Verschoor, 2002). This is also stressed by the self-assessment of Chief Financial Officers (CFO) and Chief Executive Officers (CEO). They identify the provision of support to the management in further developing the risk management as the IAF's main task (Griffiths, 1999; Sarens & De Beelde, 2006). Arena & Azzone (2009) underline the competences of the IAF, its integration into the risk management, and its level of cooperation with the AC as main factors for an effective IA activity. However, the potential value added within the control-relevant aspects of the IAF is not always supported by management (Gray, 2004; Anderson, 2003). Nonetheless, a one-sided orientation towards lowering costs and insufficient equipment of the IAF with relevant resources can often be recognized.

Hence, the position of the IAF is the one of a supervisory entity in the so-called three lines of defense (TLoD) model. The TLoD model summarizes the effectiveness of company-wide controls and the internal control system for the company management and the company supervision, more precisely, for the executive and the supervisory board (ECIIA, 2011). The TLoD model comprises the classic operational controls (1st line of defense), the internal control system (ICS) including risk management and compliance (2nd line of defense) and the IAF (3rd line of defense) (ECIIA, 2011).

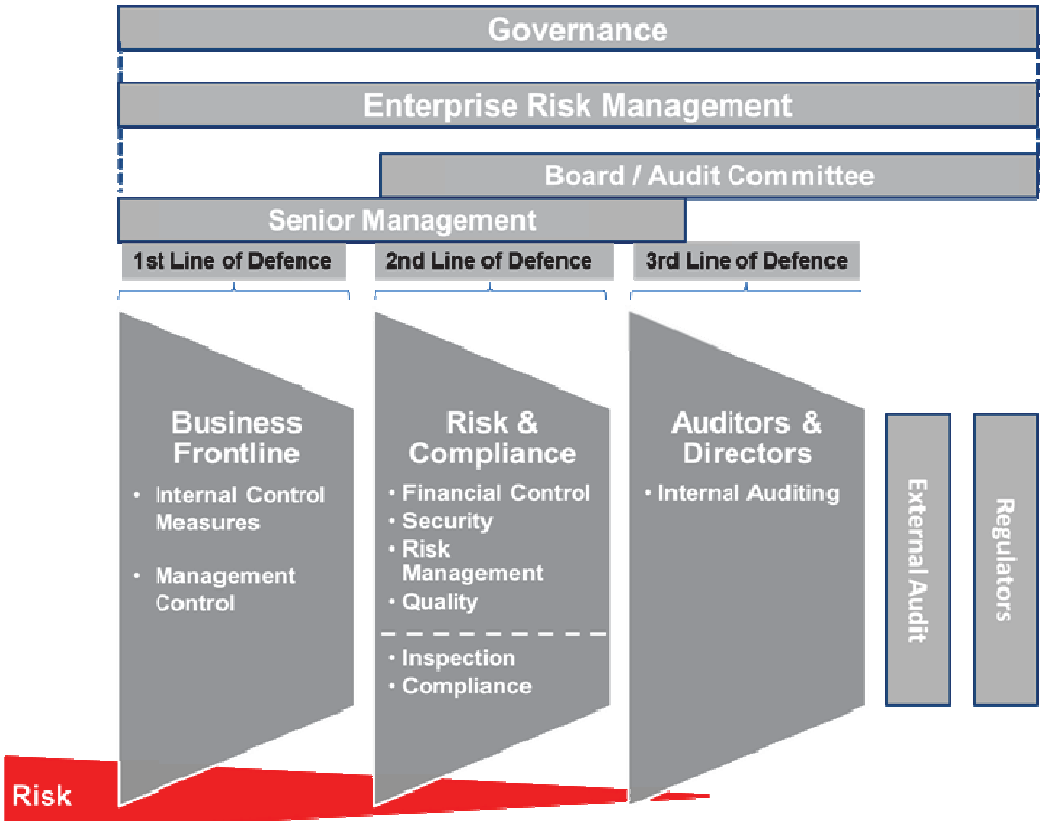

Fig. 1. TLoD model and risk management

In combination with the board and the AC, this structure constitutes the company's internal governance structure. The central role of IA within the TLoD model is to present a summarizing report on the performance of internal control processes (ECIIA, 2011) to the board of directors as well as the supervisory board. Consequently, IA serves as a representative for the interface between the individual supervisory bodies presented by the separate defense lines and the responsible management units and controls, respectively (ECIIA, 2012; Eulerich, 2012).

The first line of defense thereby comprehends the basic controls within the operative entity. The organizational motivation generates the basis for increasing short and long-term efficiency and effectiveness of these operative entities and processes, supported by adequate controls. These controls are, for instance, conducted by managers of mid hierarchy levels, who typically have a direct influence on the particular areas, or by automatic control systems (i.e. IT). This first element of the TLoD model assures that a hierarchally superior authority supervises each of the company's areas and departments. The thereby conducted controls and utilized control mechanisms are constantly adjusted to the company's risk-policy. Those risks, which are identified through these controls and which have not been determined before, are further defined and considered within these control mechanisms. Moreover, the responsible hierarchical authority is informed. Hence, through the mentioned control mechanisms organizational risk is mostly reduced.

The second defense line is in charge of regulations and monitoring the operative control entities. The general requirements to control the operative entities are given and governed through "Risk Oversight" or "Risk Guidance". Not only one corporate unit is responsible for this task, but numerous units are part of this line. These units incorporate controllership, risk management, compliance, enterprise security and plant security, as well as IT-security and HR. However, these units do not only manage the operative controls and control mechanisms revealed in the reports of the first line of defense. They also influence the corporate risk policy and the resulting control functions. In summary, the second line of defense combines both, it integrates the results of the operative entity and takes particular measures to further reduce the amount of risk. In addition, these results are passed on to the corporate management and supervision, which denotes a further reduction of risk.

The function of the third and last internal defense mechanism is mainly to identify possible residual risks that were not detected by the first two defense lines and, therefore, to minimize the organization's

total risk. An independent authority thus supports the board of directors and supervisory board in controlling and monitoring possible residual risks. Above all, the authority is responsible for the effectiveness of the previous defense lines. All these duties are administered by the IAF. Therefore, IA incurs not only a monitoring and advising function for the responsible boards of the organization, rather it is in charge of supervising the prior defense lines. Due to the separate positioning within the organization, IA is the final instance within the TLoD. Summarizing, its key role is to control the previous lines of defense and, if necessary, to adjust those based on the results presented in the report, to further minimize existing risks, and to support the organizational supervision and control.

3. Hypotheses and research design

3.1. Hypotheses. Current scientific knowledge on the structure of IA within the corporate governance system is scarce and diverse. This might due to the fact that researchers have mainly devoted their research to the relationship between IA and external audit (e.g. Brody et al., 1998; Grant et al., 2009; Desai et al., 2010). Only few studies have investigated the mechanism of IA and AC (see section 2.1). In this context, Krogstad et al. (1999, p. 29) declare that the major issue of IA is "bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes". However, IA is an integral part of good corporate governance in practice, only a few studies assess this empirically.

Based on the economic justification for the implementation of IA by the principal agent theory (section 1), the key hypotheses of our empirical research shall be derived in the course of this section. Since studies sharing the principal objecttives of our present analysis are basically still inexistent, the derivation of hypotheses shall take place in an iterative manner and on the basis of previous scientific findings presented in section 2. For this purpose, the relationship between IAF and AC is analyzed in a first step before the relationship with the governance structure is established in a further step.

The reason why AC shave an interest in avoiding financial misstatement is twofold with a reputational and a legal component (Sarens et al., 2000). The members of the AC wish to build a reputation as experts in decision control, which itself is likely to be determined by the quality of the internal control function (Srinivasan, 2005; Beasley, 1996). Yet, AC service may bear an increased risk of reputational damage, if financial misstatement occurs (Srinivasan, 2005). In addition, if financial misstatements are detected, AC members may face litigation risk. In conlusion, AC work should increase the overall audit quality (as a conjunction of internal as well as external audit efforts) in order to avoid financial misstatement (Abbott & Parker, 2000; Carcello & Neal, 2000).

As a basic principle, two different explanations are possible to determine the position of the IAF within the corporate governance structure. Firstly, IA supports the AC and therewith the management supersivion (Turley & Zaman, 2004; Hahn et al., 2008), e.g. regarding topics such as fraud, safeguarding of assets, and integrity of financial information. Secondly, the IAF is an integral part of the corporate governance structure on its own. Both notions underlie several determinants, which have to be integrated in our model.

To act conductively, the IAF first of all needs to be organized adequately. Especially, as far as the interaction with the AC is concerned, options for organization are possible, in which the AC can influence the activities of the IAF for instance through (1) the reporting line, (2) by appointing the CAE (one-tier system) or making this appointment subject to its approval (two-tier system), or (3) an assessment of IA activity.

Prior literature suggests that beneficial effects of the IAF as part of the corporate governance structure mainly arise from the IAF's interaction with other gorporate governance bodies, such as the board of directors and the AC (Sarens & Goodwin, 2003; Ratcliffe, 2009). In particular, the IAF can be considered as the last mechanism in the TLoD model counteracting diverse business activity threats (Eulerich, 2012). A constituting element of an effective IAF in the corporate governance system concerning this model is the close interaction between IA and AC, which becomes especially prevalent in presence of audit findings (Eulerich & Theis, 2012; Raghunandan et al., 2001).

Additionally, compliance with the four professional principles of the IIA (independence, integrity, impartiality, confidentiality) leads to better co-operation with the AC, since it provides the IA with an acknowledged position in the corporate governance structure (Abbott et al., 2010; Gramling & Hermanson, 2006). These interaction effects lead to the following hypotheses:

$H_{1.1}$: The IAF cooperates closely with the AC enhancing the IAF's compliance with professional standards ("professional ethics").

$H_{1.2}$: The IAF cooperates closely with the AC enhancing the IAF's organization through a structural component ("organization").

Furthermore, as a result of the close cooperation described in $H_{1.1}$ and $H_{1.2}$, the AC becomes a more efficient corporate governance body within the overall system. Thus, there is a positive effect on the overall efficiency of the corporate governance structure. For instance, this increase in efficiency in the governance system can be perceived by an enhanced level of information provided by the AC to the IAF. Moreover, an AC receiving support from IA obtains a stronger position in the framework of the TLoD model as mentioned earlier. Therefore, hypothesis H_2 shall be tested:

$H_{2.1}$: Close cooperation between IA and AC enables the AC to have a positive influence on the internal corporate governance structure.

$H_{2.2}$: Close cooperation between IA and AC enables the AC to have a positive influence on the TLoD model.

$H_{2.3}$: Close cooperation between IA and AC enables the IA to provide added-value to the company.

Compliance with the professional standards of the IIA determines the practical activity of the IAF with respect to effectiveness and efficiency. This helps firms to improve their corporate governance structure and to guarantee companies' functional capability of the TLoD model. Furthermore, the professional orientation of IA activities provides added monetary and non-monetary value to the company for instance through better revelation of inefficiencies, errors or fraud. Carcello et al. (2005) present that an efficient and effective IAF is essential for the company's success.

In this context, prior studies show that a supportive control environment can have a significant and positive effect on the relative size of the IAF (Sarens & Abdolmohammadi, 2011). The authors understand this as a proxy for the relative importance of the IAF in organizations. An internal control framework, recommended by the IIA standards, within the company should thus have a positive influence on the overall corporate governance structure, which leads to the following hypotheses:

$H_{3.1}$: Compliance with professional IA principles helps the IA to enhance the corporate governance structure.

$H_{3.2}$: Compliance with professional IA principles helps the IA to enhance the TLoD model.

$H_{3.3}$: Compliance with professional IA principles helps the IA provides added-value to the company.

The organization of the IA influences the functional capability of the IAF. Through a corresponding structural connection with the overall organization, the IAF is able to act more effectively and, therefore, guarantees the functional capability of the TLoD model and thus ensures the improvement of the corporate governance structure. The management's intention for a value-adding and productive organization of the IAF is also highlited by other authors (Gray, 2004; Anderson, 2003; Hermanson & Rittenberg, 2003). Thereby, not only those activities of the IAF that generate immediate cost savings should be undestood as "value-adding" (to which management could tend) but also those, which might develop their effect in a longer perspective (Gray, 2004; Anderson, 2003; Hermanson and Ritterson, 2003). As determined by the following hypotheses, a structured IA organization provides added value to the company, since the audit processes are implemented more efficiently (Arena & Azzone, 2009):

$H_{4.1}$: A structured IA organization enhances the corporate governance structure.

$H_{4.2}$: A structured IA organization enhances the TLoD model.

$H_{4.3}$: A structured IA organization provides added value to the company.

3.2. Theoretical constructs and measures. The hypotheses can be concretized in six different constructs (see Figure 2) and categorized in three distinct dimensions. These dimensions are:

1. A practical ("professional ethics") and a structural component ("organization") of the internal audit function;
2. The relationship between AC and IAF ("co-operation");
3. An "output" dimension that describes the different possible achivements or benefits of an effective IAF from three perspectives. These three perspectives should answer the questions: "Is there a value-added by IA?" ("value added"); "Does IA improve the governance function?" ("governance"); "Does IA proof and improve the TLoD?" ("three lines of defense")

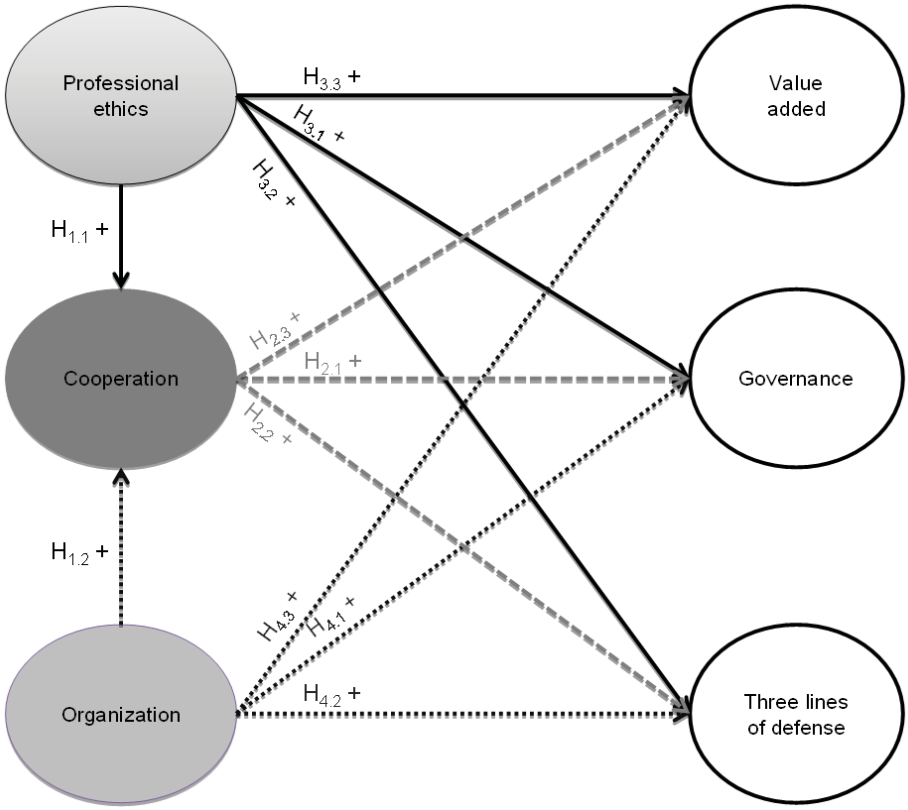

Fig. 2. Overall model including all individual hypotheses

To get a closer look at these constructs, the following explanations may clarify the issues in more detail and show additionally the relevant measures.

Four indicators constitute the construct "professional ethics" (see Table 1 for a detailed desciption of all indicators and constructs). We have drawn the corresponding intuition from different sources:

First, the latest IA definition suggests that IA provides assurance and consulting activity in order to evaluate and improve the effectiveness of risk management, control and governance processes (IIARF, 2011, p. 2): "*Internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes*". Consequently, we included the indicators "independence" and "objectivity" in our structural equation model.

Second, as Ramamoorti (2003) argues, it remains the IAF's task to develop an understanding of its own beneficial effect for the company. Thus, the indicators "suffiecient status" and "credibility" were included into the structural equation model, which reflect how well the IAF has met this target of communicating its prerequisite.

To underline the construct "organization", we have included five indicators that describe different aspects of the IAF's structural integration within the company, and specifically regarding its relation to the AC. First, the indicators "appointment" and "evaluation" on the one hand and, second, "signature" on the other hand describe, first, the AC's competencies concerning the IAFand, second, its responsibility for the IA's output. In addition, the indicators "report line" and "written report" indicate the IA's obligations towards the AC.

The indicators that reflect the construct "cooperation" (with indicators "regular meetings", "regular private sessions", "additiational private sessions" and "appropriate access") denote the frequency and the intensity in which the IAF interacts with the AC and thus reflect the level of cooperation.

As described earlier, we have identified three "output" dimensions, which describe the different possible achivements or benefits of a working IAF. The most direct output-realted construct "value added" is constituted by a single identically named indicator variable, which reflects to what extent the surey respondent consideres his or her IAF as value adding to the company[1].

[1] A detailed sample definition regarding the survey respondents follows in the course of this paper (see section 3.2)

Moreover, the construct "governance" is reflected by the indicators "better governance" and "integral part of corporate governance", with which we try to shed light on the question in how far the IAF improves the governance structure.

Lastly, the indicators for the construct "three lines of defense" were drawn from the associated literature (Eulerich, 2012). This specific model incorporates three different lines of defense against (business-) risks, as mentioned earlier: traditional operational controls (1st line of defence), the internal control system (ICS) with tasks such as risk management and compliance (2nd line of defence) and internal auditing (3rd line of defence). Thereby, it is the IAF's obligation to not only provide direct supervisory support to its principal (in general the board/AC), but also to facilitate the efforts on the lower levels of defense. The three indicators "governance process", "risk management" and "internal control" thus illustrate to what extent the IAF has adopted its role in a way that is considered as beneficial for the organization's governance system in terms of the model's implications.

3.3. Data collection. The present study draws on data from the CBOK study, which was conducted in 2010 on behalf of the research foundation of the IIA (see IIA 2010). Within the CBOK study, a data basis of 13,582 evaluable questionnaires from 107 countries was generated. As a basic principle, the CBOK study did not address a certain group of potential participants explicitly, but referred particularly to a wide group of target persons with relations to the IA sector. More than 30% of the survey participants have passed the examination of a "Certified Internal Auditor (CIA)", and 22% of the survey participants hold the position of a CAE in their companies. In addition, more than 90% of the survey participants are members of the IIA.

For the study, the available raw data were first grouped by countries. The national association of the IIA, of which the survey participant was a member where applicable, was not decisive for the allocation of a data set. Instead, the crucial point was the country in which the survey participant predominantly pursues his professional activity, since the focus of the study was supposed to be on structural differences in the company organization with regard to the internal audit division. Initially, it was possible to identify 3,294 valuable responses for the 26 EU member states. Due to the basic configuration of the presented structural equation model, the existence of an AC in the company was a necessary requirement for the inclusion into the dataset. It has already been pointed out that, in international comparison, different degrees of compulsion for the implementation of an AC exist. After the elimination of all survey responses, where the respective company does not have an AC or questionnaires were answered incompletely, 306 valuable responses remain for the EU. Of the 306 valuable responses for the EU, 65 are from the United Kingdom, 41 from Germany and 40 from France.

3.4. Operational measures. All constructs in the presented model were specified thoughtfully. As mentioned earlier, the respective constructs are reflected by a number of indicators (see Table 1). The indicators of the constructs "professional ethics", "value added", "governance" and "three lines of defense" are based on questions from the CBOK study, which had to be answered on a 5-point Likert scale. Whereas no adjustment to the data material had to be made for the Likert-scaled indicators, recoding of the essentially categorical variables was required for the indicators of the constructs "cooperation" and "organization". As a rule, a dummy variable was established for each and every indicator, to which the value 1 was assigned given that the answer of the survey participant reflects the intended relation with the AC. For instance, for the indicator "Appointment" of the construct "Organization", the dummy variable assigns the value 1 if the survey participant has selected that the AC appoints the CAE. All further interpretations of the initial data's recoding are illustrated in table 1. The validity and reliability of the constructs established will be shown through a discussion of the common measures and criteria (Cronbach's Alpha, Composite Reliability, Average Variance Extracted; Fornell-Larcker criterion).

Table 1. Indicators of the measurement model

Latent variable		Indicators	Interpretation of values
Professional ethics	x_{11}	Credibility	"Your IA activity is credible within your organization" (1 = strongly disagree, 5 = strongly agree)
	x_{12}	Independence	"Independence is a key factor for your IA activity to add value" (1 = strongly disagree, 5 = strongly agree)
	x_{13}	Objectivity	"Objectivity is a key factor for your IA activity to add value" (1 = strongly disagree, 5 = strongly agree)
	x_{14}	Sufficiency	"Your IA activity has sufficient status in the organization to be effective" (1 = strongly disagree, 5 = strongly agree)

Table 1 (cont.). Indicators of the measurement model

Latent variable		Indicators	Interpretation of values
Organization	x_{21}	Appointment	1 = AC appoints Chief Audit Executive (CAE), 0 = else
	x_{22}	Reporting Line	1 = respondent reports to AC, 0 = else
	x_{23}	Evaluation	1 = AC evaluates respondent, 0 = else
	x_{24}	Signature	1 = AC chairman signs report on IC, 0 = else
	x_{25}	Written report	1 = respondent prepares written report for AC, 0 = else
Cooperation	y_{11}	Additional private sessions	1 = respondent interacts with AC in addition to regular meetings, 0 = else
	y_{12}	Appropriate access	1 = respondent has appropriate access to AC, 0 = else
	y_{13}	Regular private sessions	1 = respondent meets with the AC in private sessions during regular meetings, 0 = else
	y_{14}	Regular meetings	Percentage of formal AC meetings attended by respondent
Value added	y_{21}	Value added	"Your IA activity adds value" (1 = strongly disagree, 5 = strongly agree)
Governance	y_{31}	Better governance	"One way your IA activity adds value to the governance process is through direct access to the AC (or equivalent)" (1 = strongly disagree, 5 = strongly agree)
	y_{32}	Integral part of CG	"Your IA activity is an integral part of the governance process by providing reliable information to management" (1 = strongly disagree, 5 = strongly agree)
Three lines of defense	y_{41}	Governance process	"Your IA activity brings a systematic approach to evaluate the effectiveness of governance processes" (1 = strongly disagree, 5 = strongly agree)
	y_{42}	Internal control	"Your IA activity brings a systematic approach to evaluate the effectiveness of internal controls" (1 = strongly disagree, 5 = strongly agree)
	y_{43}	Risk management	"Your IA activity brings a systematic approach to evaluate the effectiveness of risk management" (1 = strongly disagree, 5 = strongly agree)

3.5. Estimation. The present structural equation model contains six latent variables (constructs) displayed in Table 1. For the estimation of the structural equation model, the "Partial Least Squares (PLS)" method is utilized[1]. The necessity to apply the PLS method mainly results from the complex structure of the underlying dataset. Since the normal distribution assumption is rejected for the predominant number of variables included in the structural equation model and, instead, unknown oblique frequency distributions have to be assumed, the PLS method is preferable to other methods (such as the Maximum Likelihood Method)[2].

4. Empirical results

4.1. Descriptive statistics. For the indicators based on 5-point Likert scalings, the arithmetic mean for the EU data set ranges between 3.55 (y_{31} "Better governance") and 4.65 (x_{13} "Objectivity") with a standard deviation of at least 0.6 (x_{13}) and no more than 1.16 (y_{31}) (see Table 2). For the indicators of binary nature, it appears for instance that the chairman of the AC signs the "Report on Internal Controls" in 17% of all cases (x_{24}). Regarding our sample, 85% of the survey participants indicate that they have adequate access to the AC (y_{12}). On average, 80% of the survey participants in the EU are invited to the formal ACs' meetings (y_{14}).

Interestingly, 16 of the 19 selected variables are highly significant at a 1 percent significance level. The remaining two variables are still significant at the 5 percent significance level. As there is no additional indicator for the construct "value added", a separated factor loading cannot be identified for the variable y_{21}.

Table 2. Means, standard deviations and standardized loadings of manifest variables

Construct		EU		
Indicators		Mean	SD	Loading
Professional ethics	x_{11}	4.33	0.71	***0.84
	x_{12}	4.55	0.72	***0.68
	x_{13}	4.65	0.60	***0.72
	x_{14}	4.06	0.96	***0.75
Organization	x_{21}	0.29	0.46	***0.77
	x_{22}	0.22	0.42	***0.55

[1] All evaluations were conducted by using the software SmartPLS (Ringle et al., 2007).
[2] For a more far-reaching discussion, see for instance Vilares et al. (2010) or Chin (1998).

Table 2 (cont.). Means, standard deviations and standardized loadings of manifest variables

Construct		EU		
Indicators		Mean	SD	Loading
Organization	x_{23}	0.36	0.48	***0.80
	x_{24}	0.17	0.37	**0.26
	x_{25}	0.71	0.45	**0.29
Cooperation	y_{11}	0.61	0.49	***0.80
	y_{12}	0.85	0.35	***0.66
	y_{13}	0.45	0.50	***0.72
	y_{14}	0.80	0.34	***0.76
Value added	y_{21}	4.32	0.65	-
Governance	y_{31}	3.55	1.16	***0.89
	y_{32}	4.00	0.89	***0.85
Three lines of defense	y_{41}	3.77	0.88	***0.81
	y_{42}	4.34	0.69	***0.80
	y_{43}	4.07	0.82	***0.84

Notes: *** significant at < 0.01 level (two-tailed test); ** significant at < 0.05 level (two-tailed test) and *significant at < 0.10 level (two-tailed test).

4.2. Measurement reliability and validity. As PLS path modeling does not intend to optimize any global scalar function, it lacks of any global goodness of fit index that would provide the user with a general validation of the model (Tenenhaus et al., 2005, p. 173). Instead, PLS facilitates a local assessment of results only.

Consequently, to assess the reliability and validity – of the structural equation model, the internal consistency of the reflective measurement model and the homogeneity of subscales are to be discoursed at first (see Table 3). Nearly all the values for Cronbach's Alpha and for Composite Reliability exceed the value of 0.7, which is considered as critical, for latent variables (constructs) (Fornell & Larcker, 1981). Nevertheless, other sources evaluate values exceeding 0.6 as acceptable and even values between 0.5 and 0.6 (Robinson et al., 1991; Eckstein, 2006). The corresponding values for the variables in the construct "organization" are slightly below the critical value of 0.5 and 0.7, respectively. Based on the fact that Cronbach's alpha and composite reliability improve with an increasing number of subscales we find these values for "organization" acceptable as it only covers five subscales (Buehner, 2006). Hence, the analysis indicates a high internal consistency of the chosen indicators; thus, construct reliability can therefore be confirmed for the dataset. Through consideration of the "Average Variance Extracted" (AVE) it can furthermore be concluded for most variables that a high level of convergence validity exists. Only for the construct "organization" amounts the AVE to a critical value below 0.5 (Fornell & Larcker, 1981) (Table 3). Consequently, the variances recorded by the latent variables are significantly higher than the ones caused by measurement errors. Moreover, the reliability of the measurement models and the convergence validity are proved by an analysis of the constructs' standardized loadings and the associated bootstrapt-statistics (Anderson & Gerbing, 1988). The loadings of the indicators are largely higher than 0.7 and essen-tially significant. Only the loadings of the indicators x_{22}, x_{24} and x_{25} of the construct "Organization" are far below the critical value (Table 2).

Table 3. Reliability and validity measures

Latent variables	Cronbach's alpha	Composite reliability	Average variance extracted
Professional ethics	0.74	0.84	0.56
Organization	0.46	0.68	0.34
Cooperation	0.71	0.82	0.54
Value added	-	-	-
Governance	0.68	0.86	0.75
Three lines of defense	0.75	0.86	0.67

Through the consideration of the Fornell-Larcker criterion the discriminant validity of the reflective measurement models can finally be represented as well (Fornell & Larcker, 1981). According to this approach, a latent variable is supposed to explain the variance of its own indicators more precisely than the variance of all other latent variables. In Table 4, the square root of the AVE for each and every construct is, therefore, compared to the correlations between the latent variables. The discriminant validity can be confirmed for the dataset, since the square root of the AVE for each construct is higher than the correlation between the construct and all other constructs.

Lastly, as for our dataset the respondent of the questionnaire provides the measure of the predictor and the criterion, a self-report bias may result from artificial coviariance between the predictor and the criterion (common method bias, see Podsakoff et al., 2003). In line with other studies we utilize the Harman's single-factor test and loaded all indicators in the study into an explanatory factor analysis and assessed the unrotated factor solution. As there is no single factor emerging from the factor analysis and no general factor accounting for the majority of the covariance among the indicators, we conclude that a potential common method bias is a minor threat for our study.

Table 4. Correlations between latent variables

	Professional ethics	Organization	Cooperation	Value added	Governance	Three lines of defense
Professional ethics	0.75	0.05	-0.05	0.44	0.44	0.53
Organization		0.58	0.39	0.09	0.29	0.10
Cooperation			0.73	0.05	0.39	0.07
Value added				-	0.38	0.51
Governance					0.87	0.44
Three lines of defense						0.82

4.3. Model estimation results. To first of all assess the explanatory potential of the structural equation model, the R^2 of the endogenous latent variables will be discussed in the following (see also Table 5). The construct "cooperation" presents there the lowest R^2 (0.16). The explanatory potential of the constructs "value added", "governance" and "three lines of defense" is determined by an R^2 of 0.20, 0.38 and 0.29, respectively. A comparison of the R^2 found in other studies also permits the overall conclusion that the explanatory potential of the presented structural equation model is good and, consequently, supports the study's validity (Mertenskoetter, 2011).

In the following, the estimated path coefficients of the model and the associated significances are shown for the EU dataset (Table 5). When estimating the model, a significantly positive, moderately strong effect (effect size $f^2 > 0.15$; see Wilson et al., 2007) from the exogenous construct "organization" on the endogenous construct "cooperation" emerges with a loading of 0.39. On the contrary, no significant effect is observed for the relation between the exogeneous construct "professional ethics" and the construct "Cooperation". Consequently, only hypothesis $H_{1.1}$ can be confirmed. In conclusion, the adequacy of the IAF's access to the AC (reflected by the construct "cooperation") strongly depends on a suitable organizational integration of the IAF into the company's structural design (reflected by the construct "organization"). This is – in line with the above-described differences between the basic structures – especially the case for companies that are subject to the two-tiersystem.

The relevance of the IAF's compliance with professional ethics (reflected by the construct "professional ethics") emerges rather directly. Significantly positive, moderately strong effects result from the exogenous construct "professional ethics" to the endogenous constructs "value added" and "governance" with a loading of 0.44 and 0.45, respectively. In addition, the construct "professional ethics" has a significantly positive, strong effect (effect size $f^2 > 0.35$) on the endogeneous construct "three lines of defense" with a loading of 0.53. Thus, all aspects of H3 can be fully accepted. This highlights the importance of a close compliance with professional ethics for the IAF's standing within the company and its beneficial contribution to a company within the corporate governace framework. As a result, our finding patronizes the national and international tendency to an increasing level of standardization within the internal auditing profession (for example, through an implementation of the IIA standards).

For the constructs "cooperation" and "organisation" as predictors, we find a significantly positive, weak (effect size $f^2 > 0.02$) and moderate effect, respectively, (with loadings of 0.37 and 0.13) on the criterion "governance", but no significant effects on the criterions "value added" and "three lines of defense". In fact, the support for our hypotheses H2 and H4 is twofold. While both, the close cooperation between the AC and IA (reflected by the construct "cooperation") as well as an adequate organzational implementation of the internal audit function (reflected by the construct "organization"), seem to positively influence the beneficial effects of the IAF's role within a company's corporate governance structure, in an overall assessment of our results the relevance of the IAF's close compliance with professional ethics seems predominant.

Table 5. Structural model results and effects sizes[a] (f^2)

Criterion	Predictors	R^2	Path coefficient	f^2
Cooperation	Professional ethics ($H_{1.1}$)	0.16	-0.07	
	Organization ($H_{1.2}$)		***0.39	0.18
Value added	Professional ethics ($H_{3.3}$)	0.20	***0.44	0.24
	Organization ($H_{2.3}$)		0.04	
	Cooperation ($H_{4.3}$)		0.06	
Governance	Professional ethics ($H_{3.1}$)	0.38	***0.45	0.24
	Organization ($H_{2.1}$)		**0.13	0.02
	Cooperation ($H_{4.1}$)		***0.37	0.17
Three lines of defense	Professional ethics ($H_{3.2}$)	0.29	***0.53	0.38
	Organization ($H_{2.2}$)		0.04	
	Cooperation ($H_{4.2}$)		0.08	

Notes: *** significant at < 0.01 level (two-tailed test), ** significant at < 0.05 level (two-tailed test), * significant at < 0.10 level (two-tailed test). [a] Effect size measures the relevance of each predictor of a dependent latent variable and is based on the relationship of determination coefficients when including or excluding a particular predictor from the structural equation.

To emphasize these assessments, the total effects in the structural equation model are presented in Table 6. The most significant total effects can be observed for the exogenous construct "professional ethics". For the three constructs "value added", "governance" and "three lines of defense", total effects of 0.44, 0.43 and 0.52 appear in case of the EU data. The total effects emerge from a combination of path coefficients of the direct paths between the construct "professional ethics" and the considered construct, and from the indirect relationship with the construct "cooperation" (see Figure 3). Furthermore, significant total effects are shown between the construct "organization" and the construct "governance". These total effect amounts to 0.27, with the total effect being composed of a direct influence as well as an indirect influence via the construct "cooperation".

Table 6. Total effects

Predictor	Criterion			
	Cooperation	Value added	Governance	Three lines of defense
Professional ethics	-0.07	0.44	0.43	0.52
Organization	0.39	0.06	0.27	0.07
Cooperation	-	0.06	0.37	0.08

5. Limitations and discussion

Some limitations of our research are worth noting. The study has been conducted for only one region (EU). Although the results are very consistent within the EU, the empirical model should be tested in other regions and separated for the different EU countries, too. We might expect that the relative importance of the IAF and AC is diverse in various countries, because the relative importance of IA determinants may depend on the level of regulation of the governance body, the board-model and a range of different possibilities regarding the legal regulations. Therefore, the magnitude of IA in the corporate governance structure may be greater or smaller in different countries. Furthermore, the importance of the moderating effects may vary across countries. Moreover, a study initiated by the IIA may be characterized by deficits in terms of objectivity. Due to the large sample size, however, this restriction is to be considered as limited. In addition, the questions of the CBOK study were not developed originally to reflect the indicators used in the structural equation model. Besides, a differentiated consideration of industries or company sizes may be able to produce more far-reaching insight. Finally, while we do provide an answer to the question whether IA is an integral part of corporate governance or not, it is interesting to investigatewhich other "players" determine corporate governance.

Conclusion

The reason for our study was the uncertainty regarding the current knowledge on the organization of the IAF within the internal corporate governance structure and the interaction between IA and AC. This study allocates empirical support for a direct and indirect effect of the IA's work on the internal corporate governance structure and the TLoD model, thereby providing important implications for IA theory and practice.

According to the principal agent theory, the activities of the IAF are of central importance in corporate governance. The question of which specific tasks are performed in detail by the IAF and how the cooperation with the AC is shaped, has not been subjected to a comprehensive empirical analysis on EU-member states yet. The presented hypotheses illustrate which essential features and attributes can be assigned to IA. Therefore, the available results

make an empirical contribution focusing on the IA's position in the corporate governance system and the relationship between the individual core elements. In addition, the comparison of country-specific results allows integrating the influence of changing regulatory requirements into the analysis.

The fact that the work of the IAF has significant influence on the design of the governance structure can be considered as positive. In this context, the presented system illustrates the two key components of the IAF, i.e. the practical component of compliance with professional principles on the one hand, and the structural component of the IA's adequate organization within the company, on the other hand. Furthermore, the relationship between IAF and AC is another integral part of the internal corporate governance structure, with both the structural and the practical IA component taken into consideration. In conclusion, the presented components are distinguished by having a positive effect on the corporate governance structure. In addition, the value component and the TLoD model, reflected in risk management, ICS and the effectiveness of the corporate governance processes, can empirically support positive relationships. These relationships differ in terms of strength. In summary, our study reveals a strong empirical correlation capable of supporting the proposed hypotheses. Additionally, our results show that IA has a positive influence on the corporate governance structure as a separate corporate governance body. By contrast, the reinforcing effect of cooperation between IA and the AC can be supported only conditionally.

The two constructs "professional ethics" and "organization" show different levels of influence. More precisely, the practical component of the professional principles has a positive impact on the constructs "governance", "three lines of defense" and "value added". In contrast, the organizational form of the IAF does not have any significant impact on these three constructs. However, a significant correlation is verifiable for the cooperation with the AC. Cooperation between IAF and AC has a significant impact only on the organization of the corporate governance structure with no significant influence on the other two constructs.

Overall, it emerges that IA is a key element of the corporate governance structure and has a positive impact on the efficiency of corporate governance. The three constructs "governance", "three lines of defense" and "value added" illustrate the most important objectives of the IAF. The latter is supposed to be a crucial factor with regard to the revelation of corporate grievances and problems in the framework of the TLoD model and hence to support the corporate governance structure. Finally, the IAF is supposed to create "value added" for the company either within the meaning of revealing problems and grievances or in the sense of precautionary measures. The results provide evidence that, in particular, the practical component of the IAF, represented by compliance with the professional principles, provides a significant contribution to accomplishing these objectives. However, the IAF seems to achieve this goal only in some cases. The close cooperation between IA and AC, which is often emphasized in the literature as a key element of corporate governance, can only be confirmed conditionally within the context of this study. Although there is a positive effect or influence of IA on the activities of the AC and, in addition, on the corporate governance structure, this effect is only of medium intensity. In contrast, the direct impact without cooperation with the AC can be considered as high.

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