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Performance effects of international expansion processes: The moderating role of top management team experiences

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ABSTRACT

This study investigates how experience of top management teams (TMTs) influences the performance effect of added cultural distance in international expansion processes. Taking a dynamic perspective, we focus on internationalization processes and the cultural distance that is added in expansion periods. We argue that a TMT's experience can help in coping with the complexities of added cultural distance. Based on information-processing theory, we hypothesize and find that international experience and shared team-specific experience of a TMT positively moderate the relationship between added cultural distance and firm profitability. We test our hypotheses based on cross-sectional time-series data on 3656 expansion steps of 80 German firms during the 1985–2007 period.

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1. Introduction

International business scholars have long been interested in the performance effect of international expansion. A large number of studies have investigated the impact of a firm's multinationality or degree of internationalization at a certain point in time on its profitability. However, empirical studies taking such a static perspective have yielded decidedly mixed results, including U-shaped, inverted U-shaped, S-shaped, and both positive and negative linear relationships (for recent overviews see Contractor, Kundu, & Chin-Chun, 2003; Hitt, Tihanyi, Miller, & Connelly, 2006; Li, 2007; Verbeke, Lei, & Goerzen, 2009). Little research has taken a dynamic perspective and investigated the impact of characteristics of the process of internationalization on the profitability of multinational enterprises (MNEs) (Vermeulen & Barkema, 2002). The process of internationalization, however, is important because expanding a firm's international scope is even more complex than managing an MNE in its current state (Mishina, Pollock, & Porac, 2004). Accordingly, our results show that it is not only the level of cultural diversity at a certain point in time that affects firm performance but also the process of how this level has been achieved over a period of time. In addition, we even find that level and change in cultural diversity may actually have different effects on firm performance. This indicates that the two aspects actually constitute theoretically distinct sources of complexity, which both should be distinguished and incorporated in the study of international expansion.

When first entering a foreign country, firms face liabilities of foreignness or outsidership (Johanson & Vahlne, 1977, 2009). They need to adapt to the unfamiliar locations and integrate new foreign subsidiaries into their existing international operations (Meyer, Mudambi, & Narula, 2011). At the same time, profitable firm growth is limited in a period of time

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(Penrose, 1959). Firms are constrained in their ability to expand and successfully cope with complexity added in the internationalization process in a limited period of time (Tan, 2003). For example, Vermeulen and Barkema (2002) and Wagner (2004) find that if firms expand too fast, i.e., undertake too many internationalization activities per period of time, their efficiency will suffer. Besides the mere number of expansion steps, the added complexity, and hence the additional costs of expanding internationally vary with the distance between newly entered markets and markets where the firm already has a presence (Ghemawat, 2001), with cultural distance, i.e., differences in national cultures between countries, being recognized as a particularly important source of complexity (e.g., Gomez-Mejia & Palich, 1997; Verbeke et al., 2009; Yu, Subramaniam, & Cannella, 2009).

In this paper, we take a dynamic perspective and specifically focus on change. We investigate time periods and the cultural distance added by international expansion steps undertaken in those periods to address our first research question: *What is the impact of complexity in the form of the amount of cultural distance added in a period of international expansion on the profitability of the expanding MNE?*

However, we believe that a central contingency factor in the empirical analysis of performance effects of internationalization has been largely neglected: the firm's management. It is highly relevant as complexity added in the international expansion process comes with additional information processing requirements for managers (Penrose, 1959). We believe that, in particular, a firm's top management team can make a difference since coordinating change and making strategic decisions, like expansion into foreign countries, is usually the task of the strategic apex of the organization (e.g., Barkema & Shvyrkov, 2007; Hambrick, Cho, & Ming-Jer, 1996; Mintzberg, 1971). Thus, it is the TMT that faces information processing requirements in the internationalization process, i.e., the need to gather, share, and attend to information, and then jointly analyze and integrate it as a team to handle complexity (Hinsz, Tindale, & Vollrath, 1997).

Experience of the top management team affects its knowledge and its information processing ability, and as such its performance as a unit (Hambrick & Mason, 1984; Kor, 2003; Stewart, 2006). As a consequence, such experience influences the team's ability to reap the benefits and cope with the costs of international expansion resulting, for instance, from cultural distance. In this way, top managers' experience may moderate the performance effect of international expansion processes in general, and added cultural distance, in particular. Nonetheless, the role of top managers in dealing with change has received limited empirical attention in this context. This is especially surprising as multiple studies have made arguments based on managerial resources and limitations, which are key to Penrose's theory of the growth of the firm (1959), and yet they often do not include this aspect in the empirical analysis. As Hennart's review (2007) concludes, the "literature underplays the role of management". In this paper, we directly address this issue with our second research question: *How can experience of a firm's top management team moderate the relationship between added cultural distance – being one source of complexity in a period of international expansion – and firm profitability?*

2. Theoretical background and hypotheses

2.1. Complexity and the role of cultural distance in international expansion processes

A theoretical rationale for both, benefits and costs of international expansion abound. On the one hand, potential benefits may accrue from influencing market forces (Kogut, 1985), reducing transaction costs (Buckley & Casson, 1976; Hennart, 1977, 1982), learning about foreign markets (Barkema & Vermeulen, 1998), or from transferring and exploiting firm- and subsidiary-specific advantages internationally (Rugman & Verbeke, 2001; Verbeke, 2009). On the other hand, while managing an MNE in its current state is by itself a complex task, managing its expansion is even more difficult (Mishina et al., 2004). In contrast to the majority of prior studies, our theoretical reasoning focuses on the latter in order to investigate the performance effects of international expansion from a dynamic perspective.

In an internationalization period, MNEs often undertake multiple expansion steps. Hence, they have to cope with the complexity and the associated costs resulting from all these steps (Vermeulen & Barkema, 2002). This complexity arises, on the one hand, simply from the mere increase in the number of subsidiaries located in different environments (Daft, 2009; Fredrickson, 1986). On the other hand, the degree of complexity depends on the extent to which these various locations differ from each other. Hence, not every expansion step adds the same amount of complexity in a specific expansion period. Therefore, the complexity which an MNE is exposed to due to an international expansion step varies with the distance between the newly entered market and markets where the firm already has a presence (Ghemawat, 2001; Gomez-Mejia & Palich, 1997). Expansion steps into very different terrains from the ones already known are likely to require extensive assimilation and adaptation of structures, systems, and processes. Though such adaptation to unfamiliar local settings and the simultaneous coordination with existing activities are sources of additional complexity, they are usually required if the firm is to survive and compete in foreign markets (Benito, 2005; Zaheer, 1995). Operating for the first time in a new environment, MNEs usually need to gradually learn and develop capabilities to overcome liabilities of foreignness and outsidership (Johanson & Vahlne, 2009) while simultaneously integrating the new entity in the MNE's network of subsidiaries (Barkema, Bell, & Pennings, 1996). The relevant knowledge about new markets and the appropriate skills to operate in them, however, can often only be acquired through a complex and time-consuming process.

Extensive research has shown that a particularly important source of complexity in the international expansion process is the cultural distance between newly entered markets and markets in which a firm is already active (e.g., Gomez-Mejia & Palich, 1997; Yu et al., 2009). The term cultural distance refers to differences in national cultures between countries. It has

been found that a multitude of business behaviors and outcomes is associated with such differences (Magnusson, Baack, Zdravkovic, Staub, Amine, 2008; Tihanyi, Griffith, & Russell, 2005). National culture can be understood as the collective programming of the mind of a human group (Hofstede, 1980). It encompasses traits such as beliefs, values, and norms of individuals in a certain society and affects their behavior and perceptions (Kirkman, Lowe, & Gibson, 2006). These constitute the basis for shared understanding and interpersonal interaction and communication.

Accordingly, the greater the difference in national culture a firm has to face due to a new international expansion step, the more likely the occurrence of difficulties in communication and misunderstandings in interpersonal interaction in the new context (Adler, 1986; Boyacigiller, 1990). Cultural ambiguity, which is actually likely to increase with cultural distance, may impede understanding still further (Robertson & Swan, 2003). Moreover, recent research has shown that the cultural distance between countries is related to managers' psychic distance, i.e., their individual perceptions of how distant a foreign country is (Sousa & Bradley, 2006, 2008). Higher cultural distance makes it less likely that top managers feel familiar with a foreign market and apply already possessed information. Hence, cultural distance is likely to increase the amount of additional information that needs to be processed to understand local preferences and customer behavior, to comprehend the nature of the networks of competitors and suppliers, to gain knowledge about the particularities of the local work force, and to deal with other external conditions that are afflicted by the local culture.

In addition, the greater the cultural distance, the more difficult and costly it is to obtain and interpret comprehensive and accurate information about the environment and the strategic context (Roth & O'Donnell, 1996). This makes it difficult to transfer firm-specific advantages to the new location (Tihanyi et al., 2005), because such transfer usually entails a substantial tacit component (e.g., Teece, 1977). However, tacit knowledge is predominantly built on experience in the specific market context in which the firm is already active. As culturally distant target markets differ, a firm is likely to face increased uncertainty about whether its tacit knowledge can be applied to a culturally unfamiliar and incompletely understood context (e.g., Inkpen, 2008; Lippman & Rumelt, 1982; Szulanski, 1996). Accordingly, the higher the cultural distance between the markets in which the firm is presently active and the market it wishes to enter, the more difficult it is to transfer and apply tacit knowledge to this new market (Bjorkman, Stahl, & Vaara, 2007).

It follows that, market entry into culturally distant settings increases the complexity in dealing with the environment as high cultural distance implies dealing with a larger number of external elements and issues (Scott, 1992). Compared to domestic expansion, management requires more information in order to cope with added environmental complexity. In addition, it is unlikely that expansion into a new foreign and culturally distant market will be successful without modification of routines (Doz & Prahalad, 1991). Scholars agree that to a certain extent adaptation is necessary to survive and to be successful in a new context (e.g., Sapienza, Autio, George, & Zahra, 2006; Zaheer, 1995). A firm needs to "calibrate itself to a foreign national culture" (Barkema et al., 1996). Differences between markets provide the impetus to reconfigure organizational routines and business strategies in order to create a better fit between characteristics of subsidiaries and external conditions (e.g., Bartlett & Ghoshal, 1989; Lim, Acito, & Rusetski, 2006). High managerial attention and effort is needed in order to respond to a new environment. Managers need to process information to understand underlying causal relationships and the context of the new market so as to decide on local adaptation. Yet, management also needs to integrate newly established entities into the MNE's multinational network of subsidiaries. Internal routines need to be adapted to coordinate and control activities within and between subsidiaries in different cultural contexts.

However, such integration is likely to be more difficult with increased cultural distance and administrative diseconomies might more easily arise when expanding into new environments (Calvo & Wellisz, 1978; Coase, 1952; Singh, Tucker, & House, 1986).

Accordingly, cultural distance has been found to impede local embeddedness and corporate integration of new subsidiaries (Hakanson & Nobel, 2001). Adjustment and governance costs can be considerable (Barkema et al., 1996; Tomassen & Benito, 2009) and have been shown to contribute to foreign market entry failure (Mitchell, Shaver, & Yeung, 1994). Gomez-Mejia and Palich argue that cultural distance requires coordinated adaptation to national contexts and more complex organizational control systems. They conclude that "as cultural distance increases, the challenges for the organizational control system increase proportionately" (Gomez-Mejia & Palich, 1997). Hence, there are studies that reveal a negative impact of cultural distance on a variety of outcome variables like, for instance, on the amount of FDI between two countries (Loree & Guisinger, 1995), on entry mode choice (Kogut & Singh, 1988), on the performance of foreign subsidiaries (Jiatao, Guisinger, & Li, 1991), and on international joint venture performance (Brouthers & Brouthers, 2001).

As has been outlined, an expansion step into a new country that is culturally distant poses more complexity and information processing requirements than a step into a market where the firm has an established presence and already has gained substantial knowledge. When a firm is already active in a specific country, it has likely become familiar with particularities of the country in the process of managing the subsidiary in that country. Management may even have been involved in coordinating entry into that country. At the very least, a firm's executives may have easy and detailed access to knowledge about that country via the subsidiary. As Johanson and Vahlne (1990, p. 12) stated: "When the firm has considerable experiences from markets with similar conditions, it may be possible to generalize this experience to the specific market." It follows that the new established subsidiary is more likely to rely on the MNE's knowledge gained in similar context. More specifically, the country in the MNE's portfolio which is closest to the new context in terms of culture can be considered as most relevant for new operations abroad (Verbeke et al., 2009). Prior research (Hutzschenreuter & Voll, 2008; Hutzschenreuter, Voll, & Verbeke, 2011) suggests accounting for such learning effects and possible knowledge

transfer. Hence, the *added cultural distance* an MNE has to face resulting from an international expansion step is the distance between the new country and the country in its portfolio which is most similar to the new context in terms of culture.

In sum, the complexity and information processing requirements that a firm faces along an expansion process is driven by the cultural distance that is added by each and every international expansion step in that process. Hence, managers are strained by the added cultural distance in the expansion process, i.e., by the cumulative cultural distance of all the international expansion steps taken in a given period of time (Hutzschenreuter & Voll, 2008).

2.2. *Managerial role and limitations in the ability to handle complexity resulting from added cultural distance in international expansion processes*

International expansion is a corporate-level strategy for which a parent firm's top management is responsible (D. Tan & Mahoney, 2005). Given its role as the internal and external information processing center, a top management team (TMT) is in a unique position to understand, make, and relate complex expansion decisions (Mintzberg, 1971). Expansion into foreign environments is a strategic task that typically involves most, if not all, TMT members and that usually requires consensus, especially when it comes to decisions on direct investments in foreign geographic markets (Barkema & Shvyrkov, 2007; Hambrick et al., 1996). As a result, the TMT is seen as the most suitable information processing mechanism to deal with the additional complexities of internationalization (Egelhoff, 1991).

Information processing requirements for the TMT come from the need to handle complexity, e.g., from added cultural distance within the course of expansion. These information processing requirements differ depending on the specific expansion path which the firm undertakes. The higher the resulting added cultural distance and, hence, the complexity the TMT has to face from international expansion, the greater the information processing requirements. The ability to process large amounts of information is both valuable and rare (Sanders & Carpenter, 1998). As a source of complexity, added cultural distance strains firms' managerial resources needed for processing information to overcome distance. It consumes a substantial amount of TMT time and effort.

However, information processing ability of a TMT and its development are limited in a period of time (Penrose, 1959). That is, boundedly rational TMT members are limited in their ability to absorb, evaluate, and act upon complex information per unit of time (Cyert & March, 1963). For example, time compression diseconomies hamper learning within a given period of time (Dierickx & Cool, 1989). The limited amount of new information that a top management team is able to handle may further increase the costs of coping with added cultural distance in a period of expansion. If too much cultural distance is added in a short period of time information requirements surpass the capacity of a TMT to process new information, what Teece has called the "congestion factor" (Teece, 1980). As managers become overwhelmed and unable to sufficiently familiarize themselves with foreign markets, the quality of decisions suffers. This results in poor adaptation of structures, systems, and processes that may substantially diminish the benefits of international expansion. When the TMTs' ability to process information is overstretched it may even neglect the management of existing business operations damaging both the performance of existing subsidiaries and that of newly established ones. Hence firms that add too much cultural distance in an expansion period will experience lower profitability. Taken together we hypothesize:

Hypothesis 1. Everything else being constant, the amount of added cultural distance per period of time will negatively affect firm profitability.

2.3. *TMT experiences as influencing factors of managerial ability to handle added cultural distance in international expansion*

TMTs do not only face varying information processing *requirements* resulting from differing amounts of added cultural distance which their firms accumulate during international expansion. They also possess different information processing *abilities* to handle these requirements. Hence, despite of TMTs' limitations to handle complexities from added distance in a given period of time, this negative effect of internationalization may be mitigated by an enhanced ability to process information. Different teams may experience different limitations. Thus, the relationship between added cultural distance and firm profitability is conjectured to be moderated by factors that influence a TMT's information processing ability.

An extensive body of social psychology research informs us about factors that potentially affect the performance and the decision making ability of teams (for extensive overviews see Kerr & Tindale, 2004; Stewart, 2006), and specifically of TMTs (e.g., Carpenter, Geletkanycz, & Sanders, 2004; Hambrick & Mason, 1984). A particularly important factor that influences information processing has been argued to be the extent of prior relevant experience that TMT members bring to the task (Finkelstein, Hambrick, & Cannella, 2009). Through experience executives gain tacit and explicit knowledge, form unique skills and competencies, and build networks of external ties. The cognitive bases, values, and perceptions of executives are shaped by their experience (Hambrick & Mason, 1984). Since TMT experience is argued to enhance information processing (Finkelstein et al., 2009), such experience may be also considered to help to successfully cope with the complexity arising from added cultural distance in the international expansion process.

Several empirical studies have focused on top managerial experiences and found an association between top managerial international experience at a certain point in time and a firm's degree of internationality or multinationality at that point in time (Herrmann & Datta, 2005; Sambharya, 1996) or with a two year lag (Carpenter & Fredrickson, 2001; Tihanyi, Ellstrand,

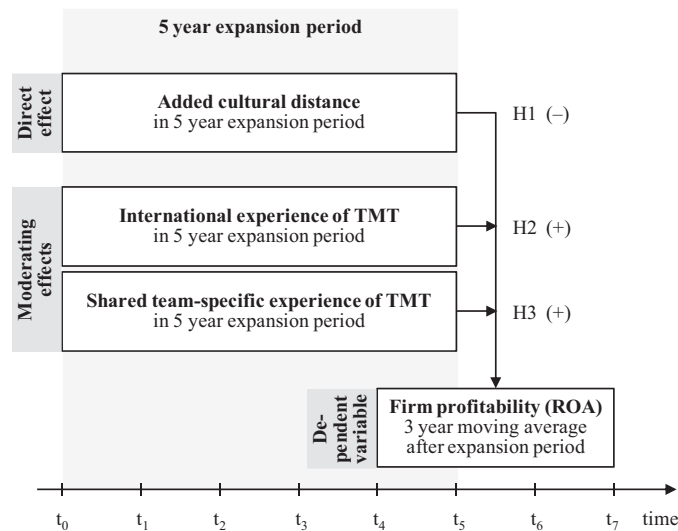


Fig. 1. Research model.

Daily, & Dalton, 2000). In addition, shared experience on a particular team has been argued to affect a firm's annual sales growth (Kor, 2003). However, the role of TMTs' experiences in the international processes of MNEs has rarely been studied. Therefore, in this study we aim to close this gap and investigate the effect of TMTs' experiences in the path of international expansion. More specifically, following prior internationalization process literature (Hutzschenreuter & Voll, 2008), we examine the effect of such experiences in a period of expansion on the underlying relationship between added cultural distance in this period of expansion and a firm's profitability in a later period (see Fig. 1).

Taking a resource based perspective, Carpenter, Sanders, and Gregersen (2001) argue that international experience of top managers is an intangible resource that is valuable, rare, and difficult to transfer and, thus, a source of competitive advantage. They also recognize that top managers are embedded in a socially complex top management team. To work efficiently in such a team, managers require shared experiences in working with each other in that team (Penrose, 1959). Therefore, we focus in particular on TMTs' *international experience* and their members' *shared team-specific experience*.

2.3.1. TMTs' international experience

Prior experience creates value when it can be applied to a specific task. Hence, executives who deal with complexity from added cultural distance may especially benefit from international experience, i.e., personal and professional experience in different cultural settings (Meyer, 2006). TMTs with substantial international experience are more likely to possess deeper knowledge of foreign environments and cultures (Lee & Park, 2008) and may be more aware of cultural differences and ambiguities. Murtha, Lenway, and Bagozzi (1998) write about a 'global mindset' of managers that develops by learning from international experiences and overcoming national biases. It is consistent with the geocentric state of mind described by Perlmutter (1969) and with what Bartlett and Ghoshal (1989) term transnational mentality. A global mindset is considered by many to be crucial for coordinating international activities and balancing global integration and local responsiveness and thus ultimately for the success of international expansion (Adler & Bartholomew, 1992).

Internationally experienced TMTs may also benefit from a network of international contacts that facilitates acquisition and access to information about distant markets (Herrmann & Datta, 2005). Lee and Park (2008) suggest that high TMT international exposure and relational capital in foreign markets provide reputational information to institutions and potential partner firms, thus mitigating liabilities of outsidership (Johanson & Vahlne, 2009). Moreover, living and working in foreign settings shapes the cognitive orientation, values, and perspectives of managers, and alerts them to the potential opportunities and challenges of culturally distant countries (Tihanyi et al., 2000). TMTs with prior experience in working abroad may already have detailed knowledge of the contributions of foreign subsidiaries to overall firm performance and of coordination issues with other units (Daily, Certo, & Dalton, 2000). This knowledge is useful for the initiation, planning, and implementation of international expansion. Accordingly, Sambharya (1996) concludes that a TMT's international experience may reduce the level of uncertainty.

Taken together, we argue that international experience enhances the collective ability of a top management team to absorb and process complex information related to internationalization. Therefore, it enables TMTs to better cope with cultural distance added per unit of time in the international expansion process. Following this logic, we hypothesize:

Hypothesis 2. Everything else being constant, greater international experience on the part of top management team members will positively moderate the relationship between added cultural distance per period of time and firm profitability.

2.3.2. TMTs' shared team-specific experience

By definition the members of a TMT do not work independently of one another but interact in a group process (Steiner, 1972). While individual managers may have general team-working skills, each TMT is unique. Accordingly, "an administrative group is something more than a collection of individuals; it is a collection of individuals who have had experience in working together, for only in this way can 'teamwork' be developed." (Penrose, 1959, p. 46). Thus, in addition to the international experiences of its individual members, a team's information processing ability is influenced by their shared experiences made through members' interaction and cooperation (Lepine, Piccolo, Jackson, Mathieu, & Saul, 2008). Prescott and Visscher (1980) conclude that teams whose members fit well together can be considered organizational capital. Accordingly, managers with high team-specific experience are a difficult to imitate resource (Kor, Mahoney, & Michael, 2007) as it takes time and longevity as a team to acquire mostly tacit knowledge about other team members and to build social relationships within the team (Langan-Fox, Code, & Langfield-Smith, 2000; Pelled, 1996).

From an information processing perspective, a TMT requires information in order to make and implement expansion decisions. Information processing as a team is defined as TMT members gathering, sharing, and attending to relevant information, then jointly analyzing and integrating it into the internationalization process (Hinsz et al., 1997; van Knippenberg, De Dreu, & Homan, 2004). Shared team-specific working experience may contribute to information processing in different ways.

Managers with high tenure overlap on a TMT have spent a lot of time working together. They are likely to have initiated, planned, and implemented multiple strategic decisions as a team, and in the process probably gained detailed knowledge of the skills, limitations, mental models, and habits of their fellow team members. This may lead to better communication and information-sharing (Huber & Lewis, 2010). Collaboration can be enhanced as managers adapt to each other, develop routines in decision making, and simply learn to get along. Executives which have been working together for a long time have established a transactive memory system within the team which enables the team to process information more effectively (Smith-Jentsch, Kraiger, Cannon-Bowers, & Salas, 2009). Thus, shared team-specific experience can save time and result in faster joint processing of information and decision making (Eisenhardt & Schoonhoven, 1990). Knowledge about how other team members have behaved in past situations can nurture the development of trusting relationships (McAllister, 1995), which in turn can improve collaboration (Dirks & Ferrin, 2001). In addition, the longer TMT members have worked together the less likely they are to fall back on stereotypes or make assumptions about each other based on social demographic traits like age, race, or gender. This can weaken the likelihood and intensity of emotional conflicts that disturb constructive information processing. With an increasing overlapping tenure, top managers gain a better understanding of job related characteristics that are less visible such as specific skills and expertise (Pelled, 1996). Thus, shared team-specific experience also contributes to enhance joint information processing (Eisenhardt & Schoonhoven, 1990). Taken together, it follows that for information processing generic team experience is by no means a substitute for experience within a specific team (Kor, 2003).

Complexity increases with expansion and internationalization can be considered as one direction of growth. In general, as the complexity of the work increases the demand for team information processing increases (Gorman & Cooke, 2011). As has been outlined a TMT's shared team-specific experience increases its ability to process information and hence to cope with complexity. As such, a lack of TMTs' shared team-specific experience constitutes a central constraint on a firms' ability to change, its growth rate, and its rate of international expansion (Penrose, 1959). With international expansion being one direction of growth, we consider TMTs' shared team-specific experience to be highly relevant for the ability to process information in order to handle the complexities resulting from added cultural distance, because "the capabilities of any particular cooperating group – the scope and effectiveness of the activities it can undertake – will depend both on the skills of its members and on their inter-relationship." (Richardson, 2002, p. 41). Hence, interrelationships between members and ability to work together as a team are important factors that influence a TMT's ability to handle complexity resulting from added cultural distance (Richardson, 2002). It follows that TMTs with high team-specific experience are more likely to be better able to cope with the inherent complexity and uncertainty of expansion to culturally distant markets (Kor & Mahoney, 2000). As it takes time to build such joint understanding, a team cannot significantly increase its ability to process information and coordinate expansion activities in the short run. Therefore, a team with long shared team-specific experience is more likely to capitalize on enhanced information processing ability in international expansion.

For instance, a team with high shared experience is likely to have jointly implemented already several international expansion steps in the past. That is, the team gained shared experience in internationalization and in adapting business practices to different cultural settings. This shared experience may be an enormous help for the implementation of new expansion steps. Particularly, it enables a TMT to better deal with and become familiar with culturally new environments, coordinate the firm's adaptation to national contexts, and embed new subsidiaries in the internal network of already existing subsidiaries as a team. In addition, long shared team tenure may allow the team to allocate more attention and time to the management of complexity resulting from added cultural distance rather than on group issues (Eisenhardt & Schoonhoven, 1990).

Taken together, we argue that shared team-specific experience and a better understanding between TMT members enhances information processing ability compared to teams with no such experience. Thus, experienced teams are better able to handle the information processing requirements of dealing with the complexities of added cultural distance when expanding internationally. Therefore, we hypothesize:

Hypothesis 3. Everything else being constant, greater shared team-specific experience among top management team members will positively moderate the relationship between added cultural distance per period of time and firm profitability.

3. Methods

3.1. Sample and data

We tested our hypotheses using cross-sectional time-series data on the expansion path of German firms. We derived our sample from the HDAX index of the German stock exchange that comprised the companies with the highest market capitalization in Germany. Following Vermeulen and Barkema (2002), we excluded financial institutions, real estate firms, retailers, purely financial holdings, and cross-listed non German firms. We ended up with 135 companies that were listed on the HDAX at one point in time since its inception. We acquired data on these firms' top management teams and their international expansions. We started to collect data for a period ranging from 1985 to 2007. Therefore, we followed the few prior studies applying a dynamic approach to investigate internationalization (e.g., Vermeulen & Barkema, 2002; Hutzschenreuter and Voll, 2008).

The observation window for each firm is seven years. It consists of a five year period of expansion activity and a three year period of firm performance where the first year of firm performance equals the last year of the expansion period. That is, while in the expansion period we include all expansion steps undertaken between t_0 and t_5 , firm performance is observed between t_4 and t_7 (see Fig. 1). In line with Vermeulen and Barkema (2002), firm performance is calculated as a three-year moving average of the $ROA_{t_4-t_5}$, $ROA_{t_5-t_6}$, and $ROA_{t_6-t_7}$. This seven-year observation window is rolling for each firm over the time period the corresponding firm is included in our sample. Given this research setting, we require complete data for a minimum of eight consecutive years per firm since we use a fixed effects model to estimate our regression models which requires at least two consecutive observations for a firm to be included in the analysis. Through the elaborate process outlined below, we were able to gather sufficient data for the entire set of variables for 80 firms.

We started our data collection by obtaining the annual reports of the sample firms and compiling additional information by contacting the firms directly and by using public archives. Based on information on expansion steps in the annual reports and the list of affiliates in the report appendices, we gathered data on all of the subsidiaries that had been established during the period of analysis. To exclude purely financial investments, we included newly established subsidiaries only if the parent firm held a stake of at least 50% after the investment and had no, or a minority stake, before. Furthermore, we identified all subsidiaries that existed at the beginning of the period as well as those that were divested during the period of analysis. Thus, we were able to determine the complete portfolio of subsidiaries for each year a firm is included in our panel. This data collection approach was necessary as such detailed data on expansion steps are not available from any commercial database in Germany.

We also collected demographic data on the members of the firms' top management teams. Demographic data may serve as reasonable indicator for psychological constructs and information processing of top managers and teams (Hambrick & Mason, 1984). The use of such data is very common in management research (e.g., Barkema & Shvyrkov, 2007; Kor, 2006; Rivas, 2011) and, as noted by Michel and Hambrick (1992), is advantageous as this data is clear-cut and objective. Since no comprehensive database on such characteristics existed, we collected the data from multiple data sources in a time-consuming process. First, we decided who should be considered a member of the TMT (Wiersema & Bantel, 1992). In the German governance system, the board of directors is two-tiered with a management board (Vorstand), and a separate supervisory board. Members of the Vorstand represent the firm. They are legally and collectively responsible for managing the firm with the CEO acting as first among equals. Hence, we equate Vorstand with top management team and identified from the firms' annual reports all executive directors that were on the Vorstand for the respective years of our investigation.

The resulting list of executives was used in the next step to gather demographic data as well as data on the career path of each manager. The Hübner's Who is Who and Lexis Nexis online databases were important sources of information. Furthermore, we accessed several encyclopedias, like Sutter's International Red Series Who's Who in Germany, Wer ist Wer? Das Deutsche Who's Who, IBP Who's Who in Germany, Who's Who in European Business and Industry, and the Munzinger online archive. Next, we searched the archives and databases of well-respected newspapers and magazines. These included the archive of the Frankfurter Allgemeine Zeitung and the Spiegel as well as BusinessWeek's Executive Profile section and ManagerMagazin. In a later stage we again contacted firms directly in an attempt to close the remaining gaps in the data set and to test the reliability of already collected data. Firm archives were of great help. Finally, when we were not able to obtain all of the relevant information, but were able to find a way to reach an executive, we attempted to make direct contact. Often those executives responded right away. In line with prior upper-echelons research (c.f. Jensen & Zajac, 2004; Westphal & Zajac, 1997), firm-year observations were excluded from the analysis if TMT related data were unavailable for more than one quarter of the top executives of a respective team.

If we excluded firms from our analysis because they were unsuccessful or did not survive, a survivorship bias would occur. In contrast to other studies with a similar study approach, we attempted to avoid survivor bias by including non-surviving firms in our sample. In addition, we gathered data on several financial variables, including our dependent variable, firm performance, from Thomson Reuters Datastream database. We did this not only for firms that we included in the analysis but also for those that we excluded. Following Carpenter and Fredrickson (2001), we then compared the firms we included to those excluded using a means test. This test revealed that the firms included were not significantly different with respect to number of employees, total assets, revenues, or market capitalization. More importantly, they did not perform significantly better than firms that were excluded, indicating that survivorship does not lead to a bias in our results. Furthermore, it affirms that our sample is constructed independently of the dependent variable included in the study, thus avoiding problems associated with sample selection bias (Allison, 2002; Jensen & Zajac, 2004; Little & Rubin, 2002).

As the structure of our dataset is unbalanced, we applied an additional statistical method to determine whether sample selection is an issue in our analysis. Wooldridge (2002) argues that in a fixed effects context, sample selection poses a problem only when selection is related to the idiosyncratic error term in the model. He describes a simple test for this assumption, which was applied for example by Berrone and Gomez-Mejia (2009). As originally suggested by Nijman and Verbeek (1992), we tested the assumption by adding a binary selection indicator with a one year lag to our model. The selection indicator is coded one if a firm is included in our analyses in a particular year and zero otherwise. Thus, it models the presence or the absence of firms in each year of our analysis. Estimation of our fixed effects model, including the one year lagged selection indicator, revealed that this indicator was not significant. Accordingly, we conclude that sample selection does not lead to bias (Wooldridge, 2002).

3.2. Variables

Our research empirically studies the performance effect of international expansion processes of firms and how it is influenced by top management team experience. Consequently, we investigate the effect of managerial and growth-related characteristics of a five year expansion period on firm performance after that period. We calculated our independent and control variables as average values over the respective period unless specified otherwise. Following multiple studies on firm expansion (Weinzimmer, Nystrom, & Freeman, 1998), we chose a time frame of five years as the time horizon of TMT strategic planning is typically that long (Grant, 2003).

3.2.1. Dependent variable

The dependent variable in this study is firm performance. We used an accounting-based measure and measured firm performance using the firms' return on assets (ROA) (Hitt, Hoskisson, & Kim, 1997; Venkatraman & Ramanujam, 1986). The variable is calculated as a three-year moving average following the five year expansion period (see Fig. 1). A three-year moving average was chosen to reduce distortions that may result from changes in accounting practices (Carpenter & Sanders, 2002). ROA is a common and widely accepted measure of firm performance in management and diversification research (Gomez-Mejia & Palich, 1997; Kim, Hwang, & Burgers, 1989), and thus allows comparison with numerous other studies (e.g., Carpenter, 2002; Carpenter et al., 2001). It is particularly appropriate in the context of our study as it reflects the relative efficiency of the use of a firm's assets and the synergies gained through international expansion (Kim et al., 1989). In contrast to other accounting based measures, e.g., return on equity, ROA has the advantage that it controls for differences in financial structure (Bettis & Mahajan, 1985). Moreover, our model predicts realized performance, while market-based measures reflect shareholder expectations about the future. To check for the robustness of this measure we calculated different models by varying the time period in which we measured firm performance relative to the foregoing expansion period. The results remained virtually identical even if we moved the performance period one or two years ahead.

3.2.2. Independent variables

We infer that there are challenges arising from international expansion and that a firm and its management need to cope with cultural distance added to a firm's existing country portfolio. We calculated cultural distance between two countries based on the four original dimensions and scores of Hofstede (1980). Applying the Kogut–Singh index we averaged the differences in cultural dimensions between two countries and additionally controlled for the variance in each dimension (Kogut & Singh, 1988). This approach has been used extensively in international business research (e.g., Chen & Hu, 2002; Gomez-Mejia & Palich, 1997; Indro & Richards, 2007; Roth & O'Donnell, 1996; Yu et al., 2009).

To determine cultural distance prior research has commonly used the distance between a new country and the home country of the corresponding firm. We have chosen a different approach to assess distance, namely by applying the concept of *added distance* which has been put forward by Hutzschenreuter and Voll (2008). The rationale behind this measure is that it accounts for potential learning effects and path-dependencies within the firm's path of expansion. We focus on complexity which strains a firm's TMT in the expansion path. Such complexity stems from the lack of knowledge about new and unfamiliar cultural environments and the need for change and adaptation to the new circumstances. We assume that a firm's presence in a specific country implies that the TMT is familiar with the particularities of this country and that organizational routines have been adapted already to the specific external conditions. Furthermore, we suppose that this established knowledge, processes, and structures in foreign countries help for the management of new expansion steps. In particular, it is reasonable to conjecture that experience gained in the closest neighbor country is most relevant and accessible for the new subsidiary in the new country. Therefore, for each expansion step into a new country we assess the cultural distance to the closest neighbor of this country.

To determine the so called *added cultural distance* in a given period of time, we first calculated the cultural distance between the country into which the firm expands and each country where the firm already has an affiliate before expansion. Thus, the number of countries in the firm's country portfolio equals the number of cultural distances we computed for each expansion step. The smallest of these distances reflects the cultural distance that is *added* by that particular expansion step. Therefore, the added cultural distance of a single expansion step is its distance to the closest existing country. We focused on expansion steps as they constitute a direct measure of change that captures actual activities undertaken by a manager to expand into new geographic areas. Next, we summed the added cultural distances of all expansion steps in the period of interest in order to measure the level of added cultural distance to which a firm and its management is exposed in that period, hence the variable's name: *added cultural distance per period of time*.

The variable *TMT international experience* reflects the experiences that executives have had in an international context such as growing up abroad or by studying or working outside of one's own country. Experiences of these kinds can shape the skills and mental models of executives as well as their networks of personal and professional ties. Hambrick and Mason (1984) argue that such experiences have an impact on organizational outcomes. Accordingly, we measure TMT international experience as the percentage of TMT members born outside of Germany (Black, 1997), educated outside of Germany (Tihanyi et al., 2000), and/or who have had work experience outside of Germany (Carpenter et al., 2001; Sambharya, 1996). Following Lee and Park (2008), we summed the values and divided the sum by three to form a composite index that captures the TMT's background and experiences more completely than relying on a single measure.

To capture TMT cross understanding, that is how well team members understand the mental models, skills and knowledge, limitations and idiosyncratic habits of fellow members, we measured the *shared team-specific experience* of TMT members. We do not try to capture team experience in general, but experience *specific* to the particular teams we are investigating, i.e., a team's joint managerial experience in making and implementing investment decisions (Kor, 2003). Following Carroll and Harrison (1998), we average the sum of the overlapping tenure across all dyads of the team as a proxy for the shared TMT-specific experience of all current executives.

3.2.3. Control variables

For the selection of control variables we focused on those variables which we consider to be theoretically most relevant in the context of our study and we relied on prior research that used a similar research design. In sum, the final list of controls constitutes a carefully selected set of variables to account for characteristics of the TMT, the firm, and its expansion path.

We selected variables to control for other characteristics of the TMT, namely TMT size, TMT age, and TMT educational level. These variables were included because they are frequently argued and shown to affect performance (Carpenter et al., 2001; Cheng, Chan, & Leung, 2010; Williams & O'Reilly, 1998). The variable *TMT size* captures the quantity of managerial resources in the TMT. We control for this variable because the size of a team may significantly affect the efficiency of the teamwork. For instance, with increased TMT size coordination and communication problems are more likely to arise. Following Haleblan and Finkelstein (1993), we measure TMT size using the total number of executives on the firm's TMT (Vorstand). Data were extracted from annual reports. *TMT age* has been shown to affect team information processing (Taylor, 1975). Thus, we included the average age of the members of the TMT as a control variable. In addition, *TMT educational level* may be used as an indicator for the quality of managerial resources (Talke, Salomo, & Rost, 2010; Wally & Becerra, 2001; Wiersema & Bantel, 1992). Therefore, a higher educational level of TMT members is likely to influence a TMT's ability to manage complexity arising from international expansion. We computed the average educational level of the TMT by using state-approved German educational degrees (Kultusministerkonferenz, 2005).

As we examine internationalization patterns and its effect on firm performance from a dynamic perspective, we aim to explain how *changes* in an internationalization period may affect ROA. The study of Vermeulen and Barkema (2002) which used a similar research design was our main source of reference for the selection of controls for characteristics of the firm and attributes of expansion. In line with Vermeulen and Barkema (2002), we included the variables *irregularity*, *acquisition*, *firm size*, and *capital structure*, *product diversity*. Not only the amount of cultural distance that is added in an expansion period may matter but also the *irregularity* at which it is added (Vermeulen & Barkema, 2002). Highly irregular international expansion patterns may lead to considerable additional complexity for the TMT. For instance, irregular expansion may result in an overstretch or an under-utilization of managerial capacity leading to a loss in efficiency (Penrose, 1959). To control for such an effect, we calculated for each year of the five year expansion period the cultural distance added in these years and then measured the irregularity as the coefficient of variation of the cultural distance added per year.

Investments in foreign markets can be undertaken via acquisitions or Greenfield investments. Acquiring an existing resource bundle may pose different challenges for the firm than building a subsidiary from scratch. Thus, the mode of entry into foreign markets may influence the performance of expansion programs. To control for this, we calculated the variable *acquisition* as a percentage of international expansion steps implemented by acquisition in the period of analysis. The variable *capital structure*, measured as total liabilities over total assets (e.g., Vermeulen & Barkema, 2002), was included because a firm's capital structure may influence its ability to expand. Following prior research, *firm size*, measured as natural logarithm of firm sales (e.g., Carpenter & Sanders, 2004) was used in the model because the size of a firm may facilitate certain benefits which may influence firm performance, e.g., larger firms may benefit from economies of scale and scope.

Managing a status quo, e.g., the absolute amount of cultural differences a firm faces at a point in time, differs from managing change, e.g., the cultural difference which is added through expansion. It follows that we need to distinguish between different sources of complexity. While managing a firm in its current state is already a complex task, managing its expansion is even more so (Mishina et al., 2004). In our hypothesis we focus on complexity stemming from managing expansion or, more specifically, change in cultural differences the TMT has to cope with in a certain period of time. Therefore, in addition to our chosen independent variables which account for *dynamic complexity*, we need to include variables which account for *static complexity*. By using fixed effects in our models, we control for unobserved heterogeneity across firms and for firms' static time-invariant characteristics which may be antecedences of the variation in ROA (e.g., industry membership).

To control for static complexity we included the variables *product diversity* and *cultural diversity*. These variables reflect differences among a firm's subsidiaries at a certain point in time and thus the complexity with which managers have to cope when managing a multinational multidivisional portfolio of activities. We controlled for the level of *product diversity* as the

breadth of a firm's product areas may increase complexity that managers have to cope with at a certain point in time (Chatterjee & Wernerfelt, 1991). On the basis of the number of subsidiaries in four digit industry codes we used the Berry–Herfindahl index to calculate this variable (Berry, 1971). On the other hand, based on the concept of cultural distances described above, we calculated *cultural diversity* as the sum of the cultural distances across all dyads of a firm's network of subsidiaries divided by the total number of pairs. This calculation shares similarities to the WAR (weighted average relatedness) concept in the product diversification literature (Teece, Rumelt, Dosi, & Winter, 1994).

In the literature it is argued that differences between countries and product areas that an MNE is active in at a certain point in time may be associated with both, positive and negative effects. For example, a high cultural diversity may allow a firm to better learn from its subsidiaries and to be more flexible in shifting resources. In turn, high cultural diversity increases the complexity that a firm has to cope with at a certain point in time. Thus, to test for curvilinear effects, we have included both the simple and the squared term of cultural and product diversity (e.g., Hitt et al., 1997; Palich, Cardinal, & Miller, 2000).

In addition, we included four other control variables which we consider as highly relevant in the context of our study, namely centroid of cultural distance, total ownership, prior minority, and slack. As a firm has more time to cope with the complexity of expansion steps undertaken at the beginning of the expansion period compared to steps at the end of the period, we included the variable *centroid of cultural distance*. Following Hutzschenreuter and Voll (2008), we weighted the cultural distance of each year with a value of -1 for the first year of the expansion period, -0.5 , 0 , and 0.5 for the second, third, and fourth year of the expansion period and 1 , for the last year of the expansion period. We calculated the variable centroid of cultural distance by dividing the sum of weighted cultural distance values by the sum of the unweighted values. Thus, a small ratio indicates that cultural distance was predominantly added in early years while a large ratio indicates that it was added in later years.

The variable *total ownership* is supposed to control for the following effect. A firm may take over full control when establishing a foreign subsidiary or may engage in an equity alliance with a partner. Partners may bring location-specific knowledge and relationships (Hennart, 1988; Lane, Salk, & Lyles, 2001; Yamin & Golesorkhi, 2010), however, partnerships need to be coordinated and controlled, increasing the strain on managerial resources (Chang & Rosenzweig, 2001). The variable is measured as the percentage of international expansion steps in the period of analysis where subsidiaries were wholly owned.

If a firm held a minority stake in a subsidiary prior to making an investment that resulted in a majority stake, it may have acquired valuable knowledge about the subsidiary. As this may potentially affect the performance of expansion steps, we calculated the variable *prior minority* as a percentage of international expansion steps taken in the period of analysis in which the firm already held a minority stake. Last but not least, since financial slack has been shown to exert an important influence on firm performance (Mishina et al., 2004), we also included the variable *slack* measured as the firm's current ratio (e.g., Cho & Hambrick, 2006).

4. Analysis

Before testing our hypotheses, we performed a range of specification tests. Since our dataset comprised observations of multiple firms at different points in time, our estimation method needs to take into account the specific panel character of our data. As confirmed by a Hausman test, we used a fixed firm effects model for our analysis (Wooldridge, 2002). Such models are preferred in panel data analysis (Cannella, Park, & Lee, 2008) and have an advantage in that they control for constant unobserved heterogeneity across firms that may explain differences in the dependent variable (e.g., Greene, 2008). They are considered to be conservative as significant effects can only be observed based on changes in independent variables within a particular firm and so there is a reduced risk of getting spurious results due to problematic error terms in the context of cross sectional studies.

Following Greene (2008), we tested for heteroskedasticity by calculating a modified Wald statistic for groupwise heteroskedasticity in fixed effects regression models. The test statistic rejected the null hypothesis indicating that the error variance is specific to the cross sectional units. Furthermore a test for autocorrelation in panel data as discussed by Wooldridge (2002) and Drukker (2003) suggests that autocorrelation does not affect our results. In this context, an ordinary least squares fixed effects model with Huber–White corrected standard errors (White, 1980) has been applied in management research, by Anderson and Reeb (2004) for example. Alternatively, the Arellano estimator in fixed effect models (Arellano, 1987; Kezdi, 2003; Kristensen & Wawro, 2007) can be used. It is robust to arbitrary heteroskedasticity and autocorrelation and has been applied by Delmas, Russo, and Montes-Sancho (2007) and McCann and Vroom (2010). We tested both estimation approaches which yield virtually identical results. The results displayed in Table 2 are based on the Arellano robust estimator. In addition, contemporaneous correlation, which is present if residuals of units observed in different time periods are correlated, might pose a serious issue (Beck & Katz, 1995). To control for contemporaneous correlation (Certo & Semadeni, 2006) and for potential time effects in our model (Greene, 2008), we used time dummy variables.

We tested for multicollinearity by analyzing the correlation coefficients. The descriptive statistics in Table 1 show mean values, standard deviations, and correlations among the dependent, independent, and control variables.

Given our use of a fixed effects model, we calculated the within firm correlation coefficients (for a similar approach, see McCann & Vroom, 2010). As Tsui, Ashford, St.Clair, and Xin (1995) write, “there is no definite criterion for the level of correlation that constitutes a serious multicollinearity problem. The general rule of thumb is that it should not exceed 0.75.”

Table 1
Descriptive statistics.

	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Return on assets	0.081	0.074	1.00																
2. Added cultural distance	2.456	2.599	-0.09	1.00															
3. TMT international experience	0.178	0.138	0.09	-0.16	1.00														
4. Shared TMT-specific experience	4.168	1.594	0.07	-0.03	-0.04	1.00													
5. TMT size	6.098	2.710	-0.09	0.08	-0.39	-0.18	1.00												
6. TMT age	52.810	3.794	0.03	-0.03	-0.01	0.43	0.14	1.00											
7. TMT educational level	6.268	0.558	-0.07	-0.02	-0.22	0.12	0.00	-0.05	1.00										
8. Irregularity of cultural distance	1.298	0.603	-0.04	0.06	0.05	0.01	-0.01	-0.10	-0.04	1.00									
9. Centroid of cultural distance	-0.045	0.532	0.02	0.01	-0.12	0.05	0.07	0.02	-0.03	-0.11	1.00								
10. Product diversity	3.455	0.989	-0.05	-0.06	-0.08	0.04	0.09	-0.01	-0.01	-0.08	0.06	1.00							
11. Cultural diversity	0.722	0.318	0.06	0.18	0.33	-0.09	-0.18	-0.03	-0.05	0.14	-0.16	-0.04	1.00						
12. Total ownership	0.697	0.276	0.06	-0.06	0.03	0.05	-0.11	-0.12	-0.08	0.20	0.12	0.24	-0.04	1.00					
13. Acquisition	0.521	0.317	0.07	-0.07	0.26	0.06	-0.15	-0.02	0.04	0.07	-0.10	-0.13	0.03	0.01	1.00				
14. Prior minority	0.035	0.114	-0.11	-0.11	-0.04	-0.13	0.09	0.05	0.19	-0.21	-0.04	-0.13	0.00	-0.39	0.23	1.00			
15. Capital structure	0.618	0.162	0.02	-0.11	-0.14	-0.12	0.09	0.02	0.23	-0.07	-0.04	0.02	0.06	-0.12	-0.05	0.20	1.00		
16. Slack	2.201	1.365	0.01	0.07	-0.25	0.11	0.09	0.07	0.13	0.02	0.06	-0.18	-0.37	0.06	-0.06	-0.10	-0.35	1.00	
17. Firm size	15.124	1.788	0.02	-0.07	0.39	0.01	-0.10	0.07	-0.06	0.09	-0.08	0.21	0.53	0.20	0.08	-0.13	0.23	-0.58	1.00

All correlations with an absolute value larger than 0.084 are significant at the level $p < 0.05$.

Mean values and standard deviations are overall values of non-centered variables. Centering has no impact on standard errors and correlation coefficients. TMT, diversity, and financial (i.e., capital structure, slack and firm size) variables are average values of the period.

Correlation coefficients are within firm correlations. Given our use of a fixed effects model, we calculated correlations after subtracting for each variable the mean value of the respective firm from the value of the variable.

Other authors indicate critical thresholds of 0.8 (Kennedy, 1979) and 0.6 (Foo, Sin, & Yiong, 2006). None of the within firm correlation coefficients in Table 1 exceeds 0.6 indicating that multicollinearity is not a problem. As Barkema and Shvyrkov (2007) point out, firm size and TMT size may be highly correlated as larger firms tend to have larger TMTs. Thus, we tested both models including and excluding TMT size. Results were virtually identical. Furthermore, we examined variance inflation factors. For all variables, they are considerably smaller than the generally accepted critical value of 10 (Tan & Tan, 2005). This further indicates that multicollinearity does not significantly affect our results. Based on suggestions made by Aiken and West (1991), we mean-centered all variables that were used to test interaction effects in order to mitigate possible collinearity specific to interaction terms.

5. Results

Table 2 shows the results from the regression analysis used to test our hypotheses. Our dependent variable is firm performance measured as a three-year moving average of return on assets after a period of expansion. Model 1 shows the results of regressing firm performance on the control variables only. In model 2 we include added cultural distance per period of time to test for a direct relationship with performance without interactions. The full model, model 3, is used to test our hypotheses. It includes all the control and independent variables and is thus less likely to suffer from omitted variables bias compared to the other models (Echambadi, Campbell, & Agarwal, 2006).

The underlying relationship of our study is the link between added cultural distance per period of time and firm performance following that particular period. Our results show that the relationship is negative and significant and thus supports Hypothesis 1. Coefficients are not standardized. That is, the coefficient of the variable added cultural distance can be interpreted that increasing added cultural distance by one unit (to compare: the cultural distance between the US and Canada is 0.88 and the US and Germany is 2.02) the return on assets decreases by 0.33% if TMT international experience and TMT specific experience were zero (Aiken & West, 1991). The mean return on assets is 0.081 (i.e., 8.1%) and the mean total assets is €13.16 bn. This implies that adding about the cultural distance between the US and Canada or half the cultural distance between the US and Germany would decrease the return by €43 million for the average firm. In Hypothesis 2 we argued that TMT international experience positively moderates this relationship. Consistently, the interaction of added cultural distance and TMT international experience is positive and partially significant in model 3 with a coefficient of 0.013 ($p < 0.10$). Wald-tests showed that the change in *R*-squared is significant between models. To allow for better interpretation of the interaction effect we plotted the interaction (Fig. 2) and computed post hoc statistical tests (Aiken & West, 1991).

Table 2
Results of robust fixed effects regression of firm performance.^a

	Model 1		Model 2		Model 3	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
Added cultural distance			-0.004	(0.001)**	-0.003	(0.001)**
Added cultural distance × TMT international experience					0.013	(0.008)*
Added cultural distance × shared TMT-specific experience					0.001	(0.001)*
TMT international experience	0.052	(0.052)	0.026	(0.055)	0.037	(0.055)
Shared TMT-specific experience	0.003	(0.003)	0.004	(0.003)	0.003	(0.003)
TMT size	-0.001	(0.002)	-0.001	(0.002)	-0.001	(0.002)
TMT age	0.001	(0.002)	0.001	(0.002)	0.001	(0.002)
TMT educational level	-0.017	(0.018)	-0.018	(0.017)	-0.019	(0.018)
Irregularity of cultural distance	-0.007	(0.004)*	-0.006	(0.004)*	-0.006	(0.003)*
Centroid of cultural distance	0.002	(0.003)	0.002	(0.003)	0.003	(0.003)
Product diversity	-0.002	(0.128)	-0.022	(0.107)	-0.008	(0.101)
Product diversity squared	0.185	(0.282)	0.202	(0.264)	0.219	(0.265)
Cultural diversity	0.070	(0.071)	0.115	(0.062)*	0.124	(0.056)*
Cultural diversity squared	0.108	(0.099)	0.127	(0.088)	0.136	(0.078)*
Total ownership	0.011	(0.014)	0.009	(0.014)	0.007	(0.014)
Acquisition	0.021	(0.012)*	0.022	(0.012)*	0.024	(0.011)**
Prior minority	-0.042	(0.020)*	-0.052	(0.021)*	-0.060	(0.021)**
Capital structure	0.020	(0.015)	0.014	(0.013)	0.011	(0.013)
Slack	0.001	(0.001)	0.000	(0.001)	0.000	(0.001)
Firm size	-0.011	(0.013)	-0.011	(0.014)	-0.016	(0.014)
Within <i>R</i> ²	0.096		0.119		0.130	
Adjusted <i>R</i> ²	0.032		0.055		0.063	
<i>F</i>	4.460***		4.630***		6.890***	
<i>N</i> = 531						

^a Model with Arellano robust standard errors. Time dummies are omitted.

+ $p < 0.1$.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

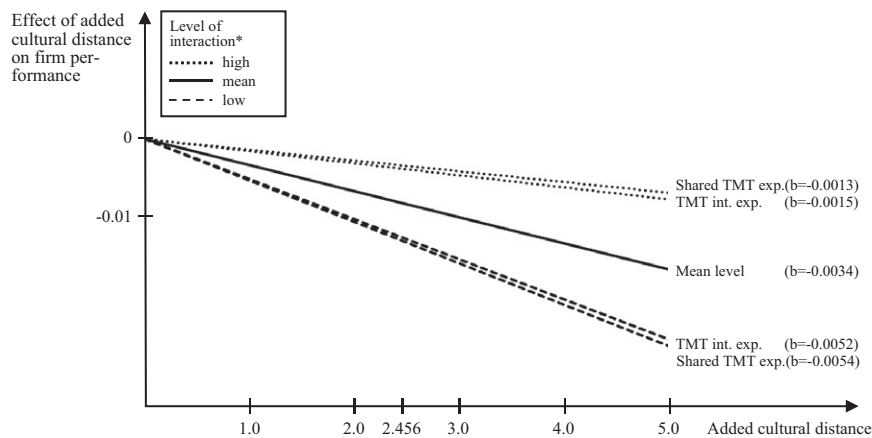


Fig. 2. Plot of interaction effects. *Simple slopes are calculated with one interaction variable changed at a time and all other variables held constant at the mean value.

First we calculated the base case using the mean value of all relevant variables. In this case the simple slope is -0.0034 ($p < 0.01$). As the simple slope of the regression line is conditional on the interaction term, we analyzed how changes in TMT international experience affect the slope. Using the mean value of all other variables we estimated the effect of added cultural distance per period of time on firm performance for two levels of TMT international experience – a high level (one standard deviation above the mean) and a low level (one standard deviation below the mean) (for a similar approach see Chung-Leung et al., 2008; Zheng Zhou & Poppo, 2010). Fig. 2 displays the plot of the interaction. When the international experience of the TMT is low, the negative effect of added cultural distance is stronger ($b = -0.0052$, $p < 0.001$) than when there is an average level of international experience ($b = -0.0034$, $p < 0.01$). However, TMTs with a high level of international experience do not experience a significant negative effect of added cultural distance ($b = -0.0016$, $p > 0.10$). This result illustrates the positive interactive effect of TMT international experience on the negative relationship between added cultural distance and firm profitability. To illustrate the effect size of TMT international experience we tested how changes of TMT international experience would affect an otherwise average firm's return. If TMT international experience increased from its mean of 0.178 to 0.5, i.e., that half of the team's members have gained international experience by being born abroad, or have studied or worked abroad, the direct and interactive effect would be that return on assets would increase by 2.3–10.4% or, in absolute terms, that return would increase by €301 million for a firm that adds the average amount of cultural distance.

Hypothesis 3 argues that teams with higher shared team-specific experience are, all else being equal, better able to cope with international expansion. It posits a positive moderation of the relationship between added cultural distance per unit of time and firm performance. Table 2 shows that the interaction term of shared TMT-specific experience and added cultural distance is positive and significant. Thus, Hypothesis 3 is supported. As described above, we decomposed and plotted the interaction. The results indicate that when shared TMT-specific experience is low the negative effect of cultural distance added per period on firm performance is intensified ($b = -0.0054$, $p < 0.01$). However, firm performance is negatively, yet not significantly, influenced by cultural distance added per period when shared TMT-specific experience is high ($b = -0.0013$, $p > 0.10$) which demonstrates the positive interactive effect of TMT-specific experience. If TMT-specific experience was one year above the average of 4.168 years, the direct and interactive effect would be that return on assets would increase by 0.5% (i.e., to 8.6% for the otherwise average firm). This implies that an increase of TMT-specific experience by one unit positively affects the return of an otherwise average firm by €69 million.

As we wrote in Section 1, there has been a thorough discussion in the international business literature about the costs and benefits associated with expansion into foreign countries. Consequently, we tested for a non-linear effect of added cultural distance. We could not detect significant relationships or identify a positive influence of added cultural distance. To further test the robustness of our results we tested how results change depending on the time our dependent variable is measured relative to the expansion period. Table 2 displays the result of the regression of firm performance with the middle year of the three-year moving average of return on assets measured one year after the five year expansion period (see Fig. 1). When we calculated firm profitability with the middle year being the last year of the expansion period, we found highly significant relationships between added cultural distance and the interactions of shared TMT-specific experience. The coefficient of the interaction term of TMT international experience and added cultural distance is positive yet its significance is slightly reduced. When we calculated the three-year moving average of firm performance so that the middle year is two or three years after the five year expansion period, the significance of the interaction effect of TMT international experience and added cultural distance increased. This shows the long term effect of the interaction of TMT international experience and added cultural distance on the return on assets measured even several years after the expansion period. At the same time, the significance level of the interactive effect of shared TMT-specific experience slightly decreased the larger the time span between the expansion period and the measurement of return on assets.

6. Discussion

Firms increasingly internationalize and frequently expand into new and unfamiliar countries (Barkema & Shvyrkov, 2007). The associated complexity with such international expansion poses a challenge for managers responsible for coordinating international expansion. In this paper, we take a dynamic perspective and particularly focus on the changes in firms' international scope and address two research questions relevant to both researchers and top managers: what is the impact of complexity in the form of the amount of cultural distance added in a period of international expansion on the profitability of the expanding MNE? and how can experience of a firm's top management team moderate the relationship between added cultural distance – being one source of complexity in a period of international expansion – and firm profitability?

In this study we focus on the expansion into culturally distant countries and the strain this entails for a firm's TMT. While managing a firm in its current status is already a complex task, managing its expansion is even more difficult (Mishina et al., 2004). Thus, in comparison to prior research which predominantly examines the complexity of managing a status, we take a dynamic perspective and examine a theoretically distinct complexity in internationalization. We argue that in addition to handle the status of the firm as it is in one point in time, managing a firm's change and coordinating its international expansion in a period of time is yet another complex task which the TMT has to fulfill. In this context, cultural distance added in the international expansion process is an important source of complexity which TMTs need to cope with. Since the TMT is responsible for the coordination of international expansion as part of the firm's corporate strategy, the amount of cultural distance added in a period of time may substantially strain its members.

Focusing on added cultural distance as one source of complexity, our study contributes to the literature by addressing a central characteristic of internationalization steps. We argue that steps into new and distant countries entail greater complexity and are more of a strain on managerial resources than expansion steps into familiar settings where the firm is already present. Thus, we differentiate between single expansion steps based on the cultural distance between the newly entered country and that country in the MNE's network of affiliates that it is closest to, which is not necessarily the MNE's home country. Moreover, we focus on expansion programs and not individual steps by focusing on the cultural distance added in periods of international expansion because managerial ability to cope with complexity is limited in a period of time. In line with our reasoning, the results show that the amount of cultural distance added in an international expansion period negatively affects firm profitability.

The distinctive contribution of our study is the finding that the experiences of a top management team moderate the relationship between added cultural distance and firm profitability. That is, specific TMT experiences can help a firm to more successfully cope with international expansion. In this study, we focused on two types of experience, TMT international experience and shared TMT-specific experience, and showed that they exert a positive significant interactive effect on the profitability impact of a firm's internationalization process. Our results complement other works that found an association between top managers' international experience and a firm's multinationality at points in time (Carpenter & Fredrickson, 2001; Herrmann & Datta, 2005; Sambharya, 1996; Tihanyi et al., 2000). Our study reveals that international experience of TMTs positively interacts with the amount of cultural distance added in periods of time. Thus extensive international experience of the TMT may mitigate the negative effect of added cultural distance on firm profitability. This suggests that international experience particularly helps in dealing with complexities in the international expansion process.

Kor (2006) investigated the effect of shared team-specific experience on R&D investment strategy. She argues that TMTs with a high level of team-specific experience cope well with uncertainty of exploring new opportunities and thus invest more intensely in R&D than teams without such experience. Our results also suggest that a high level of team-specific shared experience enhances the ability to deal with uncertainty and also improves the ability to successfully manage complexities and uncertainty inherent in the international expansion processes. Taken together, our study indicates that research investigating international expansion processes based on information processing theory should take into account both the amount of information to be processed and ability to process it.

In addition to implications for research on expansion processes, our results may also have relevance for researchers investigating the impact of multinationality and cultural diversity at a certain point in time on the performance of multinational enterprises. Despite a broad range of empirical studies, a consistent picture has not yet emerged (e.g., Gongming, Lee, Ji, & Zhengming, 2008; Lu & Beamish, 2004) as both positive and negative relationships between multinationality and firm performance have been found. The contradictory findings have motivated international business scholars to explore a variety of non-linear relationships, including U-shaped, inverted U-shaped, and S-shaped forms (for an overview see Contractor et al., 2003). Given the diversity of findings, Hennart (2007) has suggested that theoretically relevant factors may have been omitted in the analyses.

Our results indicate that it is not only the level of cultural diversity at a certain point in time that affects firm performance but also the process of how this level has been achieved over a period of time. This implies the change in diversity or the amount of cultural distance added over time are important, but mostly neglected determinates of firm performance. Interestingly, our results even reveal that these two distinct aspects of complexity may have different performance effects. More specifically, while we conjecture and find a negative relationship between added cultural distance, which involves management of the expansion process, and firm performance, we find a positive performance effect of cultural diversity, involving the management of a status. While at first glance contradictory, this is another finding, because it provides evidence for a complex dynamic relationship between internationalization and firm performance. Expansion into highly

distant countries is an important temporary strain on a firm's TMT due to greater difficulties in embedding new international subsidiaries in their external environment and in making internal adjustments to align it within the firm. However, once this assimilation and adjustment processes have been handled, the higher level of cultural diversity which has been reached through it may have a positive effect on firm performance. Nevertheless, it may take time to fully reap the benefits of being present in multiple culturally different countries. Hence, studies investigating the effect of firms' multinationality and cultural diversity may also take into account international expansion activities in a time period before multinationality or cultural distance is measured. Furthermore, our findings suggest that the plurality of results in the literature might be explained by differences in the ability of top management teams to cope with the complexities of multinationality.

Our findings may also help managers to initiate, plan, and implement international expansions. The negative performance effect of added cultural distance per period of time stems from the additional information processing requirements facing top management. Our results suggest that experience of a TMT is critical to its ability to process information as a team. As management teams differ, every TMT should carefully assess whether there is a fit between the requirements and the ability to process information before deciding on which international expansion projects to undertake. Our results are also directly relevant for CEOs and the supervisory boards that nominate or appoint top managers. For example, our results show that the negative effect of added cultural distance can be greatly mitigated by appointing a TMT with an amount of international experience or with shared team-specific experience that is one standard deviation above the mean.

7. Limitations and further research

This study, like every other, is not free of limitations. Our research is limited by the operational definition of a top management team. Different approaches have been used to decide which managers to include in the definition of a TMT, e.g., asking the CEO of a firm to identify the TMT members (e.g., [Bantel & Jackson, 1989](#)), or including all managers above the vice-presidential level (e.g., [Michel & Hambrick, 1992](#)). In our study, we included all members of the 'Vorstand', the management board of German corporations. German law requires that these persons who are legally and collectively responsible for the management of the corporation be listed in the firm's annual report. We believe the management board of German firms closely resembles the definition of a TMT as group with "the overall responsibility for the organization" ([Mintzberg, 1979](#)). On average, our definition led to the inclusion of 6.10 members per team with a standard deviation of 2.71. This is comparable to other studies: the average size of the TMT in [Michel and Hambrick \(1992\)](#) was 6.18 and its standard deviation 2.68 while [Bantel and Jackson \(1989\)](#) included 6.30 members with a standard deviation of 1.64.

Given the longitudinal nature of our study and the associated issues with the gathering of historical data, we used observable characteristics of TMTs as indicators for psychological constructs and information processing capabilities (e.g., [Cheng et al., 2010](#); [Hambrick & Mason, 1984](#); [Rivas, 2011](#)). Observable data based on archival sources are reliable and objective. Nevertheless, future studies might complement this approach by using surveys or some other means to more directly measure team dimensions, like processes, communication, conflict, or cultural intelligence of TMT members. For example, power differences between team members have been shown to positively affect firm performance ([Smith, Houghton, Hood, & Ryman, 2006](#)). However, power has been argued to be relevant only if it is recognized by others. Thus, data on power differences cannot be obtained from archival sources ([Eisenhardt & Bourgeois, 1988](#)).

Moreover, our measure of international experience is based on the percentage of members that were born, were educated or have worked outside of Germany. These experiences can shape managers' skills, mental models, and networks of personal and professional ties. Thus, we argue that it reflects knowledge and a global mindset that may enhance a TMT's ability to absorb and process complex information related to internationalization. However, managers may still face challenges in coping with cultural differences when expanding into those countries that they have not been specifically exposed to before.

In our study, we differentiated between international expansion steps according to the cultural distance they added to a firm's existing country portfolio. In line with existing research, we argued that cultural distance is a primary source of complexity ([Gomez-Mejia & Palich, 1997](#)). We measured cultural distance by calculating the distance between the country that a firm expands to and that country in the firm's country portfolio that this country is closest to. The underlying assumption of this approach is that the TMT is familiar with the culture of those countries that the firm is already active in and not only with the home country. Given the longitudinal nature of our study, it was not possible to collect data on the individual perceptions and familiarity of top managers ([Sousa & Bradley, 2008](#)). However, it has been shown that managers' individual perceptions of differences are highly related to the concept of cultural distance ([Sousa & Bradley, 2006](#)).

Moreover, we assume that the firm already has systems in place that are adapted to those countries where the firm is already present and has integrated foreign subsidiaries into its network of subsidiaries. However, further research could consider other factors that potentially increase complexity for the TMT as well, for instance environmental turbulence ([Luo & Peng, 1999](#)) or geographical, economic, or institutional differences, as well as their interrelationships (e.g., [Estrin, Baghdasaryan, & Meyer, 2009](#); [Ghemawat, 2001](#); [Meyer, Estrin, Bhaumik, & Peng, 2009](#); [Slangen & Beugelsdijk, 2010](#)).

Another limitation of our study concerns the timing and size of single expansion steps. We were able to determine the year of each expansion step using the annual reports of the respective firms. However, we could not determine the exact date. Thus, it was not possible to keep track of the exact sequence of international expansion steps within a particular year. From a learning perspective, this information would have been interesting since firms may be able to learn from previous internationalization ([Johanson & Vahlne, 1977](#)). Furthermore, it was not possible to capture the magnitude of expansion

steps. While larger expansion steps may be associated with higher complexity and require more managerial attention, every expansion step, independent of its size, needs to be initiated, planned, and implemented and thus puts a strain on management.

In this study, we examine the interactive effect of top management teams on the performance of the internationalization expansion of German firms. However, it has been recognized that differences in societies or national systems may affect the influence that top managers are able to exert (e.g., Hambrick, 2007). For example, CEOs of American firms have a stronger impact on firm performance than CEOs of German or Japanese firms (Crossland & Hambrick, 2007). Accordingly, additional research might use samples from other countries to explore the specific influence of national contexts on our hypothesized relationships.

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