

How assurance- and advisory-related purposes of internal auditing influence the cooperation with the external auditor

Empirical evidence from two perspectives: Internal and external auditors

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Abstract

This study examines the extent to which external auditors (EAs) make use of the work of internal auditors. We explore this issue from a chief audit executive (CAE) and from an EAs perspective. Furthermore, we introduce a new category of internal audit function (IAF) reliance indicators, namely specific purposes the IAF has in the company. Thereby, we contribute to prior literature by addressing Bame-Aldred et al.'s (2013) recommendation to provide more evidence on the drivers of the extent of IAF reliance. Using ordered logistic regression models to analyze the data we gathered from CAEs, we find that EAs are more likely to use the IAF results if the IAF has an assurance-related purpose. For an IAF with an advisory-related purpose the findings are mixed. Based on univariate tests, from an EAs perspective, we find the strongest positive influence on the usage intensity of the IAF results if its focus is on risk management.

Keywords: internal auditing, external audit, assurance, consulting

JEL-Classification: M40, M42, G34, G32, M4, G3

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I. INTRODUCTION

In our current-day world of corporate scandals, financial crises and demands for better corporate governance, the role of the IAF has become more and more important. As a result, external and internal stakeholders such as investors, regulators, and corporate boards increasingly focus on the IAF, in particular on the relationship between internal and external auditors (Gramling et al., 2004a; Glover et al., 2010; Schneider, 2009; Munro and Stewart, 2011). In this evolving environment, EAs are facing several challenges, like extended audit requirements and audit fee pressures for instance (Abbott et al., 2010). One way to combat these challenges would be to work towards an effective and efficient integration of the internal and external audit functions. Especially, since professional auditing standards (e.g., ISA 610) permit EAs to rely on the IAF.

From a research perspective, Bame-Aldred et al. (2013) describe the areas of research that focus on the reliance of EAs on the IAF as very complex, since the collaboration and interactions between both functions are manifold. However, although prior research has examined a number of issues related to this reliance, several topics are unexplored. In particular, there is no empirical evidence on which determinants explicitly drive the extent to which EAs rely on the IAF.

Extending prior research, this study does not only theoretically or behaviorally examine which attributes encourage the reliance of the EA on the IAF, rather it explicitly empirically investigates determinants likely to be associated with the extent of the reliance decision. With this approach we introduce a new category of IAF indicators, namely specific purposes the IAF has in the company. We explore the extent to which the EA relies on the IAF first from a CAE perspective and validate our results using additional data from EAs.

Using data from a survey conducted by the Austrian, German and Swiss national Institutes for Internal Audit (IIA), we are able to explore from a CAE perspective whether specific purposes of the IAF drive the extent to which the EA relies on the IAF. In order to get insights from an EA perspective, we conduct a survey with EAs from a large audit firm in Germany.

Using an ordered logistic regression model with a multinational dataset of 229 CAE, we find that EAs are more likely to use the IAF results if the IAF has an assurance-related purpose, i.e., the IAF has a risk management or an internal control system purpose. For

an IAF with an advisory-related purpose the findings are mixed. While EAs are more likely to use IAF results if the IAF's purpose is improvement of business processes, we observe a negative effect if the IAF's purpose is to achieve greater efficiency of the controls. Based on univariate tests, from an EAs perspective, we find the strongest positive influence on the usage intensity of the IAF results if their purpose is on risk management. EAs in their self-assessment evaluate the influence of the IAF's risk management purpose on the usage intensity even stronger than CAEs believe they do.

We contribute to the literature in at least two ways. First, to the best of our knowledge, this is the only study that explicitly examines the extent to which EAs actually use IAF results by introducing a new category of IAF reliance indicators, namely specific purposes the IAF has in the company. Second, we empirically explore this issue from the perspective of CAEs and EAs. This allows us to compare the results and identify similarities and differences.

The paper is organized as follows: Section 2 describes the background in terms of the relevant professional standards and their relation to the cooperation between internal and external auditors and presents the relevant prior literature. Section 3 develops the paper's hypotheses. Section 4 describes the data and the model specification and presents the empirical results. And Section 5 discusses all findings and presents the conclusion.

II. LITERATURE REVIEW

The Institute of Internal Auditors (IIA) considers the IAF as one of the four major pillars of good corporate governance. Besides the audit committee, the executive directors, and the EA, the IAF improves the quality of organizational governance, the effectiveness of risk management and the internal control system (e.g., IIA Performance Standard 2000) and ultimately reduces the risk of a company (Carcello et al., 2018). Likewise, professional standard setters of EAs view the IAF as a potential "partner" in fulfilling the tasks of an annual audit (e.g., IAASB / IFAC ISA 610).

Before presenting the relevant prior literature, we discuss the professional standards of internal and external auditors in order to provide an understanding of their cooperation and of the risks that can occur if this cooperation becomes too intensive.

The professional standards of the Institute of Internal Auditors (IIA)

The IIA is the international standard-setting body for internal auditors and provides standards and guidance. The principle-based standards are mandatory and provide a framework to perform and foster internal auditing. To ensure worldwide application, the wording of the standards is intentionally kept general and abstract.³

Regarding the cooperation between internal and external auditors, the IIA has issued the Standard *2050 Coordination*. This standard advocates that the CAE shares information and coordinates work with other internal and external providers of assurance and consulting services. The aim is twofold: Ensure an adequate coverage of assurance services and avoid double work. The *Practice Advisory 2050-1 Coordination*, which serves as a supplement to this standard, considers management to be responsible for supervising and coordinating the internal and external auditors. Section 3 of the standard emphasizes that the EA can rely on the internal auditor's work and that the CAE has to provide the EA information in terms of methods, techniques and terminology. In addition, the EA should be given access to all working papers and programs concerning the IAF. The practice advisory emphasizes the constant communication between the internal and the external auditor to ensure that all assurance services are covered and that certain tasks are not performed twice. While *Standard 1312 External Assessments* does not explicitly refer to the cooperation between internal and external auditors, it requires an external review of the internal audit, as a part of an ongoing quality improvement program, by a qualified third party at least every five years. This assessment provides the EA with an independent review of the qualification and the competence of the IAF.⁴

The professional standards of the International Auditing and Assurance Standards Board (IAASB)

The International Auditing and Assurance Standard Board (IAASB) is an independent standard-setting body that sets high-quality international standards for auditing, quality control, review, other assurance, and related services. Regarding the cooperation between the internal and external auditors, the IAASB issued *International Auditing Standard*

³ In the so called International Professional Practice Framework (IPPF) is mandatory and recommended guidance on the implementation and maintenance of an IAF. While the standards are mandatory guidance, practice advisories, as an example represent the recommended part.

⁴ The European Confederation of Institute of Internal Auditors (ECIIA) provides also guidance on the relationship between both functions (ECIIA, (2013)), as well as national IIA chapters. Thus, the importance of the relationship is a main driver of the profession

(ISA) 610 “Using the Work of Internal Auditors.”⁵

ISA 610 includes criteria to be evaluated before using the work of the internal auditor in order to get an idea of whether the work of internal auditors is adequate for the purpose of the audit. These criteria are:

- (1) objectivity of the internal audit function (ISA 610.9a);
- (2) technical competencies of the internal auditors (ISA 610.9b);
- (3) likelihood that the work of the internal auditors is carried out with due professional care (ISA 610.9c); and
- (4) effective communication between the internal and external auditors (ISA 610.9d).

To use the work of internal auditors, the following five assumptions must be fulfilled:

- (1) internal auditors have adequate technical competencies (ISA 610.12a);
- (2) the work was properly supervised, reviewed and documented (ISA 620.12b);
- (3) adequate audit evidence has been obtained to enable the internal auditors to draw reasonable conclusions (ISA 610.12c);
- (4) conclusions reached are appropriate in the circumstances and any reports prepared by the internal auditors are consistent with the results of the work performed (ISA 610.12.d); and
- (5) any exceptions or unusual matters disclosed by the internal auditors are properly resolved (ISA 610.12e).

Both the original and the revised standard emphasize that the EA has the sole responsibility for the audit opinion expressed. They also state that this responsibility is reduced neither by the EA’s use of the work of internal auditors (ISA 610.4 and ISA 610.11 RV 2013) nor by internal auditors who provide direct assistance in the engagement (ISA 610.11 RV 2013). Overall, it is notable that for efficiency and effectivity purposes, use of the internal auditors’ work by the EA is desirable. However, the mentioned assumptions have to be met.

Relevant prior literature

⁵ Initially published in 2009, the standard was revised in 2013. The revisions are effective for audits of financial statements for periods ending on or after December 15, 2014 (ISA 610.12 RV 2013). The revisions include the so-called direct assistance under the direction, supervision and review of the EA (ISA 610.14b RV 2013) for the purpose of the audit. The assistance is not allowed if prohibited by relevant laws (ISA 610.26 RV 2013). The German audit standards do not allow the concept of direct assistance as they prohibit the use of internal auditors in the (external) audit engagement (IDW PS 321, paragraph 29). Nevertheless, a certain degree of collaboration between internal and external auditors is permitted or rather wanted. Moreover, in cases of significant threats to the internal auditor’s objectivity (ISA 610.28a RV 2013) or of a lack of sufficient competencies to perform the proposed work, direct assistance (ISA 610.28b RV 2013) is not allowed.

Bame-Aldred et al. (2013) synthesize prior literature on EAs' reliance on the IAF. Their review of the literature shows that environmental factors (e.g., governance structures) and IAF quality factors (i.e., competence, objectivity, staffing arrangement and outsourcing and work quality) influence EAs' reliance on IAF.⁶ After the initial reliance decision, which is based on the assessment of the IAF working quality, IAF systems, and other environmental variables (see here e.g. Brody (2012); Desai et al. (2010); Endaya (2014); Malaescu and Sutton (2015)), the scope of the reliance decision must be considered. Bame-Aldred et al. (2013) point out that there is little research that focuses on the extent to which EAs actually rely on the IAF—a topic that thus constitutes an avenue for future research. The scarce evidence shows that the reporting relationship with the board of directors and the business risk influence EAs' reliance on work already performed by the internal auditors (Munro and Stewart, 2011). Also, the staffing arrangement and the outsourcing of the IAF have direct effects (e.g. Brandon (2010), Desai et al. (2011), Glover et al. (2008)). Felix et al. (2005) document that in a pre-SOX environment client pressure in general does not impact the reliance decision. However, non-audit services appear to be an incentive for EAs to rely on IAF. The authors find that in cases in which non-audit services are provided, the EA's reliance is positively associated with client pressure, although no association with IAF quality factors can be observed.

The relationship between the IAF and the audit committee (AC) is closely linked to the cooperation with the EA, who supports the work of the AC on financial reporting in the one- and the two-tier system. Following the “lean auditing” concept, the partial use of IAF results by the EA is reasonably economical. While Ward and Robertson (1980) explain the economic need, ISA 610 provides a clear framework on the use of IAF results (Munro and Stewart, 2011, 466). Especially from the perspective of the EA, the benefits of a close cooperation lead to efficiency gains and a cost reduction. Some studies provide empirical evidence that a close cooperation between the IAF and the EA lead to a better audit quality (e.g., Abbott et al., 2012; Pizzini et al., 2011; Lin et al., 2011). Other studies present evidence that the IAF and the EA are partial substitutes, so that a well-functioning IAF could substitute the EA's work in some areas (Goodwin-Stewart and Kent, 2006).

Using information from the IAF also has an influence on audit fees insofar as it reduces audit fees, and therewith also the audit risk (Maletta, 1993; Felix et al., 2001; Prawitt et al., 2011). However, Carey et al. (2006) and Stein et al. (1994) do not identify any effect of the cooperation between the EA and the IAF on audit fees. Munro and Stewart (2011)

⁶ For a detailed review of this literature, see Bame-Aldred et al. (2013).

show that the cooperation between the IAF and the AC as well as the economic risk of a company directly influences the use of IAF results by the EA. Also, possible effects on earnings management are a relevant dimension when measuring the outcome of a close cooperation between the EA and the IAF (Prawitt et al., 2009).

The relationship between the IAF and the EA is also often discussed in the light of an external quality assessment. Different variables can be used to quantify and evaluate the quality of the IAF. While Brown (1983) and Schneider (1984) consider both independence and performance of the IAF to be the ultimate indicators for quality, Abdel-Khalik et al. (1983) focus on independence and Mihret and Admassu (2011) on performance. With respect to competencies and knowledge, Haron et al. (2004) show that both of these IAF characteristics influence the perceived quality. Another criterion for assessing the quality can be the size of the IAF (Felix et al., 2001; Mat Zain et al., 2006). A larger IAF should lead to resources that are more readily usable, such as time, and therewith to more time to finalize the audit. Moreover, aside from the organization of the IAF, the reporting structure to the AC is often another discussed quality indicator (Eulerich et al. 2017; Abdel-Khalik et al., 1983; Brown, 1983).

The inherent risk profile of a company can also be a potential quality indicator (Felix et al., 2001). For clients with a high-risk profile, the EA can use the results of the IAF to reduce the risk, since the IAF has a better and direct access to the risk management, an ongoing audit plan and tries to reduce the risks on their own (e.g., Carcello et al. 2018; Spira, 2003). Overall, in the literature analyzing the extent to which EAs rely on the IAF, many areas are yet to be explored, in particular specific purposes of the IAF (Bame-Aldred et al., 2013).

III. HYPOTHESES DEVELOPMENT

To the best of our knowledge, there is no evidence on whether a specific advisory- or assurance-related focus of IAF's work drives the extent to which the EA relies on the IAF. In the following we theoretically explore the effects from using the IAF's results for the effectiveness of the internal control system and risk management objectives (assurance-related purpose of the an internal audit), or to achieve greater efficiency of the controls and business processes (advisory-related purpose). In our context, we define purpose as the reason for which an internal audit was done or what the objective of an IAF is.

We believe that the specific purpose of an internal audit and the generated results build

another category of IAF reliance indicators and thus is important for the reliance decision of the EA. Most of the early literature explains possible determinants of an EA's reliance decision by referring to specific IAF quality factors (Schneider, 1985; Messier and Schneider, 1988). However, implicit positive signals on the quality of the IAF sent by management were found to create a greater reliance by the EA (Felix et al., 2005). We identify four specifications of the IAF purposes which can be associated signals sent by management about the quality of the IAF and thus have the potential to drive the extent of IAF reliance. Based on this "purpose perspective", we develop the upcoming two hypotheses.

In general, the IAF supports management in unveiling and monitoring major risks and, moreover, in ensuring the effectiveness and efficiency of the internal control system. Strong internal controls have been of particular interest to the financial services industry due to its vulnerability to fraud over the last decades. Although the IAF does not design or operate (financial) controls, the IAF determines whether controls are adequate and is able to test the compliance with laws or company guidelines. Interestingly, during an external audit, the EA has to evaluate the internal control system as well. In case the IAF mainly has an internal control system purpose, this might signal the EA an assurance focus of the IAF and thus aligned tasks compared to their own work. Evaluating the quality of the risk management system also suggest an assurance focus of the IAF. Regarding the risk management system, the importance of internal auditing in improving enterprise risk management has increased over the last years (Coetzee and Lubbe, 2014). During the (external) audit, the EA has to evaluate whether an adequate risk management system is established. Thus, both internal and external auditors have to evaluate the risk management system during their respective audit. In case a main purpose of the IAF is support to risk management, this might signal the EA again aligned objectives of the Ea and the IAF.

Because of the comparable alignment of both purposes to the work of the EA, the EA is more likely to reflect the IAF as an additional help, which in turn should lead to a greater reliance on IAF results by the EA. These two purposes focus on typical assurance aspects."⁷,

⁷ While the internal control system is positioned at the business frontline, which is the first line of defense in the so-called "Three Lines of Defense Model" risk management is on the second line of defense. The Three Lines of Defense Model is a usable framework for structuring the organizational governance. While the business frontline has the internal controls on the first line of defense, the second line tries to minimize the business risk with a systematic risk management and compliance function. The IAF is the third line of defense and supports the board through an extensive oversight of the

We therefore hypothesize a positive influence on the IAF usage intensity by the EA if management uses IAF results for assurance purposes.

- *H1: If management uses IAF results for assurance purposes, the EA will use IAF results more intensively.*

Besides the assurance purpose of the IAF, the advisory purpose seems to affect an EA's reliance on the IAF as well (DeZoort et al., 2001; Munro and Stewart, 2011). In this context, DeZoort et al. (2001) argue that an advisory role invariably leads to a close relationship with management as well as a potential loss of independence and objectivity. Internal auditors have the knowledge, insights and skills to generate value to the organization by providing consulting activities. This added value goes beyond the nature of assurance providing through additional outcomes of an audit, such as possible future business directions or process improvements. In the same vein, it is also likely that using IAF results to achieve more improve the efficiency of controls and improve business processes should have a positive influence on the perception of the IAF, as a high-quality function and thus would lead to a more intensive use of the IAF results by the EA.

However, combining assurance and advisory activities in one function may also lead to a loss of objectivity and independence, which creates a conflict with the main pillars of the professional practice of internal auditors. Furthermore, conflicts of interest may arise. For instance, when an internal auditor will (self-)audit a former advisory project. Overall, by providing advisory activities different challenges and tensions for an IAF can emerge, which in turn have the potential to negatively affect IAF quality and thus also the usage intensity of IAF results by the EA.

As a consequence, it remains an open question whether the EA evaluates an IAF with an advisory-related purpose positively or negatively when considering to rely on the IAF or not. Based on this discussion, we hypothesize an influence on the IAF usage intensity by the EA if the management uses IAF results for advisory purposes, however, we do not predict a certain direction.

- *H2: If management uses the IAF results for advisory purposes the usage intensity of the IAF results by the EA is affected.*

IV. DATA, METHODS AND RESULTS

Data

This study is based on data from a survey conducted by the Austrian, German and Swiss national IIA chapters to identify the current position and future trends of the profession in these three countries. Between November and December 2013, the chapters sent invitation letters to some 2,450 CAEs from Austria, Germany and Switzerland to participate in the survey. By using certain questions from this survey, we were able to test our hypotheses from a CAE perspective.

Sent out by regular mail, the letters provided recipients with a code for accessing the online questionnaire. The survey was funded by the national institutes, which also supported this research project with ideas and knowledge from both, a practical and theoretical perspective. The final questionnaire was pre-tested with two senior CAEs from each of the three countries. A total of 450 responses were received from the invitation letters, which represents a response rate of 18.4 percent. Overall, 79 responses were collected from Austria, 321 from Germany and 50 from Switzerland (see Table 5). The industry- and size-specific distribution of the sample represents a broad variety (see Table 6 and Table 7). Because of incomplete answers, a total of 229 observations were used for our final model. Overall, the questionnaire⁸ had 86 different closed and open questions and was completely anonymous. The topics included in the questionnaire were from the fields “overall company characteristics”, “IAF characteristics”, “IAF practice” and “IAF staffing”.

To obtain insights from EA’s perspective, we conducted a survey with EAs of a large German audit firm, namely BDO.⁹ We got access to two of their trainings sessions and asked the EAs the identical questions that we picked from the overall questionnaire for the CAEs. The questions were not specified to EA’s experience with one specific client. The participant where asked about their general experience with the IAF and how important the assurance and advisory, used from our CAE perspective, are from their point of view. This second part of our data consists of 48 well-experienced certified EAs with an average of 19.55 years work experience.

Methods and variables

⁸ The questionnaire was in German and no comments or responses indicated any language problems. Because of missing answers, the indicated number of responses may vary.

⁹ BDO is the fifth largest audit firm in the German audit market.

To test our hypotheses from a CAE's perspective, we use different questions from the survey of the Austrian, German and Swiss national IIA chapters. To test our hypotheses from an EA's perspective, we use the data that we gained via our survey with EAs from BDO.

For the first part of the analysis, the CAE perspective, we use an ordered logistic regression model, as our dependent variable has multiple values and the values have a meaningful sequential order. Using this method, we can identify the significance and direction of different factors that either do or do not influence the intensity of the EA's usage of IAF results. This allows us to understand which factors determine the EAs' usage intensity of IAF results.

For the EA perspective, we use group comparison t-tests to validate our results from the CAE perspective and compare the results from both panels. Table 1 shows the questions for the CAE analysis, names and scales pertaining to the different variables.

Insert Table 1 here

Our dependent variable is *Intensity_EA*, which measures the intensity of using IAF results by the EA. The variable is based on a five-point Likert scale which ranges from "very low" to "very high". The usage intensity of the IAF results by the EA from an EA's perspective is captured by our survey with EAs from BDO. The scaling of the variable is identical to that from a CAE's perspective.

To test our two hypotheses, we measure the purposes for which management uses IAF results with the help of four measures. To test H1, and therefore the assurance purpose of the IAF, we use the following two variables: *Internal Control System (ICS)*, and *Risk Management, (RM)*. To test H2, and therefore the advisory purpose of the IAF, we use the following two variables: *Efficiency of Controls (Eff_Cont)*, and *Efficiency of Business Processes (Eff_BP)*.

Besides our test variables, we include other well-discussed IAF quality indicators as controls. First, the size of the IAF captured by the number of IAF staff is another quality indicator (*IAF_size*), as it is expected that the larger the IAF, the higher the quality the IAF provides and, thus, a higher usage intensity of the IAF results by the EA is likely. Second, we include the compliance of an IAF with the International Professional Practice Framework (*IPPF*) as another quality measure. The compliance of an IAF with these worldwide standards can be understood as a proxy for state-of-the-art internal auditing

practices. Finally, we include further controls that are likely to affect the usage intensity of the IAF results by the EA. In line with prior literature, we control for industry (*IND*) and company size (*Comp_size*).

The equation of our model is:

$$y_{Intensity_EA} = \beta_0 + \beta_1 x_{ICS} + \beta_2 x_{RM} + \beta_3 x_{Eff_Cont} + \beta_4 x_{Eff_BP} + \beta_5 x_{IAF_size} + \beta_6 x_{IPPF} + \beta_7 x_{IND} + \beta_8 x_{Comp_size} + \varepsilon \quad (1)$$

Results

Before presenting the results of our ordered logistic regression, we show the descriptive results. Table 2 shows the means, standard deviations, minimum, maximum, and number of observations for the dependent and independent variables from a CAE's perspective (Panel A) and EA's perspective (Panel B). The means and standard deviations show no irregular values, where only the mean for *ICS* has a high value of 4.25 on a five-point scale.

Insert Table 2 here

Table 3, Panel A and B provides further insight by presenting the correlation matrix and the specific significances for all variables from a CAE's and an EA's perspective. The results show that there are no variables with a high bivariate correlation and that most of the correlations are significant. Multicollinearity does not seem to be a problem in our sample.

Insert Table 3, Panel A and B here

Table 4 provides multivariate results from a CAE's perspective. We find that EAs are more likely to use the IAF results if the IAF's purpose is focused on the internal control system (0.547***). The results further show that the EA is more likely to use the IAF results if the IAF has a risk management purpose (0.485***). Both results for assurance-related purposes support hypothesis *H1*.

However, we do not find support for a stronger use of the IAF results by the EA if the IAF's purpose is to achieve greater efficiency of the controls (-0.233). In contrast, we find a positive significant effect for the improvement of business processes purpose (0.441**). Overall, for the advisory-related purposes we find mixed results. Thus, we can only

support H2 for the variable *Eff_BP*.

In addition, our results show a positive significant relation between *IPPF* (0.794***) and the usage intensity of IAF results by the EA. We do not find significant results for the variable *IAF_size* (0.180). Industry has a positive effect on the intensity (1.602***). We observe that the EA is less likely to use the IAF results if the company is larger (-0.146**) which can be explained by potential reputation concerns of the external auditor. The overall estimation has an acceptable value a $\chi^2_{(9)}$ of 91.99 and the model is overall significant: $Prob > \chi^2$ with 0.000. The Pseudo R^2 with 0.1365 represents an acceptable value.

Insert Table 4 here

To mitigate the risk of a self-perception bias from CAE respondents, we add a second analysis with external auditors. Using identical questions as for the CAEs, we attempt to get further information about EA's perspective and compare the results with an independent t-test. With the help of this test, we try to identify potential similarities or differences between the two groups. In a first step, we compare the mean of the variable *Intensity_EA*, which constitutes the dependent variable in model (1) and find that the variances for our two populations are the same on a 95 percent confidence interval. The means for both EA (3.229) and CAE (3.526) suggest a rather strong intensity of cooperation between internal and external auditors on a five-point likert-scale (p-value = 0.091). This result allows us to compare the two groups based on our dependent variable.

As a next step, we use the same test structure for our four test variables in model (1). Beginning with the assurance-related purposes, we found for both groups a strong positive assessment for the variable *ICS* (EA = 4.426; CAE = 4.250) and the same variances for our two populations on a 95 percent confidence interval (p-value = 0.108). This result suggests that EAs and CAEs assess the reliance on the IAF results if their purpose is on the internal control system as equally strong. For the variable *RM* we found a statistical significant mean different from zero (p-value = 0.000), with a higher mean for EAs (4.087) compared to the CAEs (3.468), suggesting that EAs believe that IAF results are used more intensively for risk management purposes than CAEs believe they do.

Regarding advisory-related purposes, we found a mean different from zero for the variable *Eff_Cont*. (p-value = 0.0002) with a lower mean for EAs (3.044) compared to the CAEs (3.702), suggesting that EAs rely less on the IAF results if they are used for an achieving efficiency of the controls than CAEs believe they do. Our results for the variable *Eff_BP*

also show a mean different from zero (p -value = 0.000), with a lower mean for EAs (2.651) compared to the CAEs (3.461), suggesting that EAs rely less on the IAF results if they are used for improvement of business processes than CAEs believe they do. Even more, EAs evaluate the usage intensity of the IAF results with a purpose on the improvement of business processes as low ($2.651 < 3$; midpoint of scale is 3).

V. DISCUSSION AND CONCLUSION

Our results provide novel empirical evidence on determinants that explicitly drive the usage intensity of IAF results by the EA. We examine this issue first from a CAE perspective and validate our results using additional data from EAs. As described above, the reliance and cooperation decision of an EA is based on numerous visible and invisible factors. Our research approach culminated in a model that includes a new IAF reliance category, namely specific purposes of the IAF, in order to describe the (measurable) cooperation between the IAF and the EA. We distinguish between assurance-related purposes and advisory-related purposes of the IAF. This approach allowed for a more detailed insight and understanding of the cooperation between the IAF and the EA.

Depending on the purpose of use, we observed different results. From a CAE's perspective, the findings document that if IAF results are used regularly for assurance-related purposes, e.g. the internal control system or the risk management system, the EAs use the IAF results more intensively. Evaluating the internal control system quality is an activity that is provided by both the IAF and EA, although both have different objectives and scopes. An IAF with one major field of work in the area of internal control system stands for a high-quality IFA which in turn appears to lead to a more intensive use of the IAF results. The EA can gain possible efficiency gains, because he/she can use IAF results and therefore can probably reduce his/her testing procedures in this regard. We also identified a similar effect with regard to risk management purposes. Both IAF and EA consider the risk management system in their respective audit, again with different objectives and scopes. Only a functionally and well-implemented risk management system can minimize all kinds of risks over the long run. Thus, EAs as well as the IAF are interested in a well-functioning risk management system, especially if the board and managements see the importance of risk management. The strong focus on risk management of the IAF implies a high-quality IAF which in turn explains the more intensive use of the IAF results. The mentioned assurance-related purposes show a

similar direction of control-related tasks of the EA and the CAE. For both, internal and external auditing, the internal control system is a main object of their specific audit universe. The focus on the internal control system for both, EAs and CAEs, is also reflected in the standards for EAs (ISA 315 “Identifying and Assessing the Risks of Material Misstatement Through Understanding the Entity and its Environment”) and for Internal Auditors (IPPF PS 2100 “Nature of Work” and PS 2130 “Control”). Both type of auditors must support the organization in maintaining effective controls through their evaluation.

Currently, in addition to the assurance provided by the IAF, its advisory activities are becoming more and more important. A high level of knowledge and competencies within the IAF allows a successful support of efficiency gains. This can be understood as a quality indicator on the one hand and as a status indicator on the other hand. An IAF that improves the efficiency of controls or business processes is a reliable partner in the organization. However, combining assurance and advisory-related tasks in one function, the IAF, has also the potential to impair independence and thus, might negatively affect the reliance on the IAF by the EA if their results are used for advisory purposes. Our results support this mixed view. While EAs are more likely to use IAF results if the IAF’s purpose is on the improvement of business processes, we observe a negative effect if the IAF’s purpose is to achieve greater efficiency of the controls. Thus, effectiveness is more important than efficiency or in other words: assurance is more important than advisory.

Based on univariate tests, from an EAs perspective, we find the strongest positive influence on the usage intensity of the IAF results if their purpose is on risk management. EAs even rely more on the IAF if its purpose is on the risk management system than CAEs believe they do. For the second assurance-related purpose of the IAF, internal control system, we find that EAs and CAEs assess the reliance on the IAF results by the EA as equally strong. These results generally support the positive effect on the extent of the reliance of the IAF results by the EA if their focus is on assurance-related purposes. For the advisory-related purposes of the IAF, improvement of business processes and achieving greater efficiency of the controls, our results are again mixed. However, while the results from a CAE’s perspective reveal that EAs are more likely to use IAF results if the IAF’s purpose is on the improvement of business processes, in EAs self-assessment they evaluate the usage intensity of the IAF results with a purpose on the improvement of business processes as low. In contrast, for the second variable that captures the advisory-related purpose of the IAF, achieving greater efficiency of the controls, we document a

negative influence on the usage intensity of the IAF results by the EA based on a CAE's perspective. However, based on the EAs self-assessment we find a slight positive assessment for an IAF with a purpose on achieving greater efficiency of the controls, i.e., if the IAF has this purpose the use of the IAF results is slightly strong.

This study contributes to the existing literature on the reliance decision of an EA in at least two ways. First, we explicitly examine the extent to which EAs actually use IAF results by introducing a new category of IAF reliance indicators, namely specific purposes the IAF has in the company. Second, we explore this issue from two perspectives: CAE and EA perspective. Our study is motivated by the regulatory need to foster the cooperation between internal and external auditors and by the desire to examine an aspect of the prior discussion on influencing factors of the IAF reliance such as independence, objectivity or outsourcing.

Nonetheless, our study is subject to inherent limitations—which in fact represent opportunities for future research. The results for the variables, describing the purposes, are based on the self-perception of the CAEs and EAs and are not derived from de facto values. However, these limitations are typical for questionnaire data, which invariably incorporate the self-perception of the respondents. Future research could also seek to prove whether the results vary in other regions or for other company types (e.g., family-owned firms) or whether the intensity is based on the type of EA (Big4 vs. Non-Big4). Furthermore, an experimental setting would allow to test our approach with a stronger focus on the behavioral side of the story. Finally, the effects of the identified categories on the resources used by the EA or the audit fees might be an interesting way to advance the discussion. The position of the AC in the triangular relationship, excluded in our approach, is worthy of further investigation.

Our findings point to a promising area of future research and to the potential effects of the cooperation between EAs and IAFs on the regulatory and professional framework. We believe that our approach and the introduction of new categories in the discussion about the reliance decision provide a starting point for researchers to better understand the complexity of the reliance decisions of EAs.

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Table 1: Variable definition

<u>Dependent Variables</u>	<u>Name</u>	<u>Scale</u>	<u>Category</u>
To what extent does the external auditor the internal audit results?	<i>Intensity_EA</i>	1 - 5	Dependent Variable
<u>Independent Variables</u>	<u>Name</u>	<u>Scale</u>	<u>Category</u>
For what purposes does management use internal audit reports? Internal Control System	<i>ICS</i>	1 - 5	Assurance Purpose
For what purposes does management use internal audit reports? Risk Management	<i>RM</i>	1 - 5	Assurance Purpose
For what purposes does management use internal audit reports? Efficiency of Controls	<i>Eff_Cont</i>	1 - 5	Advisory Purpose
For what purposes does management use internal audit reports? Efficiency of Business Processes	<i>Eff_BP</i>	1 - 5	Advisory Purpose
Natural Logarithm of IAF size	<i>IAF_size</i>		Control
Are you in compliance with the IPPF? Yes / No	<i>IPPF</i>	0 / 1	Control
Is your company from the financial sector? Yes / No	<i>IND</i>	0 / 1	Control
No. of overall employees in the company	<i>Comp_size_</i>		Control

Table 2: **Summary statistics and Independent Group Tests**

<i>Descriptive Statistics and Independent Group Test</i>					
	<i>Panel A: Internal Auditors</i>		<i>Panel B: External Auditors</i>		<i>t-Test</i>
<i>Continuous variables</i>	Mean (Std. Dev.)	Range (Obs.)	Mean (Std. Dev.)	Range (Obs.)	Pr(T > t) (diff != 0)
<i>Intensity_EA</i>	3.526 (1.088)	1 - 5 (384)	3.229 (1.134)	1 - 5 (48)	0.0913
<i>ICS</i> ^ϕ	4.250 (0.827)	1 - 5 (416)	4.426 (0.683)	2 - 5 (47)	0.1080
<i>RM</i>	3.468 (0.993)	1 - 5 (406)	4.087 (0.725)	2 - 5 (46)	0.0000***
<i>Eff_Cont</i>	3.702 (0.931)	1 - 5 (406)	3.044 (1.065)	1 - 5 (45)	0.0002***
<i>Eff_BP</i>	3.461 (0.959)	1 - 5 (410)	2.651 (0.752)	1 - 4 (43)	0.0000***
<i>IAF_size</i>	1.840 (1.239)	0 - 6.745 (439)	Not applicable*	Not applicable*	
<i>IPPF</i>	0.602 (0.490)	0 - 1 (367)	0.896 (0.309)	0 - 1 (48)	0.0000***
<i>IND</i>	0.271 (0.445)	0 - 1 (450)	0.524 (0.512)	0 - 1 (21)	0.0370**
<i>Comp_size</i>	4.497 (2.051)	1 - 8 (332)	Not applicable*	Not applicable*	

*Notes: As our survey of external auditors represents their individual experience with potentially different IAF, we were not able to gather general information about the size of client's IAF or the overall size of the client company.

Table 3: Pearson correlation matrix

Panel A: Internal Auditors

<i>Variables</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Intensity_EA (1)	1.000								
ICS (2)	0.277*** (0.000)	1.0000							
RM (3)	0.357*** (0.000)	0.389*** (0.000)	1.0000						
Eff_Cont (4)	0.091* (0.084)	0.451*** (0.000)	0.254*** (0.000)	1.0000					
Eff_BP (5)	0.093* (0.077)	0.244*** (0.000)	0.143*** (0.004)	0.649*** (0.000)	1.0000				
IAF_size (6)	0.121** (0.017)	0.163*** (0.000)	0.078 (0.116)	-0.073 (0.141)	-0.108** (0.028)	1.0000			
IPPF (7)	0.147*** (0.008)	0.161*** (0.003)	0.200*** (0.000)	0.089* (0.096)	0.073 (0.171)	0.056 (0.284)	1.0000		
IND (8)	0.363*** (0.000)	0.108** (0.027)	0.244*** (0.000)	-0.128** (0.010)	-0.252*** (0.000)	0.114** (0.017)	-0.052 (0.320)	1.0000	
Comp_size (9)	-0.110* (0.065)	0.013 (0.827)	0.550 (0.345)	0.017 (0.769)	0.047 (0.417)	0.472*** (0.000)	0.472*** (0.000)	-0.144*** (0.009)	1.0000

Panel B: External Auditors

<i>Variables</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Intensity_EA</i> (1)	1.000								
<i>ICS</i> (2)	0.306**	1.0000							
	(0.036)								
<i>RM</i> (3)	0.432***	0.552***	1.0000						
	(0.003)	(0.000)							
<i>Eff_Cont</i> (4)	0.343**	0.037	0.183	1.0000					
	(0.021)	(0.809)	(0.235)						
<i>Eff_BP</i> (5)	0.330**	0.017	0.036	0.673***	1.0000				
	(0.031)	(0.912)	(0.821)	(0.000)					
<i>IAF_size</i> (6)	Not applicable*								
<i>IPPF</i> (7)	0.069	0.115	0.042	0.149	0.025		1.0000		
	(0.638)	(0.441)	(0.780)	(0.328)	(0.874)				
<i>IND</i> (8)	0.607***	0.364	0.437**	0.088	0.352		-0.117	1.0000	
	(0.004)	(0.105)	(0.054)	(0.712)	(0.140)		(0.614)		
<i>Comp_size</i> (9)	Not applicable*								

*Notes: As our survey of external auditors represents their individual experience with potentially different IAF, we were not able to gather general information about the size of client's IAF or the overall size of the client company.

Table 4: Estimated results for ordered logit model for Internal Auditors

Equation 1 for dependent variable intensity_EA				
<i>Variable</i>	Pred. Sign	Coef.	Std. Err.	P-Value
<i>ICS</i>	H1(+)	0.547***	.192	0.004
<i>RM</i>	H1(+)	0.485***	.147	0.001
<i>Eff_Cont</i>	H2(?)	-0.233	.204	0.254
<i>Eff_BP</i>	H2(?)	0.441**	.183	0.016
<i>LN(IAF_size)</i>	(+)	0.180	.118	0.127
<i>IPPF</i>	(+)	0.794***	.276	0.004
<i>IND</i>	(+)	1.602***	.334	0.000
<i>Comp_size</i>	(+)	-0.146**	.072	0.042
Number of obs.			229	
Log-likelihood			-290.979	
χ^2 (9)			91.99	
Pseudo R^2			0.1365	

Ordered Logistic Regression with 95% Conf. Interval

Table 5: Sample structure by country (Full sample)

Country	Invited CAEs	No. of respondents	Response rate	Pct. of sample
Austria	411	79	19.2%	17.6%
Germany	1.893	321	16.9%	71.3%
Switzerland	146	50	34.2%	11.1%
Overall Σ	2.450	450	18.4%	100.0%

Comment: All values represent the full sample. Because of missing answers, the indicated number of responses may vary.

Table 6: Company characteristics (Full sample)

Capital market orientation	Number	Per cent	Industry	Number	Per cent
No	244	57.01	Non-Finance	328	72.89
Yes	184	42.99	Finance	122	27.11
Total	428	100.00	Total	450	100.00

Comment: 22 answers are missing for the listing status

Table 7: Descriptive statistics: Company size (Full sample)

Overall no. of employees		
Item	Number	Per cent
under 1.000	48	10.67
1.000 to under 3.000	68	15.11
3.000 to under 5.000	36	8.00
5.000 to under 10.000	59	13.11
10.000 to under 50.000	71	15.78
50.000 to under 100.000	24	5.33
over 100.000	26	5.78
Missing	118	26.22
Total	450	100

Comment: 118 answers are missing for the overall size All values represent the full sample. Because of missing answers, the indicated number of responses may vary.