



Exploring the link between internationalization of top management and accounting quality: The CFO's international experience matters



Tobias Dauth^{a,*}, Paul Pronobis^{b,c}, Stefan Schmid^d

^a *Alfried Krupp von Bohlen und Halbach Junior Professorship in International Management, HHL Leipzig Graduate School of Management, Fraunhofer Center for International Management and Knowledge Economy, Jahnallee 59, 04109 Leipzig, Germany*

^b *Finance, Accounting & Taxation (FACTS), School of Business and Economics, Freie Universität Berlin, Boltzmannstr. 20, 14195 Berlin, Germany*

^c *Department of Accounting, Kelley School of Business, Indiana University, Bloomington, IN 47405, United States*

^d *Chair of International Management and Strategic Management, ESCP Europe, Berlin Campus, Heubnerweg 8-10, 14059 Berlin, Germany*

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ABSTRACT

This study examines whether and how top management internationalization is associated with accounting quality. We combine upper echelons perspectives, agency theory, human capital theory and accounting research, and demonstrate that top management internationalization mitigates the level of managerial discretion in financial reporting. By decomposing the top management team, our analysis reveals that higher levels of accounting quality are associated with the internationalization of the CFO, not the internationalization of the CEO. In particular, we find that CFO's international education and international work experience are important factors in higher accounting quality.

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1. Introduction

Upper echelons literature has long investigated the link between top management characteristics and firm-level outcomes (Carpenter, Geletkanycz, & Sanders, 2004; Finkelstein, Hambrick, & Cannella, 2009; Rivas, 2012). More recently, scholars have also elaborated on the impact of top management internationalization. It has been argued that international top managers can better manage the complexity of geographically dispersed operations and cope with a multitude of different environments, such as different laws and regulations (Greve, Biemann & Ruigrok, 2015). In a similar vein, scholars have analyzed the relationship between top management internationalization and firm performance (Nielsen & Nielsen, 2012) or strategic decision making (Athanasios & Nigh, 2002).

The role and the impact of (international) upper echelons have become relevant fields of study not only in International Business (IB) literature but also in other academic disciplines. For instance,

accounting research has focused on investigating managerial discretion in financial reporting (Geiger & North, 2006; Healy & Wahlen, 1999). Several accounting decisions facilitate managerial discretion in choosing how to treat certain events, for example, through depreciation rates or accruals for bad debt. If these accounting decisions are conducted opportunistically, financial reporting might not always accurately reflect a firm's underlying economic situation; thus, accounting quality is considered to be impaired (Han, Kang, Salter, & Yoo, 2010; Healy & Wahlen, 1999). Multiple accounting studies have focused on identifying firm-specific characteristics, such as debt covenants or earnings targets, that can influence the level of managerial discretion in financial reporting (Krishnan & Parsons, 2008). Although the literature stresses that corporate governance mechanisms, such as board independence, audit committees, compensation committees, director ownerships or female representation on boards can increase accounting quality (Adams & Ferreira, 2009; Hwang & Kim, 2009; Klein, 2002; Kang, Leung, Morris & Gray, 2013), an increasing number of scholars also considers the characteristics of top managers and their impact on the financial accounting processes. These characteristics include, for instance, the age, qualification and tenure of top managers (Hu, Hao, Liu & Yao, 2015; Ali & Zhang, 2015).

* Corresponding author.

E-mail addresses: tobias.dauth@hhl.de (T. Dauth), paul.pronobis@fu-berlin.de, ppronobi@indiana.edu (P. Pronobis), sschmid@escpeurope.eu (S. Schmid).

Despite the fact that top management initiatives directly affect the level of discretion in financial reporting, the role of top management in the financial reporting processes remains a relatively under-examined field of study (Naranjo-Gil, Maas, & Hartmann, 2009; Ge, Matsumoto, & Zhang, 2011; Demerjian, Lev, Lewis, & McVay, 2012). In this study, we aim to contribute to an increased understanding of managerial characteristics and analyze the role of top management internationalization in firms' financial reporting processes. We intend to portray a more precise picture of the association between top managers' demographics and accounting quality. In particular, our study asks the following questions:

- Is top management *internationalization* associated with accounting quality?
- Does the association between top management *internationalization* and accounting quality vary among corporate governance bodies?
- What is the influence of the *internationalization* of two relatively powerful board members, the CEO and the CFO, on accounting quality?

By addressing these questions, our work helps advance the research in several ways. First, we contribute to literature that investigates the outcomes of top management internationalization. To do so, we take an interdisciplinary stance and combine upper echelons perspectives, agency theory and human capital theory with accounting research. We argue that top managers with international exposure have weaker incentives to exert discretion in financial reporting, can better cope with the complexity of international accounting standards and can ultimately increase a firm's accounting quality. In this respect, our study can be regarded as an attempt to examine the association between managerial characteristics and the quality of financial reporting (Aier, Comprix, Gunlock, & Lee, 2005; Demerjian et al., 2012). Second, we provide a comprehensive view of the internationalization of top managers by drawing on four important dimensions to measure an individual's overall internationalization profile: foreign nationality, international education, international work experience, and international board appointments. Consequently, we respond to recent calls for more fine-grained and comprehensive measures of top management internationalization (Greve, Nielsen, & Ruigrok, 2009; Nielsen & Nielsen, 2012). Third, by focusing on a sample of German-listed firms, we complement investigations that primarily focus on top management characteristics in the Anglo-American context (see Oxelheim, Gregorič, Randøy, & Thomsen, 2013; Randøy, Thomsen, & Oxelheim, 2006; Six, Normann, Stock, & Schiereck, 2013, for notable exceptions) and account for the varieties of corporate governance systems that currently exist (Aguilera & Jackson, 2003). Our analysis adds empirical evidence with respect to the financial decision making capabilities of not only the two main boards in countries with a two-tier system (i.e., the management board and the supervisory board) but also the CEO and the CFO. To accomplish this, we follow Johnson, Schnatterly, and Hill (2012), who emphasize the importance of analyzing the role of top management subgroups and individual top managers within a firm. Along these lines, and to address research interests related to the role of individual top managers, we ask whether accounting quality is influenced by the internationalization of CEOs or CFOs.

Drawing on a sample of firms listed in the German DAX-30 index from 2005 to 2010 and using demographic data on more than 1800 individuals belonging to management boards or supervisory boards, our findings demonstrate that the internationalization of *management board members* increases accounting quality. However, the internationalization of *supervisory board members* is not

associated with the level of accounting quality. Additionally, our top management decomposition analysis reveals that the increase in accounting quality is primarily attributable to the internationalization of the CFO but not to the internationalization of the CEO. This finding complements existing research that emphasizes the general influence of CFOs on firms' financial reporting processes (Aier et al., 2005; Ge et al., 2011). Our additional analyses find that international education and the international work experience of CFOs, and not other dimensions of internationalization such as nationality or international mandates, are the strongest explanatory factors for increased accounting quality.

The remainder of the paper is structured as follows: the second section provides details about our theoretical argumentation and develops our hypotheses. The third section includes a description of the sample and outlines our research method. The results of our empirical investigation are presented in the fourth section, followed by a discussion and concluding remarks in section five. The paper ends with limitations and avenues for future research.

2. Literature and hypothesis development

2.1. The German corporate governance system

Several scholars emphasize important differences between Anglo-American and German accounting systems (e.g., Ernstberger & Vogler, 2008; Gray, 1988). Their investigations assert that institutional environments also affect firms' accounting quality (e.g., Gray, Kang, Lin, & Tang, 2015). Thus, before specifically addressing the association between top management internationalization and accounting quality in a German context, we must consider German particularities with respect to the corporate governance system. German stock corporations (*Aktiengesellschaften*) are typically characterized by a stakeholder orientation and a two-tier board structure that separates management and control (Quick & Warming-Rasmussen, 2009). In contrast to the Anglo-Saxon one-tier system, the management board (*Vorstand*) is responsible for strategic and operational decision making, whereas the supervisory board (*Aufsichtsrat*) monitors the actions of management board members and provides strategic guidance. Furthermore, the supervisory board represents employee interests through the concept of co-determination (Hopt, 1998; Tuschke & Sanders, 2003) and maintains networks with stakeholders. Fig. 1 provides an overview of the German corporate governance system, including the main roles of the management board and the supervisory board.

According to the German Corporate Governance Code (*Deutscher Corporate Governance Kodex*), consolidated financial statements of firms must be prepared by the members of the management board and examined by the auditor and the members of the supervisory board (CGCG, 2013). To account for the specifics of the German corporate governance system, we develop separate hypotheses for the management board and the supervisory board.

2.2. Accounting quality and managerial discretion in financial reporting

Accounting quality is generally defined as the degree to which understandable, relevant, reliable and comparable information about firm performance is provided to support the addressees' decision making processes (IASB Framework, 1989, para. 24). Because accounting standards do not provide any direct measures to help to make accounting quality observable, the accounting literature has developed empirical proxies for the quality in financial reporting (Francis et al., 2004). These proxies reflect accounting-based attributes of earnings on the one hand (i.e., persistence, predictability, quality of accruals, volatility and

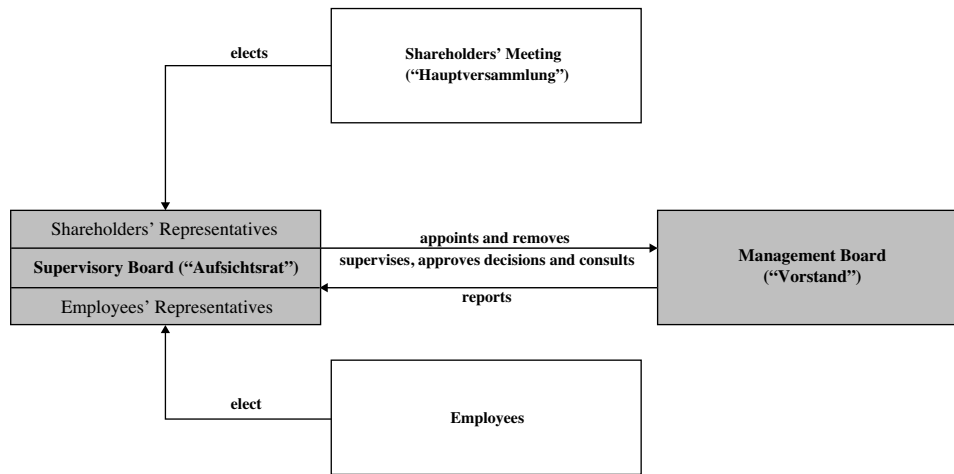


Fig. 1. The German Corporate Governance System.

earnings management) and market-based attributes on the other hand (i.e., value relevance, timeliness and conservatism). Thereby, “earnings management” approximates the degree of managerial discretion in financial reporting (Han et al., 2010; Krishnan & Parsons, 2008). More specifically, “earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the firm or to influence contractual outcomes that depend on reported accounting numbers” (Healy & Wahlen, 1999: p. 368). The opportunity to “manage” earnings arises in part from the fact that a firm’s reported income can be separated into two components. One element of reported income is current cash flows and the other is referred to as “accounting accruals”. Whereas current cash flows are relatively easy to measure (i.e., when cash is paid out or received), assessment of the accruals component involves a substantial amount of managerial judgment and discretion (Bergstresser & Philippon, 2006; Geiger & North, 2006).¹

The opportunity for managerial judgment (which serves the goal of faithfully representing all underlying economic phenomena) provides room for adverse managerial discretion. Consequently, top managers can influence firms’ accruals because stakeholders cannot fully unravel managers’ exercise of discretion over accruals (Beneish, 1998). Typically, accounting researchers attempt to isolate the so-called “discretionary accruals component” from the total accruals component through a multivariate estimation of “nondiscretionary” accruals (e.g., Dechow & Skinner, 2000; Healy & Wahlen, 1999). Next, discretionary accruals are determined by subtracting the nondiscretionary accruals component from the total accruals for a given period (Dechow, Sloan, & Sweeney, 1995). Prior evidence has demonstrated that the common discretionary accruals measures are significantly associated with various economic outcomes, such as litigation propensity, audit opinions, fraudulent and restated earnings, market valuations, executive compensation, labour market outcomes, a firm’s cost of capital and analyst forecast accuracy (Dechow, Ge, & Schrand, 2010; Jones, Krishnan, & Melendrez, 2008). Ultimately, discretionary accruals serve as a measure of opportunistic

managerial judgment or accounting discretion in financial reporting, and thus, proxy for accounting quality.

2.3. Management boards (Vorstände) and accounting quality

2.3.1. Upper echelons perspectives, human capital theory and the agency problem

The concept of managerial judgment not only is a key constituent of accounting quality but also serves as a link between accounting and upper echelons research. According to the upper echelons perspective, top managers base their actions and judgment on individual perceptions of the situations they face (Hambrick & Mason, 1984). In turn, these individual perceptions are influenced by top managers’ experiences, values, and norms. Upper echelons theory posits that demographic characteristics can serve as proxies for these abstract experiences, values, and norms. Consequently, upper echelons theory helps explain how observable top management characteristics influence financial reporting processes. For instance, in a situation in which top managers must assess the value of a firm’s receivables, a customer’s payment morale, or the likelihood of customer default (Bergstresser & Philippon, 2006), demographic proxies such as age, gender, tenure or internationalization can be used to explain differences in top managers’ perceptions, evaluations and ultimately, earnings management.

To develop hypotheses on the link between management board internationalization and earnings management, we combine upper echelons perspectives and human capital theory with agency theory. In other words, we investigate the relationship between principals (i.e., shareholders) and agents (i.e., management board members).² Unlike principals who can spread their investments and risks across different firms, agents typically invest all their human capital in a single firm to which they are (temporarily) tied (Zhang, Bartol, Smith, Pfarrer, & Khanin, 2008). These different levels of flexibility and risk can result in conflicts between principals and agents. Agency theory further assumes that managerial actions often depart from those required to maximize shareholder value (Donaldson & Davis, 1991). Thus, top

¹ Accruals accounting attempts to record the financial effects on a firm of economic transactions, events, and circumstances that have cash consequences in the periods in which they occur, not only in the periods in which cash is received or paid (Dechow & Skinner, 2000). The goal is to help investors assess the entity’s economic performance during a given period.

² It has to be noted, however, that in the German corporate governance system the principal agent relationship is even more complex. German stock corporations are characterized by a two-tier board structure. Whereas shareholders directly elect (parts of the) supervisory board members, it is the supervisory board that ultimately determines the composition of the management board.

managers tend to act in an opportunistic manner by increasing their personal wealth at the expense of the shareholders. Because financial statements provide relevant information to shareholders, management board members may have an incentive to alter a firm's financial reporting to their personal advantage (i.e., to engage in earnings management) thus impairing accounting quality. The decision to manipulate earnings can be triggered by various factors such as contractual agreements between principals and agents and the need to achieve projected earnings to satisfy market expectations or to increase job security (Rahman & Ali, 2006).

Following the agency theory rationale, potential conflicts between principals and agents can typically be mitigated by offering outcome-based incentives (e.g., stock options) that align managers' motivation for personal gain with shareholders' objectives (O'Connor, Priem, Coombs, & Gilley, 2006). In this regard, we argue that top managers' demographic characteristics (including characteristics that are linked to their human capital) can influence their motivation to engage in earnings management. Consequently, we build a link between upper echelons and human capital perspectives and the agency problem. This link corresponds to a statement by Carpenter, Pollock, and Leary (2003: pp. 804–805) who argue, “an important opportunity exists to show how the background characteristics and experience of particular actors may interact with important organizational governance mechanisms, and in so doing help us better understand the role of individual risk perceptions in agency-based governance remedies”. In a similar vein, Daboub, Rasheed, Priem, and Gray (1995) outline that top managers' characteristics can serve as a promising variable to explain corporate illegalities and wrongdoing (e.g., earnings management).

2.3.2. Management board internationalization and accounting quality

We develop our reasoning on the link between management board internationalization and accounting quality through two key arguments. (i) First, we posit that management board internationalization can reduce top managers' incentives to engage in earnings management. (ii) Second, we argue that international top managers can draw on their experience to cope with the complexity of accounting procedures in international firms and thus increase accounting quality.

(i) Previous research has shown that top managers' motivation to engage in earnings management, and thereby impair accounting quality, can be triggered by various factors, such as management-compensation plans (Healy, 1985), debt contracts (DeFond & Jiambalvo, 1994), stock offerings (Shivakumar, 2000), avoiding losses (Burgstahler & Dichev, 1997), effective tax-rates (Othman & Zeghal, 2006) and compliance with the forecasts of analysts and management (DeGeorge, Patel, & Zeckhauser, 1999). In their paper on earnings management in the U.S. and Germany, Glaum, Lichtblau, and Lindemann (2004) argue that contracting motivations, such as stock-option schemes and other forms of performance-oriented compensation play only a minor role in the German context (see also Tuschke & Sanders, 2003). Instead, they find that in German firms loss avoidance is a major motive for earnings management.

In this context, we ask why top management internationalization affects a firm's financial performance and its top managers' motivation to pursue earnings management actions. To answer this question, we now specify the role of human capital theory. We argue that the internationalization of top managers is part of their human capital and can have a positive impact on firm-level outcomes (Johnson et al., 2012; Patzelt, 2010). More precisely, existing research has identified positive relationships between several aspects of top management internationalization and firms' financial performance. In our study, we draw on four prominent

dimensions of international human capital: top managers' nationality, international education, international work experience and international linkage. These dimensions are described further below.

Nielsen (2010b) highlights that top managers' foreign nationality can be regarded as a valuable source of knowledge about doing business abroad. Top managers who spent their formative years in foreign countries possess valuable insights into foreign countries' culture, behaviour and norms. This knowledge can be invaluable in understanding the preferences of foreign customers and making decisions about a firm's internationalization strategy. More generally, we argue that top managers with foreign nationalities possess valuable cognitive abilities and therefore increase the top management team's problem-solving capacity (Hambrick, Davison, Snell, & Snow, 1998). This enhanced cognitive capacity can be beneficial in investigating national and international investment opportunities. In this regard, Nielsen (2010b) and Nielsen and Nielsen (2012) identify a significant and positive relationship between top managers' nationality diversity and firms' overall performance, as measured by return on assets (ROA).

Similarly, we can argue that top managers' international education and international work experience are additional sources of human capital. The knowledge gained through international education can enhance a manager's understanding of foreign customers, competitors and employees (Carpenter, Sanders, & Gregersen, 2001; Piekkari & Tietze, 2011). Moreover, Patzelt (2010) emphasizes that top managers who possess international work experience may reduce the risks of firms' operations abroad. Patzelt states that top managers who have completed international work assignments have knowledge of foreign markets and regulations. Thus, unlike individuals who have lived and worked only in their home countries, international top managers will experience fewer uncertainties when entering foreign markets (Sambharya, 1996). These conceptual arguments are supported by empirical results. Cheng, Chan, and Leung (2010) find a positive relationship between top managers' educational level and overall firm performance measured by earnings per share and ROA. Carpenter et al. (2001) identify a positive link between top managers' international work experience and total shareholder return.

Another relevant type of human capital is top managers' international linkage. Personal networks and interlocking directorships with foreign firms can help top managers establish contacts with international business partners (Herrmann & Datta, 2005). These business partners can strengthen a firm's reputation and trust in foreign markets and partially reduce its liabilities of newness (Patzelt, 2010). In addition, international board appointments can serve as a valuable source of information about market structures and customer preferences. In turn, this information can increase the likelihood of successful international operations and improve a firm's strategic position (Pennings, 1980). In this context, Zhang and Wiersema (2009) find that the number of top managers' external board appointments is positively related to abnormal stock returns.

Based on theoretical arguments and existing empirical results, we can reasonably expect that international top managers play a vital role in ensuring a firm's success in national and international markets. In the context of German firms, the positive impact of top management internationalization on a firm's international operations is particularly important because many German listed firms generate more than half of their total sales outside of their home country; for some firms the level of foreign sales can reach 70% or 80% (Schmid & Dauth, 2012). Ceteris paribus, we expect that firms with international management board members exhibit higher financial performance than firms in which management board members have no or only limited international exposure.

Consequently, we conclude that the positive outcomes of top managers' internationalization also affect the motivation to "manage" earnings. More concretely, because international top managers can better secure success in foreign and domestic markets, their motivation to engage in earnings management is lower than for non-international top managers. In turn, accounting quality is higher for firms with more internationally experienced top managers.

(ii) Our second line of argument builds on recent literature that investigates the link between top management characteristics and financial reporting processes. Aier et al. (2005) document a relationship between top managers' experience and accounting restatements and relate to the notion that increasing competition and firms' internationalization have made firms' operations increasingly complex. Consequently, they call for more skilled and experienced individuals at firms' upper echelons. Demerjian et al. (2012, p. 463) assume that "superior managers are more knowledgeable of their business, leading to better judgements and estimates and, thus, to higher quality earnings." In a similar vein, we expect international experience to enable management board members to better handle the complex accounting processes of international firms (Duru & Reeb, 2002). Overall, we posit that international top managers can estimate accruals more accurately. For instance, international management board members might be better able to assess the probability of foreign customers' default; thus, they can increase the accuracy of a firm's financial reporting. Furthermore, they might be more knowledgeable of international macro-economic conditions when estimating the expenses of bad debt and they might be more able to understand and apply complex international accounting standards (Demerjian et al., 2012). Considering these arguments, we can reasonably assume that international experience enhances top managers' skills and helps them to increase firms' accounting quality.

In sum, we presented a rationale suggesting a link between top managers' internationalization and their incentives to engage in earnings management: international top managers can better secure a firm's financial performance in an international context. Thus, it is less likely that they need to engage in earnings management to avoid losses. Moreover, international top managers know and understand various international accounting practices and they can draw on international "best practices" to improve the accuracy of a firm's financial statements (i.e., they can draw on a broad set of accounting knowledge that could be helpful in the quest to mitigate earnings management). Based on this argumentation, we posit the following hypothesis:

Hypothesis 1a. The internationalization of management board members is positively associated with accounting quality.

Management board members differ in respect to their weight in the firm's strategic and operational decision-making processes (Jungmann, 2006). Generally, German corporate governance requires executive power to be equally distributed among all management board members (Hall & Soskice, 2001). However, many scholars argue that in managerial practice, the chairperson/spokesperson of the management board is equipped with a considerable amount of discretion and power (Crossland & Hambrick, 2011). Accordingly, this individual is increasingly considered to be the counterpart to the Anglo-American CEO (Crossland & Hambrick, 2007; Kaplan, 1994; Oesterle, 1999).³ To account for the prominent role of the chairperson/spokesperson of

the management board, we investigate the influence of this individual separately and establish the following hypothesis:

Hypothesis 1b. The internationalization of the CEO of a management board is positively associated with accounting quality.

Both scholars and practitioners emphasize the importance of financial strategy for a firm's performance and survival (Gore, Matsunaga, & Yeung, 2011; Naranjo-Gil et al., 2009). In this regard, we observe an increasing body of literature focusing on the role and tasks of a firm's chief financial officer (CFO) (Geiger & North, 2006; Kunz, 2010; Menz, 2012; Mian, 2001; Six et al., 2013). According to Mian (2001: p. 144), the CFO "retains the ultimate responsibility for the design and implementation of the policy decisions related to the company's financial performance". Thus, we can reasonably expect that CFOs (and their individual characteristics) might also have an impact on accounting quality. In this study, we respond to recent calls by researchers that emphasize the need to investigate the role of other relevant top managers, not only the CEO, to fully understand the antecedents of earnings management (Naranjo-Gil et al., 2009; Ronen & Yaari, 2008; Six et al., 2013; Uddin & Gillett, 2002). Thus, we hypothesize as follows:

Hypothesis 1c. The internationalization of the CFO is positively associated with accounting quality.

2.4. Supervisory boards (*Aufsichtsräte*) and accounting quality

As outlined above, two key tasks of the German supervisory board consist of monitoring the actions of the management board and providing strategic counsel to the management board members. Both the monitoring role and the advisory role require a thorough understanding of the firm's environment. Because business operations are no longer tied to domestic markets, supervisory board members must be aware of the complexity that international firms face when dealing with varying legal systems and corporate governance practices in foreign markets (Greve et al., 2009; Nielsen, 2010b). In this regard, scholars and practitioners request an increase in supervisory board internationalization (Lutter, 2009; von Werder, 2006). Following Oxelheim and Randøy (2005), we expect that international supervisory board members can improve a firm's monitoring and advisory standards as they import new best practices based on their exposure to several corporate governance systems. For instance, Oxelheim and Randøy (2003, 2005) argue that the inclusion of Anglo-American board members signals a higher commitment to corporate monitoring and transparency. The authors suggest that the presence of at least one foreign board member representing a more demanding corporate governance system will result in more active and efficient supervisory boards.

From an agency theory perspective, the superior monitoring skills of international supervisory board members can help curtail managerial "opportunism" and earnings management (Donaldson & Davis, 1991). In line with existing literature on the structure and effectiveness of boards (Bathala & Rao, 1995: pp. 60–61), we state that international supervisory board members can improve firms' accounting quality (Farrell, Yu, & Zhang, 2013; Kumar & Zattoni, 2013; Masulis, Wang, & Xie, 2012; Minichilli, Zattoni, & Zona, 2009). We propose that international supervisory board members can help provide firms with the necessary advice, monitoring abilities and resources to ensure a high level of quality and reliability in financial reporting processes. Because of their familiarity with foreign markets, international supervisory board managers should be better able to understand the international business environment and foreign corporate governance

³ Empirical results have shown that CEOs use the discretionary components of earnings to manipulate reported earnings when their potential total compensation is more closely tied to the value of stock and option holdings (Bergstresser & Philippon, 2006).

standards, thus contributing to the supervisory board's monitoring and advisory functions (Lutter, 2009; Oxelheim & Randøy, 2003; Oxelheim et al., 2013). Ultimately, we argue that international supervisory board members improve firms' accounting quality because they have a greater experience and ability to detect earnings management and minimize errors in the financial reporting process (Bédard, Marrakchi Chtourou, & Courteau, 2004; Xie, Davidson, & DaDalt, 2003).⁴

Hypothesis 2. The internationalization of supervisory board members is positively associated with accounting quality.

3. Data and methodology

3.1. Sample

To test our hypotheses, we draw on a sample consisting of German MNEs listed in the DAX-30 index between 2005 and 2010. The DAX-30 index includes the largest (in terms of market capitalization) and most actively traded capital market-oriented German firms. As previously mentioned, all the DAX-30 firms generate a large proportion of their sales abroad. In addition, on average, more than half of their employees are employed outside of Germany (Schmid & Dauth, 2012). The DAX companies included in our study are listed in Appendix B.

We identified all management board members and supervisory board members based on the firms' annual reports. Next, we collected curriculum vitae (CVs) and additional bibliographic data (as published in the firms' annual reports and on their corporate websites). We also approached top managers directly to obtain first-hand information about their backgrounds. Thus, we compiled information on 673 individuals in 2005, 736 individuals in 2008, and 609 individuals in 2010. Because we can reasonably expect that some of the board members' personal characteristics are not subject to fundamental changes (e.g., nationality and international education), we generate the data for the remaining years (2006, 2007 and 2009) by calculating mean scores based on the previous/subsequent data collection periods.⁵ Accordingly, our initial sample consists of 180 firm-year observations. Next, we excluded all firms from the financial services sector because of their specific accounting regulations and performance measures. The inclusion of financial services firms might jeopardize the generalizability of our findings. We also eliminated firms with missing IFRS (consolidated) financial statements information in the Thomson Reuters Worldscope database or missing ownership information in the Bureau van Dijk (Bvd) Amadeus database for the period from 2005 through 2010. Finally, we matched analysts' information from the Thomson Reuters I/B/E/S database. These procedures resulted in a final sample of 109 firm-year observations and demographic data on 597 management board members and 1211 supervisory board members.

3.2. Dependent variable: discretionary accruals

We proxy for accounting quality by applying the discretionary accruals research framework (see also Dechow et al., 1995). As previously outlined, this approach segments firm-specific total accruals within a given period into a non-discretionary (or normal)

and a discretionary (or abnormal) component following a two-stage process (Geiger & North, 2006). In the first stage, a cross-sectional model is estimated for each individual year-industry combination by regressing total accruals on factors such as firm size, the level of property, plant, and equipment (PPE) and growth in revenues (Geiger & North, 2006; Healy & Wahlen, 1999; Kothari, Leone, & Wasley, 2005). Here, the researcher uses forecasted values to estimate non-discretionary accruals. In the second stage, the estimated discretionary accruals fall out as prediction errors (Bernard & Skinner, 1996). Specifically, discretionary accruals are generated by subtracting a firm's actual (observable) accruals from the expected (predicted) accruals for a given period. The resulting discretionary accruals are equivalent to the residual values from estimating the accruals models presented below. Because these discretionary accruals are believed to be subject to more reporting judgment, calculating the amount of discretionary accruals reveals the level of earnings management within the firms' financial statements (Bédard et al., 2004; Fields & Keys, 2003; Han et al., 2010; Yu, 2008).

In our study, we estimate two distinct measures of discretionary accruals. Both models follow Kaplan's (1985) suggestion that accruals likely result from the exercise of managerial discretion and from changes in the firm's economic conditions. In addition, these discretionary accruals models build upon the widely used (modified) Jones (1991) model, which is the most common estimation approach for discretionary accruals in accounting research (e.g., Barth, Landsman, & Lang, 2008; Beneish, 2001). The first variable, *|DA_Measure1|*, is based on the Ball and Shivakumar (2006) model, which specifically emphasizes the asymmetrically timely recognition of losses compared with gains (e.g., Basu, 1997). Consequently, a piecewise linear estimation procedure is used to discriminate between the different functional forms of gains and losses. In addition, the model implicitly assumes that nondiscretionary working capital accruals are proportional to the change in revenue minus the change in receivables (Dechow et al., 1995). Another implicit assumption is that nondiscretionary depreciation is proportional to total investment (as would be the case in a straight-line depreciation scheme with no asset impairment write-offs). Finally, we standardize the intercept as an inverse proxy for growth over time (Jeter & Shivakumar, 1999; McNichols, 2002). The resulting regression is presented below:

$$TACC_{it}/TA_{it-1} = \beta_0 + \beta_1(1/TA_{it-1}) + \beta_2([\Delta REV_{it} - \Delta REC_{it}]/TA_{it-1}) + \beta_3(PPE_{it}/TA_{it-1}) + \beta_4(CFO_{it}/TA_{it-1}) + \beta_5(DCFO_{it}) + \beta_6((CFO_{it}/TA_{it-1}) * DCFO_{it}) + \varepsilon_i$$

The second estimation of discretionary accruals (*|DA_Measure2|*) also controls for nondiscretionary accruals by incorporating the change in revenue minus the change in receivables as well as the total property, plant and equipment invested. In addition, this model specifically controls for firm performance as measured by the accounting ROA. This procedure is suggested by McNichols (2000) and Kothari (2001) because non-discretionary accruals are highly correlated with past and current firm performance. The resulting performance-adjusted modified Jones model is presented below.

$$TACC_{it}/TA_{it-1} = \beta_0 + \beta_1(1/TA_{it-1}) + \beta_2([\Delta REV_{it} - \Delta REC_{it}]/TA_{it-1}) + \beta_3(PPE_{it}/TA_{it-1}) + \beta_4(ROA_{it}) + \varepsilon_i$$

We estimate both models for the full sample of German listed firms by year and by industry using a total of 2743 firm-year observations.⁶ Furthermore, we require a minimum of ten observations for all year-industry combinations. In line with Jones

⁴ According to German law, supervisory board members are obligated to regularly review and check a firm's financial statements. See, for example, Lutter (2009) and Scheffler (2003). Therefore, it is reasonable to assume that supervisory board members can influence a firm's level of earnings management.

⁵ Please note that our results do not change when we restrict our analysis to the years 2005, 2008 and 2010.

⁶ Results are available from the authors upon request.

et al. (2008), we include both measures of discretionary accruals in our empirical analysis.

3.3. Independent variable: top management internationalization

A review of upper echelons literature reveals that only a few studies employ a comprehensive analysis of top managers' internationalization (Nielsen, 2010a). Instead, existing research often draws on single-item constructs to measure individual internationalization (Nielsen, 2010b). However, by focusing on single dimensions, important aspects of a top manager's internationalization might be neglected (Aharoni, Tihanyi, & Connelly, 2011; Carpenter & Reilly, 2006). Our paper extends prior studies and aims to portray a more comprehensive picture of internationalization by considering a top manager's (i) nationality, (ii) international education, (iii) international work experience and (iv) international board appointments (for this approach, see also Schmid & Daniel, 2006; Schmid & Dauth, 2014; Schmid & Wurster, 2016). By taking these four dimensions into account, we encompass important periods of an individual's life. Nationality covers the formative years, i.e. the period until finishing secondary school.⁷ International education and work experience account for the time of finishing secondary school onwards. Each of these periods represents a unique context for learning opportunities that can influence a top manager's human capital (Maddux & Galinsky, 2009; Nunes & Arthur, 2013). International linkage addresses an additional aspect of internationalization: it reflects a top manager's ability to build a professional network outside of his or her home country (James, 2000). This approach is reflected in the following index:

$$INT = \frac{1}{4} \left[F_i + \left(1 - \frac{1}{E_i + 1} \right) + \left(1 - \frac{1}{W_i + 1} \right) + \left(1 - \frac{1}{A_i + 1} \right) \right]$$

F_i represents the foreignness of person i relative to a firm's home country (i.e., $F_i = 0$ if the person's nationality is German; $F_i = 1$ for any other nationality). E_i is the number of years of higher education spent abroad. W_i is the number of years of international work experience. A_i is the number of appointments to boards of foreign companies.

The components representing the dimensions of international education, international work experience and international mandates depict a flattening trend. Thus, the mathematical structure of the index corresponds to theories of intercultural learning (Hamori & Koyuncu, 2011; Kealey, 1989). It has been found that even short stays abroad can have a large impact on intercultural sensitivity and awareness (Baruch, Dickmann, Altman, & Bournois, 2013), whereas after some years the learning curve decreases and additional time spent abroad only leads to limited additional effects (Pausenberger & Noelle, 1977).

3.4. Controls

We control for several variables representing alternative explanations for top managers' motivation to "manage" earnings. We include *management board size* and *supervisory board size* by calculating the total number of individuals in each body. According to Oxelheim and Randøy (2003, 2005), the size of the top management team can influence a firm's decision making and corporate governance processes. Larger boards may be less effective and more liberal when it comes to monitoring a firm's accounting procedures (see also Core, Holthausen, & Larcker, 1999). Thus, board size may be negatively correlated with

accounting quality. We also control for top managers' *compensation structure* by including the ratio of variable compensation to fixed compensation. A relatively high level of variable compensation can increase top managers' motivation to put accounting quality at issue (Bergstresser & Philippon, 2006; Laux & Laux, 2009). We add variables to our models to account for the compensation structure of the CEO, the CFO and all other management board members in a firm. Another control variable is the *age diversity* of top management, which is defined as the standard deviation of age of the top managers divided by their mean age. Thus, lower scores indicate greater homogeneity (Jaw & Lin, 2009). Following Li, Chu, Lam, and Liao (2011), we argue that a high level of age diversity in a firm's top management provides a broad range of perspectives, skills, and insights. Thus, age diversity can enhance problem-solving capabilities, monitoring standards and transparency within a firm. Ultimately, we expect age diversity to have an increasing effect on accounting quality. We also consider top managers' *gender diversity*, which is measured as the percentage of women on the management board and in the supervisory board. Recent studies have demonstrated that the representation of women in a firm's top management team can significantly increase accounting quality (Barua, Davidson, Rama, & Thiruvadi, 2010; Krishnan & Parsons, 2008; Peni & Vähämaa, 2010).

In addition, we control for *firm size*, which is measured as the natural log of total assets (Ittonen, Vähämaa, & Vähämaa, 2013; Othman & Zeghal, 2006). Prior studies argue that top managers in relatively large firms experience greater pressure to report more predictable earnings (Pincus & Rajgopal, 2002), potentially inducing top management to draw on either income-increasing or income-decreasing abnormal accruals (Barua et al., 2010). *Operating cash flows* and the *book-to-market ratio* are added to the model to capture the consequences of current firm performance and potential future firm performance on our earnings management proxies (Becker, DeFond, Jiambalvo, & Subramanyam, 1998; Dechow & Dichev, 2002). As noted by Kothari et al. (2005), estimating discretionary accruals does not control for unusual or extreme performance because such periods impart a transitory component to accruals. Therefore, it is important to include additional control variables for the remaining performance-specific effects. Next, we proxy for the so-called "big bath" accounting actions during loss periods by including a dummy variable that is coded one if *net income* is negative for the period and zero otherwise. Prior literature has shown that firms excessively write off assets during loss periods to boost future profitability (see, for example, DeAngelo, DeAngelo, & Skinner, 1994). Furthermore, the ratio of total debt to total assets (*leverage*) is included as a control in particular because firms with high debt ratios are expected to have stronger incentives to improve earnings either to meet specific debt agreements, such as debt covenants, or to avoid a bankruptcy declaration (DeFond & Jiambalvo, 1994; Johnson, Khurana, & Reynolds, 2002). We also include the ratio of *foreign sales to total sales* to proxy for a firm's internationalization (Hamori & Koyuncu, 2011). *Foreign ownership* (percentage of shares held by non-German investors) and *blockholder ownership* (percentage of shares held by the three largest investors) are added to control for firms' corporate governance characteristics. It is argued that foreign shareholders can act as outsiders who help increase the level of monitoring in a firm and thus increase accounting quality (Oxelheim & Randøy, 2003; Oxelheim et al., 2013). Similarly, blockholders are equipped with a considerable amount of power and are likely to create further incentives to monitor management (Oxelheim & Randøy, 2005; Oxelheim et al., 2013). We also control for the number of analysts following because firms are reluctant to perform earnings management with increasing monitoring by financial analysts (Yu, 2008). Finally, the standard deviation of the analysts' earnings forecasts is included to

⁷ When information on a person's formative years was unavailable, we reverted to his/her nationality to evaluate this dimension.

Table 1
Descriptive Statistics.

Variables	Observations	Mean	Standard Error	Min	Q1	Median	Q3	Max
<i>IntIndex_MBoard</i>	109	0.31932	0.11757	0.08750	0.24000	0.30210	0.39090	0.57595
<i>IntIndex_CEO</i>	109	0.32589	0.24539	0.00000	0.16667	0.22368	0.53472	0.89250
<i>IntIndex_CFO</i>	109	0.29983	0.21589	0.00000	0.16667	0.29167	0.38100	0.90140
<i>IntIndex_OtherMBoard</i>	109	0.30689	0.16218	0.00000	0.19480	0.31005	0.37283	0.90190
<i>IntIndex_SBoard</i>	109	0.23270	0.08358	0.07110	0.17166	0.22790	0.27986	0.46478
<i>TMT_Size</i>	109	23.08257	4.18911	14.0000	20.0000	24.5000	26.0000	29.5000
<i>Age_Diversity</i>	109	0.13789	0.02321	0.09000	0.12000	0.13500	0.15500	0.21000
<i>Pct_Woman</i>	109	0.07117	0.05003	0.00000	0.03571	0.07143	0.11111	0.20000
<i> DA_Measure1 </i>	109	0.10913	0.11775	0.00068	0.03659	0.08818	0.11289	0.52346
<i> DA_Measure2 </i>	109	0.12867	0.12838	0.00338	0.04679	0.10151	0.14828	0.57735
<i>Comp_Inc</i>	109	2.11777	0.98624	0.00000	1.54384	2.04410	2.51912	5.41834
<i>Ln_Total_Assets</i>	109	17.18366	1.04756	14.3552	16.5345	17.3011	18.3135	18.4095
<i>OCF</i>	109	0.11791	0.09566	-0.02944	0.06537	0.09347	0.13377	0.46976
<i>Loss</i>	109	0.08257	0.27650	0.00000	0.00000	0.00000	0.00000	1.00000
<i>Leverage</i>	109	0.25199	0.25640	0.04962	0.06878	0.08079	0.49867	0.87428
<i>BTM</i>	109	0.35089	0.40185	0.02606	0.05583	0.25639	0.52180	3.01730
<i>Foreign_Sales</i>	109	0.62030	0.17466	0.00000	0.52700	0.61150	0.77240	0.90540
<i>Foreign_Own</i>	109	0.08412	0.13205	0.00000	0.00000	0.04150	0.12180	0.91185
<i>Blockholder_Own</i>	109	0.62803	0.42631	0.00000	0.00000	0.84782	0.98743	1.00000
<i>Ln_AnalystsN</i>	109	3.15815	0.65351	1.00000	3.21888	3.36730	3.46574	3.71357
<i>Stddev_Forecasts</i>	109	0.38174	0.27536	0.05000	0.17000	0.31000	0.50000	1.12000

Notes: Table 1 exhibits the summary statistics of the main variables used in our analysis. The data for the internationalization indices were hand-collected. The ownership data stem from the BvD Amadeus database. The data on analysts were taken from the Thomson Reuters I/B/E/S database. All other variables stem from the Thomson Reuters Worldscope database. All variables are defined in Appendix A.

control for managerial incentives to manage earnings through discretionary accruals when analysts have achieved consensus (see, for example, Robb, 1998).

3.5. Methods

Using a dataset consisting of up to five years of data for each firm, we tested our hypotheses with pooled OLS regressions. To ensure the validity of our regression results, we computed Pearson and Spearman correlation coefficients for the independent variables. Generally, the relations between our independent variables are relatively low. Thus, we can reasonably expect that multicollinearity is not an issue in this study. To control for temporary time-series and cross-sectional dependence in the residuals, we follow Petersen (2009) and cluster standard errors both by firm and by year. In addition, industry- and year-fixed-effects are included to control for fixed industry-specific, time-variant characteristics.

4. Results

4.1. Main evidence on top management internationalization and accounting quality

Table 1 shows the descriptive statistics for all variables in our regression models. Table 2 illustrates the correlation coefficients for these variables.

For an incipient analysis of the association between top management internationalization and accounting quality, we estimate two regression models. In model 1a, the dependent variable is firms' discretionary accruals calculated using the Ball and

Shivakumar (2006) procedure. The dependent variable in model 1b is the discretionary accruals derived from the Dechow et al. (1995) modified-Jones model. The regression results are presented in Table 3.⁸ The overall explanatory power of approximately 46% suggests a good specification of our model.

Both models indicate a significant and negative association between the internationalization of the management board and the level of discretionary accruals ($\beta_{\text{Model1a}} = -0.19122$, $p < 0.05$; $\beta_{\text{Model1b}} = -0.18607$, $p < 0.10$). Accordingly, Hypothesis 1a is supported. In contrast, the internationalization of supervisory board members does not significantly influence the amount of discretionary accruals. Based on the findings of both models, we cannot provide evidence that allows us to reject the null alternative to Hypothesis 2. We determine the additive explanatory power of the variable *IntIndex_MBoard* by calculating Cohen's f^2 effect size measure (Cohen, 1988, 1992). The effect size f^2 of including *IntIndex_MBoard* is 0.029 (model 1a) and 0.017 (model 1b), respectively, which represents a small effect for both models. Model 1a and model 1b also illustrate a significant and positive impact of firm size ($\beta_{\text{Model1a}} = 0.06721$, $p < 0.10$; $\beta_{\text{Model1b}} = 0.06758$, $p < 0.10$) and leverage ($\beta_{\text{Model1a}} = 0.23770$, $p < 0.05$; $\beta_{\text{Model1b}} = 0.22301$, $p < 0.01$) on discretionary accruals. In addition, we find a significantly positive association for the book-to-market ratio ($\beta_{\text{Model1a}} = 0.04438$, $p < 0.01$) and foreign sales ($\beta_{\text{Model1b}} = 0.10561$, $p < 0.05$).

To obtain a more precise understanding of the association between top managers' internationalization and accounting quality, we estimate a new set of regressions with variables for the CEO's international profile (*IntIndex_CEO*), the CFO's international profile (*IntIndex_CFO*), and the internationalization of the other management board members (*IntIndex_OtherMBoard*). Thereby, we align our study with existing research that separately investigates the impact of CEO internationalization and CFO

⁸ To address concerns regarding the validity of the normal distribution assumption in relatively small samples, we applied the bootstrapping approach to the estimations of Table 3 through Table 6 (results are available upon request). Based on our analyses, we can reasonably assume that the sample size of our study does not impair the normal distribution assumption.

Table 2
Pearson-Spearman Correlations among Regression Variables.

	IntIndex_MBoard	IntIndex_CEO	IntIndex_CFO	IntIndex_Other_MBoard	IntIndex_SBoard	TMT_Size	Age_Diversity	Pct_Woman	DA Measure1	DA Measure2	Comp_Inc	Ln_Total_Assets	OCF	Loss	Leverage	BTM	Foreign_Sales	Foreign_Own	Blockholder_Own	Ln_AnalystsN	Stddev_Forecasts
IntIndex_MBoard	1	0.3914	0.4203	0.6372	0.3981	-0.1161	-0.042	-0.0296	-0.11	-0.0692	0.1476	-0.1032	-0.1671	0.0058	-0.237	0.1368	0.0188	-0.1161	0.0393	-0.1954	0.1248
MBoard		(0.00)	(0.00)	(0.00)	(0.00)	(0.23)	(0.66)	(0.76)	(0.26)	(0.47)	(0.13)	(0.29)	(0.08)	(0.95)	(0.01)	(0.16)	(0.85)	(0.23)	(0.68)	(0.04)	(0.20)
IntIndex_CEO	0.4607	1	0.1664	-0.1001	0.1972	0.0848	-0.253	-0.1852	-0.0662	-0.005	-0.0531	0.0888	-0.095	-0.0292	-0.2368	-0.0945	-0.1352	-0.0838	0.005	-0.0459	0.2661
CEO		(0.00)	(0.08)	(0.30)	(0.04)	(0.38)	(0.01)	(0.05)	(0.49)	(0.96)	(0.58)	(0.36)	(0.33)	(0.76)	(0.01)	(0.33)	(0.16)	(0.39)	(0.96)	(0.64)	(0.01)
IntIndex_CFO	0.3738	0.1359	1	0.1273	0.321	-0.0947	0.1715	-0.0316	-0.3274	-0.2248	-0.1	-0.1012	-0.1422	0.1327	-0.1183	0.0599	-0.3107	-0.2231	0.007	-0.2387	0.0087
CFO		(0.00)	(0.16)	(0.19)	(0.00)	(0.33)	(0.07)	(0.74)	(0.00)	(0.02)	(0.30)	(0.29)	(0.14)	(0.17)	(0.22)	(0.54)	(0.00)	(0.02)	(0.94)	(0.01)	(0.93)
IntIndex_Other_MBoard	0.6218	-0.0805	-0.0067	1	0.3759	-0.0576	-0.0627	0.1272	0.0384	0.022	0.2509	-0.0808	-0.1681	-0.0323	-0.264	0.1684	0.2103	0.0341	-0.0265	-0.1106	-0.001
Other_MBoard		(0.00)	(0.41)	(0.95)	(0.00)	(0.55)	(0.52)	(0.19)	(0.39)	(0.82)	(0.01)	(0.40)	(0.08)	(0.74)	(0.01)	(0.08)	(0.03)	(0.72)	(0.78)	(0.25)	(0.99)
IntIndex_SBoard	0.4515	0.1775	0.2684	0.4139	1	0.1169	0.0206	-0.1105	-0.0433	-0.0183	0.3127	-0.0027	-0.2599	0.08	-0.2236	0.2415	0.0754	0.01	-0.1189	-0.0963	0.1741
SBoard		(0.06)	(0.00)	(0.00)	(0.23)	(0.83)	(0.25)	(0.65)	(0.85)	(0.00)	(0.98)	(0.01)	(0.41)	(0.02)	(0.01)	(0.44)	(0.92)	(0.22)	(0.32)	(0.07)	
TMT_Size	-0.1162	0.1352	-0.0707	-0.1314	0.1528	1	-0.3122	-0.0823	0.4113	0.4015	-0.0565	0.75	-0.0547	0.0313	0.0581	-0.4662	-0.1822	-0.2801	-0.0744	0.3431	0.1032
		(0.23)	(0.16)	(0.17)	(0.11)	(0.00)	(0.39)	(0.00)	(0.00)	(0.00)	(0.56)	(0.00)	(0.57)	(0.75)	(0.55)	(0.00)	(0.06)	(0.00)	(0.44)	(0.00)	(0.29)
Age_Diversity	0.0412	-0.1048	0.1511	-0.0968	0.031	-0.3449	1	0.01	-0.3823	-0.4124	0.0904	-0.4087	-0.0837	0.0829	0.0419	0.331	-0.0011	0.0109	-0.0418	-0.3515	0.0295
Diversity		(0.67)	(0.28)	(0.12)	(0.32)	(0.75)	(0.00)	(0.92)	(0.00)	(0.00)	(0.35)	(0.00)	(0.39)	(0.39)	(0.67)	(0.00)	(0.99)	(0.91)	(0.66)	(0.00)	(0.76)
Pct_Woman	0.0163	-0.1762	-0.0818	0.066	-0.0921	-0.1496	0.0155	1	0.0037	0.0925	0.0046	-0.2154	-0.0372	0.0483	0.2781	0.2282	0.0508	-0.0915	-0.02	0.0269	-0.3268
		(0.87)	(0.07)	(0.40)	(0.50)	(0.34)	(0.12)	(0.87)	(0.97)	(0.34)	(0.96)	(0.02)	(0.70)	(0.62)	(0.00)	(0.02)	(0.60)	(0.34)	(0.84)	(0.78)	(0.00)
DA Measure1	-0.2022	-0.1647	-0.2708	-0.0395	-0.1046	0.3636	-0.2631	0.1345	1	0.6583	-0.023	0.2937	0.0966	-0.1314	0.1849	-0.1387	-0.0266	-0.0645	-0.1201	0.3883	-0.2019
		(0.04)	(0.09)	(0.00)	(0.68)	(0.28)	(0.00)	(0.16)	(0.00)	(0.00)	(0.81)	(0.00)	(0.32)	(0.17)	(0.05)	(0.15)	(0.78)	(0.51)	(0.21)	(0.00)	(0.04)
DA Measure2	-0.1604	-0.1092	-0.24	-0.0279	-0.0801	0.3974	-0.3171	0.117	0.883	1	-0.0485	0.3408	-0.2017	-0.0477	0.1659	-0.1167	-0.053	-0.038	-0.0789	0.4108	-0.0484
		(0.10)	(0.26)	(0.01)	(0.77)	(0.41)	(0.00)	(0.23)	(0.00)	(0.62)	(0.00)	(0.04)	(0.62)	(0.08)	(0.23)	(0.58)	(0.70)	(0.41)	(0.07)	(0.62)	
Comp_Inc	0.0672	-0.0573	-0.1807	0.1679	0.2896	0.0014	0.0939	-0.012	-0.0689	-0.0688	1	-0.0662	0.0423	-0.3946	-0.1284	-0.008	0.1813	0.2064	-0.1417	-0.0429	0.0898
		(0.49)	(0.55)	(0.06)	(0.08)	(0.00)	(0.99)	(0.33)	(0.90)	(0.48)	(0.48)	(0.49)	(0.66)	(0.00)	(0.18)	(0.93)	(0.06)	(0.03)	(0.14)	(0.66)	(0.35)
Ln_Total_Assets	-0.0058	0.1066	-0.0121	0.0054	0.096	0.758	-0.3873	-0.2808	0.3729	0.4235	-0.0011	1	0.0492	-0.0574	-0.0232	-0.6337	-0.2527	-0.1257	0.0256	0.5654	0.086
		(0.95)	(0.27)	(0.90)	(0.96)	(0.32)	(0.00)	(0.00)	(0.00)	(0.00)	(0.99)	(0.61)	(0.55)	(0.81)	(0.00)	(0.00)	(0.19)	(0.79)	(0.00)	(0.37)	
OCF	-0.1644	0.0457	-0.0889	-0.1616	-0.2238	0.0401	-0.2027	-0.0721	0.0862	0.0583	0.2006	0.1373	1	-0.2161	0.2225	-0.1856	-0.0303	0.0032	0.0785	0.2207	-0.2631
		(0.09)	(0.64)	(0.36)	(0.09)	(0.02)	(0.68)	(0.03)	(0.46)	(0.37)	(0.55)	(0.04)	(0.15)	(0.02)	(0.02)	(0.05)	(0.75)	(0.97)	(0.42)	(0.02)	(0.01)
Loss	0.0158	-0.0384	0.1326	-0.053	0.0469	0.074	0.0563	0.0328	-0.0468	-0.0212	-0.3759	-0.0467	-0.1779	1	0.1345	0.3157	0.0848	-0.0864	-0.1213	-0.2064	0.1489
		(0.87)	(0.69)	(0.17)	(0.58)	(0.63)	(0.44)	(0.56)	(0.73)	(0.63)	(0.83)	(0.00)	(0.63)	(0.06)	(0.16)	(0.00)	(0.38)	(0.37)	(0.21)	(0.03)	(0.12)
Leverage	-0.1567	-0.2301	-0.0363	-0.2089	-0.1623	-0.1394	0.0543	0.2316	0.4078	0.3823	-0.0041	-0.1305	0.1522	0.01	1	0.0635	0.0531	-0.133	-0.0654	0.136	-0.3058
		(0.10)	(0.02)	(0.71)	(0.03)	(0.09)	(0.15)	(0.58)	(0.02)	(0.00)	(0.97)	(0.18)	(0.11)	(0.92)	(0.51)	(0.58)	(0.17)	(0.50)	(0.16)	(0.00)	
BTM	0.0696	0.0072	-0.0264	0.0327	0.0811	-0.3792	0.2478	0.2001	-0.2113	-0.2325	0.0089	-0.4787	-0.1431	0.2531	-0.1295	1	0.2468	0.0024	-0.133	-0.4121	-0.0103
		(0.47)	(0.94)	(0.79)	(0.74)	(0.40)	(0.00)	(0.01)	(0.04)	(0.03)	(0.02)	(0.93)	(0.00)	(0.14)	(0.01)	(0.18)	(0.01)	(0.98)	(0.17)	(0.00)	(0.92)
Foreign_Sales	-0.0994	-0.226	-0.2357	0.1402	-0.0395	-0.2514	0.0345	-0.0388	-0.0149	-0.0411	0.1697	-0.2584	-0.0778	0.0918	0.1767	0.1629	1	0.0204	-0.0715	-0.2514	0.1925
		(0.30)	(0.02)	(0.01)	(0.15)	(0.68)	(0.01)	(0.72)	(0.69)	(0.88)	(0.67)	(0.08)	(0.01)	(0.42)	(0.34)	(0.07)	(0.09)	(0.83)	(0.46)	(0.01)	(0.05)
Foreign_Own	-0.1754	-0.1583	-0.2823	0.0764	0.0193	-0.1151	-0.0279	-0.0816	-0.1252	-0.0941	0.35	-0.0028	-0.033	-0.0911	-0.0699	-0.1293	0.1821	1	0.2492	0.0993	0.1439
		(0.07)	(0.10)	(0.00)	(0.43)	(0.84)	(0.23)	(0.77)	(0.40)	(0.19)	(0.33)	(0.00)	(0.98)	(0.73)	(0.35)	(0.47)	(0.18)	(0.06)	(0.01)	(0.30)	(0.14)
Blockholder_Own	0.0359	0.0465	-0.0119	0.0306	-0.1262	-0.1059	-0.0272	-0.1011	-0.0754	-0.0554	-0.161	0.099	0.0534	-0.1421	-0.005	-0.2208	-0.0921	0.1894	1	0.169	0.0478
		(0.71)	(0.63)	(0.90)	(0.75)	(0.19)	(0.17)	(0.78)	(0.30)	(0.44)	(0.57)	(0.09)	(0.31)	(0.58)	(0.14)	(0.96)	(0.02)	(0.34)	(0.05)	(0.08)	(0.62)
Ln_AnalystsN	-0.093	-0.0988	-0.0034	0.0481	0.0432	0.3055	-0.5197	0.0799	0.3181	0.3328	-0.069	0.3915	0.069	-0.043	-0.0495	-0.1594	-0.1244	-0.0678	0.0188	1	-0.2631
		(0.34)	(0.31)	(0.97)	(0.62)	(0.66)	(0.00)	(0.00)	(0.41)	(0.00)	(0.00)	(0.48)	(0.00)	(0.66)	(0.61)	(0.10)	(0.20)	(0.48)	(0.85)	(0.01)	
Stddev_Forecasts	0.1112	0.1888	-0.1022	0.0113	0.1129	0.0145	0.2431	-0.2848	-0.2431	-0.1822	0.0444	0.0418	-0.1268	0.144	-0.066	0.0079	0.1848	0.1235	0.1402	-0.6274	1
		(0.25)	(0.05)	(0.29)	(0.91)	(0.24)	(0.88)	(0.01)	(0.00)	(0.01)	(0.06)	(0.65)	(0.67)	(0.19)	(0.14)	(0.50)	(0.94)	(0.05)	(0.20)	(0.15)	(0.00)

Notes: Pearson correlation coefficients are shown below the diagonal whereas Spearman correlation coefficients are shown above the diagonal. Two-tailed p-values are presented in parentheses. All the variables are defined in Appendix A.

Table 3
The Impact of Top Management Internationalization on Discretionary Accruals.

Model No.	1a		1b	
Estimation Method	Pooled OLS		Pooled OLS	
Standard Errors	Clustered by firm and year		Clustered by firm and year	
Dependent Variable	DA Measure1		DA Measure2	
Variables	Coefficient	t-statistics	Coefficient	t-statistics
<i>IntIndex_MBoard</i>	−0.19122**	−2.45	−0.18607*	−1.86
<i>IntIndex_SBoard</i>	−0.07535	−0.43	−0.07858	−0.50
<i>TMT_Size</i>	0.00094	0.20	0.00172	0.41
<i>Age_Diversity</i>	0.08095	0.11	0.05760	0.08
<i>Pct_Woman</i>	0.22832	0.82	0.48118	2.13
<i>Comp_Inc</i>	0.00549	0.42	0.00059	0.05
<i>Ln_Total_Assets</i>	0.06721*	1.99	0.06758**	2.40
<i>OCF</i>	−0.14768	−0.81	0.23429	0.89
<i>Loss</i>	−0.03910	−1.17	−0.05494	−1.38
<i>Leverage</i>	0.23770**	4.26	0.22301***	3.46
<i>BTM</i>	0.04438*	1.80	0.01326	0.57
<i>Foreign_Sales</i>	0.00188	0.03	0.10561**	2.01
<i>Foreign_Own</i>	0.00756	0.14	0.00647	0.08
<i>Blockholder_Own</i>	−0.01640	−0.49	−0.03332	−0.77
<i>Ln_AnalystsN</i>	−0.01925	−0.56	−0.01695	−0.38
<i>Stddev_Forecasts</i>	−0.07414	−1.04	−0.03743	−0.38
<i>Industry Fixed Effects</i>	yes		yes	
<i>Year Fixed Effects</i>	yes		yes	
Firm Years	109		109	
Adj. R²	0.4584		0.4659	

Notes: Table 3 reports the linear regression estimates for the impact of management board and supervisory board internationalization on accounting quality as measured by absolute discretionary accruals. The absolute discretionary accruals are derived from the Ball and Shivakumar (2006) model (*DA Measure1*) and the Dechow et al. (1995) modified-Jones models (*DA Measure2*). To control for temporary time-series and for cross-sectional dependence in the residuals, standard errors are clustered by firm and year following Petersen (2009). In addition, industry- and year-fixed effects are included to control for fixed industry-specific, time-variant characteristics. All the variables are defined in Appendix A. All regressions are estimated with an intercept included but the intercept is not reported. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

internationalization (Arthaud-Day, Certo, Dalton, & Dalton, 2006; Gore et al., 2011; Jiang, Petroni, & Wang, 2010; Naranjo-Gil et al., 2009; Six et al., 2013). Again, we estimate two regression models with discretionary accruals based on Ball and Shivakumar (2006) and the Dechow et al. (1995) modified-Jones model. The results are reported in Table 4. The high explanatory power of our models suggests a reasonable fit of our econometric specification with the observed data.

We find that the internationalization of the CEO is not significantly associated with discretionary accruals in either model ($\beta_{\text{Model1}} = -0.05242$, $p > 0.10$; $\beta_{\text{Model2}} = -0.03214$, $p > 0.10$). Thus, Hypothesis 1b is not supported. Also, the internationalization of the other management board members (excluding the CEO and CFO) is not significantly associated with discretionary accruals in both models. However, we observe a significant and negative association for CFO internationalization ($\beta_{\text{Model1}} = -0.22532$, $p < 0.01$; $\beta_{\text{Model2}} = -0.19278$, $p < 0.01$). Consequently, Hypothesis 1c is supported.

Given that only the internationalization of the CFO is associated with discretionary accruals, we investigate the internationalization of these individuals more thoroughly. In this regard, we decompose the internationalization index to separately analyze each dimension of internationalization. Because of collinearity between the internationalization index components, the CFO-specific internationalization dimensions are separately analyzed with respect to their association with the discretionary accruals measures. Table 5 presents the results of this investigation,

whereas the coefficient estimates of the respective control variables are untabulated.⁹

Panel A focuses on the estimation models that test the association of the CFO-specific internationalization dimensions with discretionary accruals as derived from the Ball and Shivakumar (2006) model (*DA Measure1*). In contrast, Panel B contains the regression results for the models that investigate the association between CFO-specific internationalization dimensions and discretionary accruals as calculated following the Dechow et al. (1995) modified-Jones model (*DA Measure2*). We investigate the effect of foreign nationality (*CFO_Foreigner*), international education, (*CFO_IntEduc*), international work experience (*CFO_IntWork*), and international board appointments (*CFO_IntBoard*) by separately regressing each individual dimension (including the control variables from Model 2a/2b) on our two measures of discretionary accruals as dependent variables. To analyze the relevance of the different internationalization dimensions on the level of discretionary accruals, we investigate the statistical significance of the individual dimensions and the consistency across our two approximations of discretionary accruals (*DA Measure1*, *DA Measure2*). Our detailed analysis of the CFO-specific internationalization dimensions reveals that the dimensions “international education” and “international work experience” generate negative and significant results for both model specifications ($\beta_{\text{CFO_IntEduc-Model3b}} = -0.10772$, $p < 0.01$; $\beta_{\text{CFO_IntEduc-Model4b}} = -0.07026$, $p < 0.05$; $\beta_{\text{CFO_IntWork-Model3c}} = -0.06794$, $p < 0.05$; $\beta_{\text{CFO_IntWork-Model4c}} = -0.05618$, $p < 0.05$). The dimension “nationality” is only negative and significant for one of our two model specifications *DA Measure1* ($\beta_{\text{CFO_IntWork-Model1}} = -0.06794$, $p < 0.05$), whereas “international linkage” is insignificant for both specifications of discretionary accruals ($p > 0.10$).

4.2. Robustness checks

Our previous argument suggests that international board members have fewer incentives to pursue opportunistic accounting management actions because their international experience supports their achievement of higher financial performance. To test the robustness of our findings, we conduct a separate test of this proposition. For that purpose, we compute a measure of firm performance adjusted for the level of earnings management by subtracting the discretionary accruals component from ROA. Thus, we derive a firm performance measure that is likely to be less affected by managerial discretion. If top management internationalization is positively associated with this adjusted firm performance measure, we can provide evidence for our ex ante arguments. In addition, and by comparing the effects of management internationalization using the unadjusted firms' ROA, we document how earnings management can bias the analysis of firm performance in this context. The results for this first test of robustness are presented in Table 6. As shown, we find the internationalization of management board members to be positively associated with our adjusted measures of firm performance (i.e., *AdjROA_DA1* and *AdjROA_DA2*). In contrast, the internationalization of management board members is not significantly associated with our unadjusted firm performance metric, i.e., ROA. Because the influence of top management internationalization varies between these two firm performance specifications, we emphasize the importance of adjusting for the level of earnings management when investigating the consequences of top management characteristics on firm performance. Our finding provides a possible explanation for prior mixed results on

⁹ The results for the control variables are similar.

Table 4
Decomposition Analysis of the Internationalization Effect on Discretionary Accruals.

Model No.	2a		2b	
Estimation Method	Pooled OLS		Pooled OLS	
Standard Errors	Clustered by firm and year		Clustered by firm and year	
Dependent Variable	DA Measure1		DA Measure2	
Variables	Coefficient	t-statistics	Coefficient	t-statistics
<i>IntIndex_CEO</i>	−0.05242	−1.19	−0.03214	−0.67
<i>IntIndex_CFO</i>	−0.22532***	−4.81	−0.19278***	−3.10
<i>IntIndex_OtherMBoard</i>	−0.05510	−1.09	−0.05861	−0.93
<i>IntIndex_SBoard</i>	−0.01706	−0.13	0.06418	0.65
<i>MBoard_Size</i>	−0.00518	−0.72	−0.00275	−0.40
<i>SBoard_Size</i>	−0.00322	−0.85	−0.00052	−0.15
<i>Age_Diversity</i>	0.11380	0.14	0.08298	0.10
<i>Pct_Woman_MBoard</i>	0.15376	1.34	0.00579	0.01
<i>Pct_Woman_SBoard</i>	−0.02680	−0.27	0.19329*	1.71
<i>CEO_Comp_Inc</i>	0.00992	0.79	0.00282	0.21
<i>CFO_Comp_Inc</i>	−0.01424	−0.87	−0.01119	−0.92
<i>Ln_Total_Assets</i>	0.06845***	3.94	0.06979***	3.68
<i>OCF</i>	−0.12121	−0.74	0.25980	1.07
<i>Loss</i>	−0.00771	−0.22	−0.02985	−0.59
<i>Leverage</i>	0.22861***	4.15	0.21335***	3.74
<i>BTM</i>	0.01464	0.45	−0.00867	−0.25
<i>Foreign_Sales</i>	−0.00710	−0.10	0.07988	1.24
<i>Foreign_Own</i>	−0.05347	−0.66	−0.04265	−0.40
<i>Blockholder_Own</i>	−0.02398	−0.71	−0.03862	−0.87
<i>Ln_AnalystsN</i>	−0.01364	−0.73	−0.01389	−0.30
<i>Stddev_Forecasts</i>	−0.10361	−1.20	−0.07201	−0.57
<i>Industry Fixed Effects</i>	yes		yes	
<i>Year Fixed Effects</i>	yes		yes	
Firm Years	109		109	
Adj. R²	0.5404		0.4786	

Notes: Table 4 reports the linear regression estimates for the decomposition analysis of the impact of top management internationalization on accounting quality as measured by absolute discretionary accruals. The absolute discretionary accruals are derived from the Ball and Shivakumar (2006) model (*|DA Measure1|*) and the Dechow et al. (1995) modified-Jones model (*|DA Measure2|*). To control for temporary time-series as well as cross-sectional dependence in the residuals, standard errors are clustered by firm and year following Petersen (2009). In addition, industry- and year- fixed effects are included to control for fixed industry-specific, time-variant characteristics. All the variables are defined in Appendix A. All regressions are estimated with an intercept included but the intercept is not reported. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

the contribution of international top managers to firm performance (Masulis et al., 2012; Nielsen & Nielsen, 2012; Oxelheim & Randøy, 2003; Roth, 1995).

Because the choice of an internationally experienced management board member (i.e., the CFO) might be endogenous, a selection bias could alter our main results (for a discussion, see Reeb, Sakakibara, & Mahmood, 2012). We address the potential selection bias using the Heckman (1979) two-stage estimation procedure in the supplementary analysis presented in Table 7. At the first stage, we estimate the selection equation using a logistic regression. The logit model includes a dummy as the dependent variable (*D_IntExperience*), indicating top managers' international education or international work experience and a set of potentially relevant explanatory variables from the previous regression models. At the second stage, the measures for discretionary accruals are regressed on the explanatory variables from model 2a/b and the vector of inverse Mills ratios (estimated expected error term) from the selection equation as an additional control variable (Lennox, Francis, & Wang, 2011). The coefficient of the inverse Mills ratio (*IMR*) is positive and significant in both models ($p < 0.10$ for model 7a; $p < 0.05$ for model 7b), indicating the need to control for self-selection bias. Even after correcting for that bias, the key coefficients remain statistically significant and similar to those obtained without the correction. We also calculate the variance inflation factors (*VIF*) to investigate the issue of multicollinearity. All the *VIFs* for our independent and control variables are below 5.

Therefore, collinearity does not seem to be a problem (Hair, Black, Babin, Anderson, & Tatham, 2006). Generally, our inferences from Table 4 remain unchanged when controlling for self-selection into the group of internationally experienced CFOs.

Continuing in that vein, firms with a lower level of discretionary accruals might attract more internationally experienced management board members. In other words, internationally experienced management board members self-select into firms with a lower level of earnings management; thus, the link between internationalization of top management and accounting quality is reversed. Following this argument, we construct a regression model with the internationalization of the management board as the dependent variable. Our independent variable of interest is the lagged level of earnings management that proxies for the level of earnings management within a firm. The control variables are similar to our main model specifications above. Our untabulated results show that the lagged level of earnings management is negatively but not significantly associated with the internationalization of the management board.¹⁰ Consequently, we do not find evidence that firms with a lower level of earnings management attract more internationally experienced management board members.

Furthermore, it is important to note that research design choices using unsigned measures of earnings management heighten the threat of correlated omitted variables because these unsigned measures are correlated with several firm characteristics such as volatility of sales, volatility of earnings, and volatility of cash flows (Hribar & Nichols, 2007). This correlation might lead to an erroneous rejection of the null hypothesis of no earnings management. Accordingly, we re-run all our analyses using signed measures of earnings management. Our untabulated results correspond to the findings presented above using unsigned measures of earnings management.

Finally, it is well known that accrual management is not the only method of earnings manipulation. For example, both field and archival studies find that managers tend to choose real transaction management such as cutting back on R&D (research & development) or SG&A (selling, general and administrative) expenses before resorting to accrual management (Cohen & Zarowin, 2010; Graham, Harvey, & Rajgopal, 2005). Consequently, we re-run all our analyses using R&D expenses (scaled by total assets at the beginning of the year) and alternatively SG&A expenses (scaled by total assets at the beginning of the year). Again, our results remain qualitatively similar for both of these alternative earnings management specifications.

5. Discussion and conclusions

Whereas the academic interest in top managers has been increasing during recent years, empirical evidence for the impact of top management characteristics and top management internationalization remains inconsistent (Nielsen, 2010a; Olson, Parayitam, & Twigg, 2006). In our research, we examine whether and how international top managers can increase the quality of a firm's accounting statements. Our research results show that international CFOs provide a more accurate and reliable image of a firm's true economic situation. Moreover, our focus on accounting quality enables us to add novel insights to a key concept of upper echelons theory. Our dependent variable of "discretionary accruals" allows us to portray a more precise picture of the association between top managers' demographics and strategic choices. Several accounting studies have shown that top managers exert a considerable

¹⁰ Results for this and the following robustness checks are available from the authors upon request.

Table 5
Detailed Analysis of the CFO-Specific Internationalization Dimensions.

Panel A: Results for the association of the CFO-specific internationalization dimensions with discretionary accruals (DA Measure1)									
Model No.		3a		3b		3c		3d	
Estimation Method		Pooled OLS		Pooled OLS		Pooled OLS		Pooled OLS	
Standard Errors		Clustered by firm and year		Clustered by firm and year		Clustered by firm and year		Clustered by firm and year	
Dependent Variable	expected sign	DA Measure1		DA Measure1		DA Measure1		DA Measure1	
Variables		Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
<i>CFO_Foreigner</i>	–	–0.11458***	–3.24						
<i>CFO_IntEduc</i>	–			–0.10772***	–5.73				
<i>CFO_IntWork</i>	–					–0.06794**	–2.62		
<i>CFO_IntBoard</i>	–							0.02868	0.89
Control Variables	yes			yes		yes		yes	
Industry Fixed Effects	yes			yes		yes		yes	
Year Fixed Effects	yes			yes		yes		yes	
Firm Years		109		109		109		109	
Adj. R ²		0.5023		0.4854		0.4616		0.4271	

Panel B: Results for the association of the CFO-specific internationalization dimensions with discretionary accruals (DA Measure2)									
Model No.		4a		4b		4c		4d	
Estimation Method		Pooled OLS		Pooled OLS		Pooled OLS		Pooled OLS	
Standard Errors		Clustered by firm and year		Clustered by firm and year		Clustered by firm and year		Clustered by firm and year	
Dependent Variable	expected sign	DA Measure2		DA Measure2		DA Measure2		DA Measure2	
Variables		Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
<i>CFO_Foreigner</i>	–	–0.07985	–1.59						
<i>CFO_IntEduc</i>	–			–0.07026**	–2.07				
<i>CFO_IntWork</i>	–					–0.05618**	–2.15		
<i>CFO_IntBoard</i>	–							0.01899*	1.70
Control Variables	yes			yes		yes		yes	
Industry Fixed Effects	yes			yes		yes		yes	
Year Fixed Effects	yes			yes		yes		yes	
Firms		2670		2670		2670		2442	
Adj. R ²		0.4485		0.4402		0.4699		0.4286	

Notes: Table 5 Panel A (Panel B), reports the linear regression estimates for the detailed analysis of the CFO-specific internationalization dimensions on accounting quality as measured by absolute discretionary accruals. The absolute discretionary accruals are derived from the Ball and Shivakumar (2006) model (|DA Measure1|), and respectively, the Dechow et al. (1995) modified-Jones model (|DA Measure2|). The discretionary accruals measures are separately regressed on the CFO-specific internationalization dimensions including the control variables from Model 2a/2b. *CFO_Age* is included as an additional control variable (not tabulated). To control for temporary time-series and cross-sectional dependence in the residuals, standard errors are clustered by firm and year following Petersen (2009). In addition, industry and year fixed effects are included to control for fixed industry-specific, time-variant characteristics. All variables are defined in Appendix A. The coefficient estimates of the control variables are not reported for brevity. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

amount of discretion with respect to a firm's financial reporting processes (Fields & Keys, 2003; Naranjo-Gil et al., 2009; Othman & Zeghal, 2006). In other words, top managers can directly influence a firm's level of earnings management. They choose whether or not to manage earnings (Healy & Wahlen, 1999). Our dependent variable serves as a concise and relevant proxy of top management choice. Ultimately, our investigation responds to the researchers' calls for a fine-grained analysis of the relationship between top management internationalization and strategic choices (Carpenter et al., 2004; Finkelstein et al., 2009).

Our study further contributes to existing literature by combining upper echelons perspectives and accounting research. Accounting scholars widely recognize that the quality of financial reporting and earnings management might depend on top managers' characteristics. However, recent studies in accounting research highlight a lack of theoretical perspectives that would facilitate arguing why certain top management characteristics (e.g., internationalization) affect the quality of financial reporting in a specific manner. According to Ittonen et al. (2013), several accounting studies in this field are relatively exploratory in nature. Whereas we observe an increasing interest in top management characteristics and their influence on financial reporting processes, the use of upper echelons theory in accounting literature remains limited. In a recent review, Hiebl (2014) identified a total of 12 scholarly articles that apply upper echelons theory in an

accounting context. With our argumentation combining upper echelons theory with human capital theory and agency theory, we can posit why top management internationalization may benefit accounting quality. Thus, we contribute to a better understanding of the antecedents of earnings management and improve our understanding of the role of top managers' characteristics in agency-based governance problems (Carpenter, Pollock, & Leary, 2003).

In this vein, it is important to note that the concept of earnings management as a proxy for accounting quality has received considerable attention not only in accounting and finance literature (Barua et al., 2010; Bergstresser & Philippon, 2006; Gul, Fung, & Jaggi, 2009) but also in ethics literature (Krishnan & Parsons, 2008), corporate governance research (Chan, Faff, Khan, & Mather, 2013; Zhang et al., 2008), and the international business field (Meek, Roberts, & Gray, 1995; Shi, Magnan, & Kim, 2011). A central theme recurring in many existing studies highlights the need to understand the factors that can reduce the "management" of earnings and improve the quality of a firm's accounting (Geiger & North, 2006; Healy & Wahlen, 1999; Ittonen et al., 2013; Peni & Vähämaa, 2010).

"Are there some executives who vividly and regularly manifest their background characteristics in their actions and others who simply do not?" This question posed by Finkelstein et al. (2009: p. 119) addresses another important, yet neglected, aspect of upper echelons research. Our findings shed new light on the effects of top

Table 6
The Impact of Top Management Internationalization on Firm Performance.

Model No.	5a		5b		5c	
Estimation Method	Pooled OLS		Pooled OLS		Pooled OLS	
Standard Errors	Clustered by firm and year		Clustered by firm and year		Clustered by firm and year	
Dependent Variable	AdjROA_DA1		AdjROA_DA2		ROA	
Variables	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
<i>IntIndex_MBoard</i>	0.42306**	2.12	0.39898*	1.98	-0.07104	-1.42
<i>IntIndex_SBoard</i>	0.11818	0.34	0.12526	0.38	0.02182	0.17
<i>TMT_Size</i>	0.00452	0.01	0.00284	0.39	0.00254**	2.07
<i>Age_Diversity</i>	-0.56764	-0.50	-0.65346	-0.58	-0.04106	-0.11
<i>Pct_Woman</i>	-0.82995*	-1.82	-1.02691**	-2.57	-0.03893	-0.18
<i>Comp_Inc</i>	-0.00249	-0.43	0.00338	0.44	0.02454***	3.17
<i>Ln_Total_Assets</i>	-0.15455**	-2.54	-0.16308***	-2.93	-0.00337	-0.32
<i>Leverage</i>	-0.52844***	-3.62	-0.52392***	-3.48	0.07898	1.56
<i>Foreign_Sales</i>	-0.06677	-0.71	-0.16057*	-1.69	-0.03320	-0.97
<i>Foreign_Own</i>	0.02651	0.42	0.02204	0.29	-0.04201*	-1.81
<i>Blockholder_Own</i>	0.05327	0.69	0.06392	0.72	-0.00105	-0.09
<i>Industry Fixed Effects</i>	yes		yes		yes	
<i>Year Fixed Effects</i>	yes		yes		yes	
Firm Years	109		109		109	
Adj. R²	0.5349		0.5037		0.5388	

Notes: Table 6 reports the linear regression estimates for the impact of management board and supervisory board internationalization on different specifications of firm performance. First, firm performance is calculated as the ROA adjusted for discretionary accruals derived from the Ball and Shivakumar (2006) model (*AdjROA_DA1*). Second, firm performance is calculated as the ROA adjusted for discretionary accruals derived from the Dechow et al. (1995) modified-Jones model (*AdjROA_DA2*). Third, firm performance is calculated as the (unadjusted) ROA. To control for temporary time-series and cross-sectional dependence in the residuals, standard errors are clustered by firm and year following Petersen (2009). In addition, industry and year fixed effects are included to control for fixed industry-specific, time-variant characteristics. All the variables are defined in Appendix A. All regressions are estimated with an intercept included but the intercept is not reported. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

Table 7
Endogeneity Testing of CFO's Internationalization Effect.

Model No.	6 (First-Stage Model)		Model No.	7a (Second-Stage Model)			7b (Second-Stage Model)		
Method	Logistic Regression		Method	Pooled OLS			Pooled OLS		
Standard Errors	Clustered by firm and year		Standard Errors	Clustered by firm and year			Clustered by firm and year		
Dependent Variable	<i>D_CFO_IntExperience</i>		Dependent Variable	<i>DA Measure1</i>			<i>DA Measure2</i>		
Variables	Coefficient	z-statistics	Variables	Coefficient	t-statistics	VIF	Coefficient	t-statistics	VIF
<i>IntIndex_CEO</i>	-5.00580**	-2.28	<i>IMR</i>	0.01894*	1.84	2.05	0.02665**	2.19	2.05
<i>IntIndex_OtherMBoard</i>	-3.11414	-1.10	<i>IntIndex_CEO</i>	-0.05375	-1.07	1.70	-0.03401	-0.61	1.70
<i>IntIndex_SBoard</i>	30.89340**	3.01	<i>IntIndex_CFO</i>	-0.21986***	-6.95	1.75	-0.18510**	-2.26	1.75
<i>Age_Diversity</i>	-12.35193	-0.44	<i>IntIndex_OtherMBoard</i>	-0.08101	-1.31	1.61	-0.09508	-1.31	1.61
<i>Ln_Total_Assets</i>	-1.27619*	-1.91	<i>IntIndex_SBoard</i>	-0.20150	-1.13	2.51	-0.19541	-1.40	2.51
ROA	-9.86002**	-2.26	<i>MBoard_Size</i>	-0.00265	-0.34	2.11	0.00081	0.10	2.11
<i>Foreign_Sales</i>	-23.09668***	-3.98	<i>SBoard_Size</i>	-0.00325	-0.78	2.37	-0.00055	-0.14	2.37
			<i>Age_Diversity</i>	-0.15239	-0.18	2.09	-0.29168	-0.33	2.09
			<i>Pct_Woman_MBoard</i>	0.44669	1.48	1.84	0.41808*	1.93	1.84
			<i>Pct_Woman_SBoard</i>	-0.08802	-0.68	1.59	0.10712	0.73	1.59
			<i>CEO_Comp_Inc</i>	0.00969	0.65	4.59	0.00250	0.16	4.59
			<i>CFO_Comp_Inc</i>	-0.01056	-0.56	3.59	-0.00600	-0.37	3.59
			<i>Ln_Total_Assets</i>	0.06040***	4.25	3.25	0.05846***	3.61	3.25
			<i>OCF</i>	-0.01972	-0.11	1.45	0.40264	1.51	1.45
			<i>Loss</i>	-0.00637	-0.26	1.52	-0.02796	-0.70	1.52
			<i>Leverage</i>	0.26671***	3.82	1.53	0.26697***	3.83	1.53
			<i>BTM</i>	0.01219	0.37	1.88	-0.01212	-0.39	1.88
			<i>Foreign_Sales</i>	0.06201	0.85	1.75	0.17715	2.28	1.75
			<i>Foreign_Own</i>	-0.00467	-0.06	1.62	0.02603	0.25	1.62
			<i>Blockholder_Own</i>	-0.03252	-0.93	1.39	-0.05064	-1.18	1.39
			<i>Ln_AnalystsN</i>	-0.01288	-0.34	3.26	-0.01281	-0.28	3.26
			<i>Stddev_Forecasts</i>	-0.06401	-0.88	2.68	-0.01628	-0.15	2.68
<i>Industry Fixed Effects</i>	yes		<i>Industry Fixed Effects</i>	yes			yes		
<i>Year Fixed Effects</i>	yes		<i>Year Fixed Effects</i>	yes			yes		
Firm Years	109		Firm Years	109			109		
Pseudo R²	0.5687		Adj. R²	0.5616			0.5108		

Notes: Table 7 reports the Heckman model estimates for the impact of top management internationalization on accounting quality as measured by discretionary accruals. In the first stage, we model the firm's choice to employ a CFO who has experienced an international education or an international work environment, respectively. In the second stage, the inverse mills ratio (*IMR*) constructed from the first stage logit model is included as an additional variable to control for self-selection (endogeneity). The absolute discretionary accruals are derived from the Ball and Shivakumar (2006) model (*DA Measure1*) and the Dechow et al. (1995) modified-Jones model (*DA Measure2*). To control for temporary time-series and cross-sectional dependence in the residuals, standard errors are clustered by firm and year following Petersen (2009). In addition, industry and year fixed effects are included to control for fixed industry-specific, time-variant characteristics. All the variables are defined in Appendix A. All regressions are estimated with an intercept included but the intercept is not reported. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

management characteristics and demonstrate that the impact of internationalization varies among individuals on the top management team. Thus, we not only focus on top managers' demographic factors as possible predictors of strategic actions but also aim to comprehend which top managers are the most predictive of specific strategic choices. Consequently, our results suggest that top management internationalization per se is not necessarily associated with the management of a firm's earnings. It is "some executives" whose internationalization is associated with reduced earnings management.

In this regard, we refer to [Johnson et al. \(2012\)](#), who emphasize the importance of analyzing the role of top management subgroups and individual top managers in a firm. Following this logic, our top management team decomposition analysis shows that the accounting quality-enhancing effect of internationalization is specifically driven by the internationalization of the CFO. Whereas we acknowledge the problems in isolating the effects of specific top managers and of decomposition analysis ([Fitza, 2014](#)), our results suggest that powerful top managers, such as the CFO, may have a strong influence on financial reporting processes. Further analyses reveal which of the four dimensions of internationalization have the strongest association with earnings management. We find that international education and international work experience of CFOs are the most prominent characteristics that improve accounting quality. Based on this finding, we reinforce the argument that the internationalization of top managers should be assessed along several dimensions and not via a single-item measure (e.g., nationality) ([Hecker & Peters, 2010](#); [Oxelheim et al., 2013](#); [Staples, 2007](#)). Clearly, it is not the passport alone that must be investigated; we must also consider other dimensions of internationalization, if we want to capture top management internationalization.

Our results support the notion that international CFOs play a more important role than international CEOs in determining the quality of a firm's financial reporting. First, it is reasonable to assume that CFOs strongly influence earnings management because these individuals are closely involved in supervising the firm's financial functions ([Aier et al., 2005](#); [Ge et al., 2011](#)). More specifically, CFOs oversee not only the implementation of accounting principles and procedures but also the preparation of financial reports. CFOs are also responsible for establishing and maintaining internal controls and reporting any deficiencies to external auditors. Thus, whereas the CEO may set the "tone at the top" ([Ge et al., 2011](#)), the CFO has a more direct impact on the firm's accounting-related decisions ([Geiger & North, 2006](#); [Mian, 2001](#)). International experience may enable CFOs to better understand a firm's (international) accounting structures and procedures. Consistent with [Demerjian et al. \(2012\)](#), we claim that the more internationally experienced the CFO, the better able he or she is to estimate accruals and monitor the firm's international financial reporting processes.

Why are international education and international work experience the most prominent factors that can reduce earnings management? In this regard, existing research highlights that top managers' educational background can influence their open-mindedness and self-reflection ([Kelley, Ferrell, & Skinner, 1990](#); [Zahra, Priem, & Rasheed, 2005](#)). International education can be considered an unparalleled learning laboratory for expanding worldviews and creating globally minded top managers ([Adler & Bartholomew, 1992](#); [Euler, Rami, Glaser, Reber, & Bacher, 2013](#); [Hachtmann, 2012](#); [Wright & Larsen, 2012](#)). [Wright and Clarke \(2010\)](#) also suggest that study-abroad programs help individuals achieve the responsibility and qualities of a fully globally minded citizen. Our research findings support the idea that the worldviews and sensibility gained in international education can translate into more vigilant behaviour among top managers

With respect to the dimension "international work experience", we can draw on empirical evidence suggesting that international assignees experience a fundamental reconsideration of their individual values and norms while working in an international context ([Dickmann & Harris, 2005](#)). We find that international education and international work experience are important but neglected factors that shape top managers' cognitive, affective and behavioural profile, influencing their decision about whether or not to engage in earnings management.

Our results on the prominent role of the CFO also have implications for corporate governance regulation and research. At first, it might not be surprising that the CFO seems to be more relevant for a firm's financial reporting processes than the CEO. However, this result is noteworthy in the context of the German corporate governance system. The German stock corporation law (*Aktiengesetz*) posits that executive power should be equally distributed among all management board members and stipulates a collective board system (§ 77 I AktG; see also [Six et al., 2013](#)). Consequently, German regulations prevent individual members of the management board from enjoying superior decision making power, which is, for example, a characteristic of the U.S. corporate governance system ([Six et al., 2013](#)). Our results indicate a potential mismatch between the de jure and the de facto roles of German CFOs. The analyses suggest that the CFO might possess ultimate responsibility for the design and implementation of a firm's accounting procedures ([Mian, 2001](#)). In this regard, it is reasonable to assume that the role and responsibilities of German CFOs might have transformed in a legally unintended manner, becoming somewhat comparable to the role and status of powerful CFOs in the U.S. ([Geiger & North, 2006](#); [Gore et al., 2011](#); [Mian, 2001](#)).

6. Limitations and future research

The limitations of this study can stimulate additional research at the intersection of upper echelons, human capital, agency theory and accounting perspectives. Even with all the controls and measures that we apply, we cannot be certain that the observed differences in discretionary accruals are caused by top managers' internationalization, nor can we rule out the possibility that unobservable top management or firm-level characteristics impose systematic differences in earnings management. Future qualitative studies could explore the relationship in more detail, although we acknowledge that this would be a challenging endeavour (for instance, because of many board members' unavailability for interviews). Moreover, it should be noted that our sample only consists of DAX-30-listed German firms. Thus, the current dataset does not facilitate an international comparison of our results. However, it is expected that the specific characteristics of the German corporate governance system and the German business system might have influenced the individual characteristics of the top managers in our sample ([Dore, 2000](#); [Whitley, 2000](#)). It would be interesting to investigate the extent to which our empirical results apply to other countries and institutional settings. For instance, in other corporate governance systems it will be important to distinguish between the impact of inside directors and outside directors. Likewise, it will be crucial to control for the influence of different committees on earnings management, such as nomination committees or audit committees. German law does not explicitly request the formation of these bodies ([CGGC, 2013](#); [Rahman & Ali, 2006](#); [Xie et al., 2003](#)). Therefore, the internationalization of the members of these committees and the link with accounting quality should be subject to further investigation in other corporate governance contexts.

Our multidimensional internationalization index is the basis for another limitation: although our measure covers several important dimensions of internationalization, we partially neglect aspects

such as language proficiency (Piekkari & Tietze, 2011) and top managers' experience in an international but home-country-based position (Herrmann & Datta, 2006; Oxelheim et al., 2013). Whereas we examine several facets of internationalization, we do not consider the cultural aspects related to international exposure. Thus, we do not distinguish between the countries (and cultures) in which top managers were raised or where they gained international experience (Van Veen, Sahib, & Aangeenbrug, 2014). This limitation provides promising avenues for future research. For instance, additional investigations could link our findings with insights from culture studies, such as the Hofstede or the GLOBE study (House, Hanges, Javidan, Dorfman, & Gupta, 2004). It would be interesting to analyze whether cultural values on dimensions such as “uncertainty avoidance”, “individualism”, “masculinity” or “power distance” can help explain the level of earnings management and accounting quality within a firm (Gray, 1988; Gray et al., 2015; Kanagaretnam, Lim, & Lobo, 2011; Othman & Zeghal, 2006; Rahman & Ali, 2006).

Despite its limitations, this paper contributes to upper echelons literature, human capital theory, agency theory and accounting perspectives literature and provides important insights into an area of major concern among researchers and practitioners: earnings management. Expanding on existing upper echelons research, we advance the idea that the use of proxy variables from financial accounting research (i.e., discretionary accruals) can improve the modelling of the “demographic characteristics–strategic choice nexus”. Furthermore, our findings encourage research on the antecedents of accounting quality and a shift in focus from the impact of firm-level and environmental factors to the role of top management characteristics in firms' financial reporting processes. By analyzing the association of top management subgroups with accounting quality and by decomposing various facets of internationalization, our results contribute to IB research. That is, we not only claim that internationalization of top management matters but also demonstrate that considering different facets of internationalization for different types of board members is important in IB research.

Appendix A.

Variable definitions

Variable	Description
DA Measure 1	absolute value of discretionary accruals as measured by the Ball and Shivakumar (2006) model.
DA Measure 2	absolute value of discretionary accruals as measured by the Jones (1991) model specification in Dechow et al. (1995) and adjusted for firm performance by including the ROA variable as suggested by McNichols (2000) and Kothari (2001).
AdjROA_DA1	return on assets adjusted for discretionary accruals derived from the Ball and Shivakumar (2006) model.
AdjROA_DA2	return on assets adjusted for discretionary accruals derived from the Dechow et al. (1995) modified-Jones model.
Age_Diversity	standard deviation of top managements' age divided by the top managements' mean age.
Blockholder_Own	the percentage of shares that are owned by the three largest shareholders.
BTM	book-to-market ratio (total book value of equity divided by the firms' market capitalization).
CEO_Comp_Inc	ratio of the CEO's variable compensation to the CEO's total fixed compensation.
CEO_Foreigner	indicator variable that takes the value of 1 if the CEO's nationality is non-German, and 0 otherwise.
CEO_IntBoard	1 – 1/(number of the CEO's board mandates in a country outside of Germany + 1).
CEO_IntEduc	1 – 1/(number of years during which the CEO has gained international education outside of Germany + 1).

(Continued)

Variable	Description
CEO_IntWork	1 – 1/(number of years during which the CEO has gained international work experience outside of Germany + 1).
CFO_Age	age of CFO in years.
CFO_Comp_Inc	ratio of the CFO's variable compensation to the CFO's total fixed compensation.
CFO_Foreigner	indicator variable that takes the value of 1 if the CFO's nationality is non-German, and 0 otherwise.
CFO_IntBoard	1 – 1/(number of the CFO's board mandates in a country outside of Germany + 1).
CFO_IntEduc	1 – 1/(number of years during which the CFO has gained international education outside of Germany + 1).
CFO_IntWork	1 – 1/(number of years during which the CFO has gained international work experience outside of Germany + 1).
Comp_Inc	ratio of total variable compensation to total fixed compensation.
D_CFO_IntExperience	indicator variable that takes the value of 1 if the CFO has experienced an international education or an international work environment, respectively, and 0 otherwise.
Foreign_Own	percentage of shares held by foreign citizens or foreign institutions (all nationalities) in relation to the total shares of the firm.
Foreign_Sales	ratio of foreign sales to total sales.
IntIndex_All	average internationalization index score of all board members (i.e., management and supervisory board).
IntIndex_CEO	internationalization index score of the CEO.
IntIndex_CFO	internationalization index score of the CFO.
IntIndex_MBoard	average internationalization index score of the management board members.
IntIndex_OtherMBoard	average internationalization index score of the other management board members, i.e., excluding CEO and CFO.
IntIndex_SBoard	average internationalization index score of the supervisory board members.
Leverage	ratio of long-term debt to total assets.
Ln_AnalystsN	natural log of the number of analysts following.
Ln_Total_Assets	natural log of total assets.
Loss	indicator variable that takes the value of 1 if the current year's net income is negative, and 0 otherwise.
OCF	cash flow from operations scaled by lagged total assets.
Pct_Woman	percentage of female top managers (i.e., within the management board and the supervisory board).
ROA	return on assets.
Stddev_Forecasts	standard deviation of analysts' earnings forecasts.
TMT_Size	number of top managers (i.e., all management board members and supervisory board members).

Appendix B.

Firms included in the sample

Adidas AG	Deutsche Post AG	Metro AG
Altana AG	Deutsche Telekom AG	Merck KGaA
BASF SE	E.ON AG	RWE AG
Bayer AG	Fresenius SE	SAP AG
BMW AG	HeidelbergCement AG	Siemens AG
Beiersdorf AG	Infineon Technologies AG	TUI AG
Continental AG	K + S AG	ThyssenKrupp AG
Daimler AG	Linde AG	
Deutsche Lufthansa AG	MAN SE	

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