MANAGEMENT INNOVATION IN MULTIBUSINESS FIRMS: DOES ONE TYPE FIT ALL?*

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Abstract

In this study, we introduce two dimensions of management innovation performed by the corporate center in multibusiness firms, business scope and functional scope. We argue that fit between scope of management innovation and relatedness of the business portfolio, centralization of decision-making, and formalization of the corporate center is advantageous. By surveying 139 European firms, we find that scope of management innovation is not beneficial per se, however, that fit between scope and the organizational context results in superior performance. While unrelated diversifying firms benefit from broad business scope and narrow functional scope of management innovation, related diversifiers profit from narrow business scope and broad functional scope. Our findings contribute to research on management innovation and on the entrepreneurial role of the corporate center.

Keywords

Management innovation, corporate strategy, multibusiness firms.

In the strategic management field, a substantial body of literature on organizational innovation has emerged. While the majority of this research relates to technological or product innovation, a smaller sub-stream of the literature focuses on administrative, strategic, and management innovation (e.g., Birkinshaw, Hamel, & Mol, 2008; Damanpour, 1991; Fennell, 1984; Kimberly & Evanisko, 1981; Teece, 1980). We define *management innovation* as the adoption of a management concept, idea, practice, process, structure, technique, or tool that is new to the organization and is intended to improve firm performance, which is similar to prior research (Damanpour, 1987; Mol & Birkinshaw, 2005; Pierce & Delbecq, 1977; Vaccaro, Jansen, & Van Den Bosch, 2008). Some scholars suggest that management innovation positively affects firm performance (e.g. Damanpour, Szabat, & Evan, 1989; Mol & Birkinshaw, 2005), and others propose that it is even more important than other innovation types (Hamel, 2007; Teece, 2007). However, limited empirical evidence exists whether and under which conditions management innovation is beneficial.

Otherwise, management innovation appears to be particular useful to explain corporate-level phenomena. While other types of innovation, for example, technological and product innovation can be considered as business-level constructs due to their direct relationship to the technologies and products/services and thus may enable a competitive advantage independent of the corporate umbrella of a large, diversified organization, management innovation may enhance the way the businesses compete. Indeed, literature on the economic rationale of the multibusiness firm indicates that the role of the corporate center should be entrepreneurial (Chandler, 1991), which implies engaging in innovative activities that potentially result in a corporate advantage. Achieving a *corporate advantage* refers to the additional value creation by the corporate management for the overall firm, that is to enhance the performance of the businesses they would

not achieve independently or under alternative ownership (Collis & Montgomery, 1998). Research on the corporate center in multibusiness firms attempts to explain how this central organizational unit achieves a corporate advantage (Collis, Young, & Goold, 2007), however, largely neglected management innovation performed by the corporate center. Besides anecdotal descriptions and few in-depth case studies (e.g. Chandler, 1962), tests of the above hypothesis are still missing.

Addressing these gaps, we focus on the performance implications of management innovation. We develop a novel classification that distinguishes scope of management innovation across businesses and scope of management innovation across organizational functions. Since management innovation may depend "upon a complex host of factors" (Damanpour, 1996: 693), we consider the interaction of these two dimensions with the organizational context in multibusiness firms. More specifically, our central argument is that fit between scope of management innovation and (a) relatedness of a firm's business portfolio, (b) centralization of decision-making, and (c) formalization of the corporate center is critical for above-average firm performance.

With this study, we advance research on management innovation. Besides being among the first analyzing the performance implications of management innovation, we find that studies should consider the diversity of a firm's management innovation activity and its interplay with the specific organizational context. We also contribute to corporate strategy research, particularly to prior work on the role of the corporate center. We illustrate that purposefully engaging in management innovation may be a distinct way the corporate management adds value.

This paper proceeds with a brief theoretical background on management innovation and the multibusiness firm. We then develop a conceptual model and hypotheses focusing on the

performance effects of management innovation performed by the corporate center. After a detailed description of the method, we present the results of our study. Finally, we discuss our findings, address limitations, and suggest promising future research avenues.

THEORETICAL BACKGROUND

Over the past decades, a substantial body of literature on organizational innovation has emerged. Innovation is the adoption of an idea related to, for example, a device, a process, a policy, or a product, that is new to the organization (Aiken & Hage, 1971; Daft & Becker, 1978; Damanpour et al., 1989). This research field covered different forms of innovation such as technological innovation, product and/or service innovation, process innovation, and to a lesser extent administrative, strategic, and management innovation (e.g., Birkinshaw *et al.*, 2008; Damanpour, 1991; Fennell, 1984; Kimberly & Evanisko, 1981; Teece, 1980).

Our focus here is on *management innovation*. Broadly defined, management innovations are "those that occur in the administrative component and affect the social system of an organization" (Damanpour et al., 1989: 588). They can relate to the organizational strategy, structure, processes, systems, and employees (Kimberly & Evanisko, 1981). Similar to prior research (Damanpour, 1987; Mol & Birkinshaw, 2005; Pierce & Delbecq, 1977; Vaccaro et al., 2008), we define management innovation as the adoption of a management concept, idea, practice, process, structure, technique, or tool that is new to the organization and is intended to improve firm performance. Focusing on key individuals in organizations that adopt management ideas, tools, techniques etc., we regard management innovation from a "rational" perspective (e.g., Birkinshaw *et al.*, 2008; Chandler, 1962; Damanpour, 1987; Kimberly & Evanisko, 1981). Indeed, we follow a view of the firm that suggests that a firm's resources affect its competitive advantage (Barney, 1991; Penrose, 1959; Wernerfelt, 1984). More precisely, we suggest that the

actions and decisions of senior managers regarding management innovation and the firm's respective (dynamic) organizational capabilities have an impact on firm performance (Eisenhardt & Martin, 2000; Teece, 2007; Teece, Pisano, & Shuen, 1997).

We focus on management innovation because of three reasons. First, despite its considerable importance, compared to other types management innovation is under-researched (Birkinshaw et al., 2008). Second, the literature suggests that management innovation may have a significant impact on firm performance, sometimes even greater effects than other types, for example, product and technological innovation (Hamel, 2007; Teece, 2007). Though some studies indicate a positive relationship between administrative innovation and performance (e.g. Damanpour et al., 1989), the literature has been criticized that it follows "the often unwritten assumption, in theory and research, that innovations benefit their adopters" (Abrahamson & Rosenkopf, 1993: 487). Interestingly, while recent definitions emphasize that management innovation should "further organizational goals" (Birkinshaw et al., 2008), research on whether and how it leads to enhanced firm performance, particularly financial performance, is limited. Vaccaro and colleagues, for example, suggest that "an increased understanding of how and to what extent management innovation can add to an organization's performance is not only appealing for research, but necessary if this concept is to gain acceptance as a key instrument to improve competitive advantage in the corporate world" (2008: 23).

Finally, management innovation appears very useful to explain corporate-level phenomena in multibusiness firms, particularly the role of the corporate center. Other types of innovation, for example technological and product innovation, can be considered as primarily business-level constructs due to their direct relationship to a businesses' technologies and products and thus may enable a competitive advantage independent of the corporate umbrella of

a large, diversified organization. Otherwise, management innovation may enhance overall firm performance if it aims at improving how the organization is managed and as such provide evidence of the value-adding role of corporate management (Bowman & Ambrosini, 2003; Collis et al., 2007; Porter, 1987).

While businesses aim at achieving an advantage by competing for market shares, a multibusiness firm's central organizational unit, the corporate center, is active in the market for corporate control. In the latter market, management teams compete for the economics right of ownership of businesses (Jensen & Ruback, 1983). To persist in this market and to gain and sustain a corporate advantage (Collis & Montgomery, 1998), managers must create value that exceeds both the sum of the stand-alone values of the businesses and the value alternative owners would be able to create. Further, resources of the corporate center are intended to alter the way the businesses compete and as such are distinct from those of a business that first and foremost refer to the products and services it offers (Bowman & Ambrosini, 2003; Porter, 1987). Therefore, the value-creation levers of corporate-level executives are different from those of business managers. The corporate center may add value by, for example, exploiting linkages across the business portfolio (e.g., Ansoff, 1965; Goold & Campbell, 1987), or by leveraging capabilities to two or more businesses (Goold, Campbell, & Alexander, 1994). Since prior research suggested that engaging in management innovation may be an integral part of the overall role of an "entrepreneurial" corporate center (Chandler, 1991), we focus on management innovation performed by the corporate center. Interestingly, Birkinshaw and colleagues (2008) recently noted that research on management innovation should assess the "locus" where in firms management innovation actually takes place.

CONCEPTUAL MODEL AND HYPOTHESES

Management Innovation and Firm Performance

Scholars proposed that the adoption of management innovation results in organizational change that affects the level of *firm performance* (Damanpour & Evan, 1984). Armour and Teece (1978), for example, found that the adoption of a single but embracing management innovation such as the M-form structure increased the return on equity (ROE) of petroleum firms. Damanpour and colleagues (1989) revealed for a sample of public libraries that the adoption rate of administrative innovations is positively related to performance. A study by Staw and Eppstein (2000) of the largest Fortune 500 firms, however, could not find that the adoption of 'popular' management techniques leads to higher levels of performance.

Our general proposition is that a management innovation capability of the corporate center enables a surplus for the overall firm and may thus result in a corporate advantage. Compared to innovative activity conducted at the business-level, management innovation activity by the corporate center may be advantageous due to four reasons. First, a corporate center may adopt a management idea, technique etc. more efficiently than the businesses independently. This argument relates to the capability of leveraging management innovation to two or more businesses, which is supposed to lead to economies of scope and thus to lower comparative costs (Panzar & Willig, 1981). Second, the central organizational unit may be able either to adopt management innovation with higher quality, or to select better ideas and tools. The literature indicates that repeated tasks lead to the development of a distinct capability through experience accumulation and learning effects (Zollo & Winter, 2002). For example, firms with a corporate center focused on management innovation may benefit from learning curve effects (Argote, 1999). Third, corporate managers may adopt management innovation with benefits hidden to decentralized or independent businesses. Referring to the content of

management innovation, this may include techniques or tools to foster and realize cross-business collaboration and thus result in synergy based on complementary resources of two or more businesses (e.g., Eisenhardt & Galunic, 2000; Helfat & Eisenhardt, 2004). Finally, management innovation may also relate (exclusively) to the corporate center. This would be the case, for example, when the adoption of certain tools leads to improvements in managing the portfolio compared to other multibusiness firms (Goold et al., 1994). In summary, we suggest:

Hypothesis 1: Management innovation (performed by the corporate center) will be positively associated with firm performance.

Dimensions of Management Innovation

Considering a firm's overall management innovation activity and its impact on firm performance may offer a first insight whether it matters, however, large and complex organizations are very distinct from each other and correspondingly their management innovation activities are very diverse. As we will argue in the following, *two core dimensions* of management innovation, business scope and functional scope, are not only suitable to distinguish management innovations from each other, but also provide a more fine-grained picture of the performance implications of a firm's overall management innovation activity. In the existing literature, the conceptualizations of scope differ. Damanpour (1991; 1992), for example, defined scope of innovation in general as the number of innovations adopted by a firm. Prior research on product innovation, however, regards scope as important innovation characteristic and refers to it as "the number of customers, markets, and competitors a new product innovation is targeting" (Lee, Smith, & Grimm, 2003: 757). Since management innovation aims at improving how the firm is managed and thus addresses a predominantly "internal customers/users" (Birkinshaw et

al., 2008), we propose two novel dimensions of scope of management innovation: business scope and functional scope.

The first dimension, *business scope* of management innovation, refers to the number of business units that adopt management innovation coordinated or driven by the corporate center and is thus multibusiness firm specific. Though prior research did not consider this characteristic, we argue that business scope of management innovation is an important determinant of firm performance because of two reasons.

First, following the resource-based view of the firm (Barney, 1991; Penrose, 1959; Wernerfelt, 1984), increasing business scope may make it more difficult for competitors to imitate the management innovation. Compared to those with a narrow scope, innovations involving two or more businesses are typically characterized by greater causal ambiguity and greater social complexity. On the one hand, management innovation with greater scope complicates imitation due its higher probability of being causal ambiguous. More precisely, increased complexity and interdependency makes it more difficult to understand (for the innovating firm and thus also for the competitors) why a particular innovation leads to performance improvements (Barney, 1991).

Otherwise, even in situations in which competitors understand why a management innovation leads to enhancements, social complexity, for example because of a firm's specific culture, may protect a firm from imitation by competitors (Dierickx & Cool, 1989). Since broad management innovation involves two or more business units with frequently distinct cultures, it increases social complexity. We therefore suggest that firms benefit from these innovations more than from innovations with narrow scope. Interestingly, Barney (1991: 110) suggested that tools such as information management systems are "by itself typically imitable" and that its

implementation "often involves the use of socially complex firm resources". Anecdotal evidence also supports this argument. General Electric (GE), for example, successfully adopted Six Sigma, a total quality management technique. Since it was implemented in almost all businesses, it may be regarded as a very "broad" management innovation. Many firms followed and implemented the tool, however, very few could benefit from the innovation to the same extent as GE did.

Second, literature on the role of the corporate center and on multibusiness firms implicitly suggests that high business scope of management innovation may result in benefits for the overall firm. As we defined above, in our study's context, management innovation refers to the adoption of a management idea etc. with at least some involvement of the corporate center. A distinct value-creation mechanism of the corporate center in multibusiness firm is leveraging resources such as capabilities in the organization (Collis & Montgomery, 1997). We suggest that the positive effect of leveraging management innovation increases with the number of businesses involved. Increasing the business scope of management innovation may be associated with economies of scope and thus lower comparative costs (Panzar & Willig, 1981). The German electrical engineering giant Siemens, for example, leverages certain new management techniques and tools such as the performance measure EVA (economic value added) throughout its business portfolio. In short:

Hypothesis 2a: Business scope of management innovation (performed by the corporate center) will be positively associated with firm performance.

The second dimension, *functional scope* of management innovation, represents the number of organizational functions affected by a single management innovation. From a value chain perspective, organizational functions may refer to core processes of the firm, for example,

procurement or marketing, as well as to support processes such as human resources (Porter, 1985).

Birkinshaw and colleagues (2005) suggest that functional scope of management innovation may by positively associated with firm performance. They also draw upon a resource-based view argument of the ambiguous relationship between resources and firm performance (Barney, 1991; Lippman & Rumelt, 1982; Reed & DeFillippi, 1990). Likewise, we hypothesize that high levels of functional scope are associated with higher causal ambiguity because of the function-specific adjustments necessary for broad management innovations and thus the increased complexity. Therefore, broad management innovations are more difficult to imitate than narrow innovations. As indicated by Birkinshaw and colleagues (2005), Toyota's production system is a very good example for the adoption of total quality management across multiple organizational functions such as manufacturing and human resources. Therefore:

Hypothesis 2b: Functional scope of management innovation (performed by the corporate center) will be positively associated with firm performance.

Dimensions and Contextuality of Management Innovation

While we hypothesize that the two previously introduced dimensions may affect firm performance independent of the firm's organizational context, we now propose that aligning the extent of both business scope and functional scope of management innovation with three key contingencies reflecting the organizational context results in above-average firm performance. Damanpour (1991: 562) emphasized that in studies of the overall innovation activity "the role of organizational characteristics becomes more evident". We therefore consider a firm's business relatedness, centralization of decision-making, and formalization of the corporate center as important contingencies.

Relatedness of the business portfolio. *Relatedness* between the businesses in a firm's portfolio is a proxy for the diversification degree. Research on diversification and performance were of particular interest among strategy scholars and studies incorporated many different influencing factors in their models (Ramanujam & Varadarajan, 1989). Regarding innovation, studies indicate that diversification of a multibusiness firm's portfolio may negatively affect the general innovation-performance link. Hitt, Hoskisson, and Ireland (1994), for example, suggested that the relationship between product diversification and technological innovation is negative. Further, Miller (2004) found for a longitudinal study of a firm's technological resources, diversification, and performance effects that diversifying firms are less innovative. To our knowledge, however, prior research did not account for the interplay of management innovation and diversification. We suggest that fit between business and functional scope of management innovation and a firm's relatedness degree is critical for above-average performance. Hence, from our reasoning, not a certain diversification degree results in superior performance, but rather its alignment with the management innovation activity performed by the corporate center. Indeed, research finds that the role of the corporate center and the firm's corporate strategy should be aligned (Collis et al., 2007).

First, we propose that unrelated diversifiers may benefit from management innovation characterized by broad business scope and narrow functional scope. On the one hand, heterogeneous business portfolios not only limit the sharing potential of complementary resources (e.g., Eisenhardt & Galunic, 2000; Helfat & Eisenhardt, 2004), but also complicate the transfer of intangible resources, namely capabilities and knowledge. However, in those firms, frequently the successful exploitation of the vertical relationships of the corporate center with the business units is critical for a surplus (Porter, 1987). Therefore, only if management innovation

performed by the corporate center spans across a substantial part of the business portfolio, the respective firm will be able to benefit from implementation economies. Many highly diversified firms, for example, ABB, Berkshire Hathaway, Danaher, GE, and Siemens demonstrate that engaging in corporate-level management innovation may enhance overall firm performance. Despite the diversity of management innovation activity of these firms, a common characteristic of their innovations is that they address nearly every business in the portfolio.

Otherwise, based on the existing literature and anecdotal evidence from successful multibusiness firms, we suggest that unrelated diversifiers are likely benefit from management innovation characterized by narrow functional scope. Since the organizational functions performed by the different business units often vary along with the portfolio diversity, this may complicate the implementation of innovations with broad functional scope due to the increased complexity. Indeed, high levels of functional heterogeneity may "create difficulties in resolving differences among perspectives and may slow down exploitative innovation" (Jansen, Van Den Bosch, & Volberda, 2006: 1667),. Prior research also reveals that in a conglomerate the corporate center typically focuses on few organizational functions, for example, a "financial control" corporate management style (Chandler, 1991; Goold & Campbell, 1987). In these firms, the portfolio is typically heterogeneous and business units are largely autonomous regarding their business strategies and operations. Consequently, we argue that engaging in management innovation characterized by broad functional scope may only in rare cases be advantageous and that "generic" innovations limited to few related organizational functions are beneficial.

Second, we propose that related diversifiers may benefit from management innovation characterized by narrow business scope and broad functional scope, which is exactly the reverse of the above argument. The rationale of related diversification are cross-business synergies

(Martin & Eisenhardt, 2003). Therefore, to be beneficial, management innovation performed by the corporate center should address only those businesses that are related to each other. We thus suggest that the business scope of management innovation should be narrower for related diversifiers than for unrelated diversifying firms.

Further, in line with prior research, we argue that high levels of relatedness demand managerial approaches that span across multiple organizational functions, for example a "strategic planning" corporate management style (Chandler, 1991; Goold & Campbell, 1987). Hence, for related diversifiers broad management innovations such as the "balanced scorecard" are advantageous. In sum, we hypothesize that related diversifiers will benefit from management innovation characterized by narrow business scope and broad functional scope, while unrelated diversifiers will benefit from management innovation characterized by broad business scope and narrow functional scope. More formal:

> *Hypotheses 3a & 3b: A firm's portfolio relatedness will (a) negatively moderate the relationship between business scope of management innovation and firm performance, and (b) positively moderate the relationship between functional scope of management innovation and firm performance.*

Centralization of decision-making. The degree of *centralization* in an organization may also moderate the relationship between management innovation and firm performance. Centralization of decision-making refers to the locus of authority and is supposed to indicate whether organizational actors have the freedom to make decisions in a decentralized manner or, put differently, how decision-making is concentrated (Aiken & Hage, 1968; Cardinal, 2001; Damanpour, 1991; Jansen et al., 2006). Prior research found that centralized decision-making may prevent explorative solutions, "while the dispersion of power is necessary for innovation"

(Damanpour, 1991: 558). Centralization may also lead to fewer new ideas or result in decreased quality of the knowledge relevant for innovation (Jansen et al., 2006). As noted in Teece (2007), achieving decentralization, facilitated by organizational arrangements such as the multidivisional structure, may be critical in order to benefit from innovative actions.

From the perspective of a multibusiness firm's corporate center, centralization of decision-making refers to the degree of autonomy of the different business units. This may include the different structures, processes, and control systems applied, for example, ranging from financial control for decentralized businesses to strategic planning for centralized businesses (Chandler, 1991; Goold & Campbell, 1987). We argue that fit between the extent of centralization and the scope of management innovation may be advantageous, and not centralization or decentralization *per se*. On the one hand, we suggest that decentralization is beneficial for management innovation characterized by broad business scope. Since the implementation typically involves several business units, centralization may impede the commitment of the involved units (Damanpour, 1991).

Otherwise, we propose that centralization facilitates the adoption of management innovation with broad functional scope. In order to benefit from such an innovation activity, organizations should have centralized decision-making processes and structures. To be successful, Innovations with high functional scope may demand highly coordinated implementation approaches facilitated by centralization. Similar to centralized R&D departments for product innovation, centralized efforts are necessary when management innovation is characterized by broad functional scope. In short:

Hypotheses 4a & 4b: A firm's centralization of decision-making negatively moderates the relationship between (a) business scope of management

innovation and firm performance and (b) positively moderates the relationship between functional scope of management innovation and firm performance.

Formalization of the corporate center. Finally, *formalization* of a firm's corporate center may affect the relationship between scope of management innovation and performance. Formalization refers to the degree "to which rules, procedures, instructions, and communications are formalized or written down" (Jansen et al., 2006: 1663). In general, high levels of formalization are associated with exploitative actions that relies on rules and restricts experimentation (March & Simon, 1958; Weick, 1979) and aims at (incrementally) improving existing routines and outputs (Jansen et al., 2006; Zollo & Winter, 2002). Otherwise, low levels of formalization may be considered as antecedent for exploration and thus for innovation by, for example, encouraging new ideas (Damanpour, 1991). Interestingly, results of empirical studies regarding the benefits of formalization for innovation have been mixed (Cardinal, 2001).

We hypothesize that in multibusiness firms formalization of the corporate center may be beneficial only if it fits with the business scope and functional scope of management innovation. Hence, our argument partly challenges the general notion that flexibility and few formal working procedures may facilitate innovation (Aiken & Hage, 1971; Burns & Stalker, 1961; Damanpour, 1991). Interestingly, a meta-analysis conducted by Damanpour (1991) revealed that formalization is (non-significant) positively related to product innovation. Recent literature proposes that managers should follow more standardized and formalized approaches to adopt new management ideas, tools, techniques, etc. in order to improve the innovative activity in a firm. Formalized decision-making processes may reduce the ambiguity and uncertainty of organizational actors engaged in management innovation efforts (Birkinshaw et al., 2008).

In short, we suggest that corporate-level formalization is beneficial for management innovation characterized by broad business scope, while low formalization is advantageous for broad functional scope. Jansen and colleagues (2006: 1663), for example, note that "through formalization, units codify best practices to make them more efficient to exploit, easier to apply, and to accelerate their implementation". We regard the adoption of management innovation in several business units comparable to the notion of exploitative innovation and expect formalized procedures and disciplined implementation approaches to be critical. Otherwise, for management innovation with high functional scope corporate-level formalization may impede the successful adoption frequently demanding customized approaches. Here, the "innovative aspect" of the management innovation becomes more important relative to its overall impact. Therefore:

Hypotheses 5a & 5b: A firm's corporate center formalization positively moderates the relationship between (a) business scope of management innovation and firm performance and (b) negatively moderates the relationship between functional scope of management innovation and firm performance.

Figure 1 depicts our conceptual model and summarizes the hypotheses.

Insert Figure 1 about here

METHOD

Sample Selection

The research design for our study builds upon a large-scale quantitative approach and is based on a sample of Austrian, German, and Swiss firms listed at the respective countries' stock exchanges. We regard the focus of the sample as particular useful for the study's purpose due to

three reasons. First, listed firms secure equal data availability and consistency compared to those in private ownership. The majority of the largest multibusiness firms in these countries is listed and thus represents an appropriate sample for an investigation of corporate-level effects. Second, the geographic focus further secures sample homogeneity. For example, firms follow similar accounting and reporting standards. We are aware that the homogeneity of our sample may result in lower generalizability of the findings. In addition, as most prior studies on management innovation focused on (not-for-profit) organizations in the U.S. (e.g., Meyer & Goes, 1988), our sample contributes to the advancement of theory. Third, we choose this particular sample due to our specific research design. Since we intended to collect data with a questionnaire, focusing on firms located in countries in which the research institution is well known and has a strong alumni network may improve the frequently low rate of questionnaire return.

Data Collection

We applied two data collection methods for our measures. First, we collected data for the dependent variables and for some of the controls based on *archival data*. This included gathering data from the Thomson Financial database, as well as from annual reports and other databases for missing data and consistency checks. Second, we applied a *retrospective survey methodology* and sent a questionnaire to the firms included in our sample. We followed the survey procedures proposed by Dillman (2000). As our study concerned management innovation on the corporate-level of multibusiness firms, key informants were primarily CEOs and other management board members, as well as some senior corporate strategy executives. Since we changed and adapted some of the previously established items and to ensure validity and reliability, we conducted two rounds of pretests of our questionnaire. The first pretest round was conducted with fifteen academics in the strategic management field (senior faculty, post-docs, and PhD candidates); the

second included twelve representatives of firms in our sample. Both rounds of pretests led to changes of single items, of some of the instructions, and of the questionnaire's structure.

We then e-mailed a five-page questionnaire plus the instructions to the CEOs (and to another board member) of 1,107 firms in our sample. To avoid a single-informant bias, we asked the participating firms to forward the questionnaire to a second respondent (Golden, 1992). Extensive follow-ups via e-mail and telephone led to 173 usable questionnaires from 139 firms (response rate 12.56%; 22 firms with two respondents, 6 firms with three respondents). Most respondents were CEOs and other senior executives (68.21%).

Examination of Potential Biases

We also considered several potential biases in our data. First, to account for a *non-respondent bias*, we performed t-tests. The analysis revealed that the differences for both number of employees and sales are significant ($p < 0.05$). The theoretical explanation for these differences is that management innovation performed by the corporate level is particularly prevalent in large organizations (average number of employees 27,192, average sales 14.176 Bio. USD for our sample in 2007). This limits the generalizability of our results to large (multibusiness) firms. Second, we considered a potential *interrater agreement bias* for those firms with multiple respondents. Using a two-way mixed model, the median intraclass correlation coefficient exceeds the usually defined threshold of 0.5 for all variables (Shrout & Fleiss, 1979). Therefore, we averaged the responses of the firms with multiple respondents (all subsequent analysis is performed on the firm level). Third, to detect potential differences across firms with single and multiple respondents, a *multiple and single respondent bias*, we performed a Kolmogorov-Smirnov Z test for all variables. The test revealed no significant differences between the two groups ($p < 0.05$). Fourth, as noted in Cardinal (2001), it is advantageous to

gather data for independent and dependent variables from different sources. Since we applied a survey for the (majority of the) former and collected archival data for the latter we avoided a potential *common method bias* (Podsakoff & Organ, 1986). In addition, for a part of our sample we relied on multiple raters, which also reduces the likelihood of such a bias (Doty & Glick, 1986). Fifth, a t-test that we performed to detect whether a potential *early and late respondent bias* exists did not reveal any differences ($p < 0.05$).

Finally, though we collected data in 2008, we asked each informant to provide answers retrospectively for a period of up to five years until 2006. Studies suggest that the impact of corporate strategy may become effective with a time lag of at least one year (e.g. Pehrsson, 2006). Therefore, we collected data on the objective performance measure for the year 2007. We relied on a retrospective survey methodology due to the time lag needed and to provide a sufficient large period to measure corporate management innovation activity. Such a research approach is applicable given the reliability of the measures applied (Cardinal, 2001; Miller, Cardinal, & Glick, 1997). An important requirement is, however, that informants are consulted on facts and actual events, rather than observing their opinions that are more subject to cognitive biases (Cardinal, 2001; Glick, Huber, Miller, Doty, & Sutcliffe, 1990; Golden, 1992; Miller et al., 1997). Particularly, to minimize the potential for a *retrospective report bias*, we asked the respondents to provide facts upon actual events, which were very important for their respective organizations, and which were treated formally like projects with documented start and end dates. We also verified responses by including multiple respondents and further firm information and also cross-verified the data with answers to shorter time periods (Huber & Power, 1985).

Measures

Dependent variable. Scholars recently noted that management innovation might have an equal or even greater impact on firm performance than other types of innovation (Teece, 2007). Therefore, it appears important to include firm-level performance. Since we are interested in whether management innovation performed by the corporate center (and its alignment with the context) leads a corporate advantage for the overall firm, we chose a firm-level performance measure that emphasizes an ownership perspective as dependent variable.

Studies in the field of corporate strategy applied either market-based measures of firm performance (e.g., Hoskisson, Hitt, Johnson, & Moesel, 1993), or accounting-based measures (e.g., Pehrsson, 2006). Since previous research indicates that market-based measures might be favorable because they capture additional information with higher consistency (e.g. they are less affected by managerial manipulations), we chose *Tobin's Q* as dependent variable (e.g. Miller, 2006). Tobins's Q is defined as the ratio of the market value of the firm to the replacement costs of its assets (Chung & Pruitt, 1994; Lang & Stulz, 1994; Lewellyn & Badrinath, 1997). As suggested by Chung and Pruitt (1994), we used an approximate Tobin's Q, with a firm's market value calculated as the sum of the market value of common stock (product of the share price and the number of common stock shares outstanding), liquidating value of preferred stock and book value of debt. The replacement cost of a firm's assets is the book value of its total assets.

Independent variables. The independent variables were all obtained with a questionnaire (the questionnaire items are available from the authors). The first independent variable refers to management innovation performed by a firm's corporate center. The literature on the adoption of innovation distinguishes three different approaches to measure the innovativeness of a firm. The first includes a closed list of innovations included in a survey in order to identify those innovations that a firm adopted within a certain period of time (Damanpour, 1987; Damanpour &

Schneider, 2006; Damanpour et al., 1989). The second approach builds upon pre-defined criteria that aim at identifying all innovations in an organization that meet these criteria within a time period (Aiken & Hage, 1971; Daft & Becker, 1978; Kimberly & Evanisko, 1981). Both approaches, however, encompass certain weaknesses. While the former neglects those innovations that are not included in the closed list (Damanpour & Schneider, 2006), the latter is confronted with the difficulty to define suitable criteria of innovation (Daft & Becker, 1978).

Recently, some studies developed new measures that aim at capturing the overall management innovation activity of firms more accurately (e.g. Mol & Birkinshaw, 2005; Vaccaro et al., 2008). Since these measures do not explicitly account for the perspective of a firm's corporate center and for the different ways decisions and actions by corporate managers may enhance the value of the overall firm, we refined them to our needs. In addition to (deductively) analyzing the existing literature on management innovation and corporate strategy, the process of item generation also involved more than 25 interviews with corporate managers (Chief Strategy Officers, Heads of Corporate Center, VPs of Corporate Development, etc.). From this approach a four-item question was generated that asked respondents to indicate on a 7-point Likert-type scale (1 = 'to no extent', 7 = 'to a very great extent") to what extent their organizations changed or developed new (a) corporate strategies, (b) management techniques, (c) organization structure, and (d) role of the corporate center (Cronbach's alpha 0.75).[1]

Second, *business scope* of management innovation refers to the number of businesses that the corporate management innovations address on average. It is calculated by the number of businesses that adopted the innovation, relative to the overall number of the businesses in the

[1] Items (a) and (b) are similar to Mol & Birkinshaw (2005), item (c) is similar to Vaccaro et al. (2008), and item (d) is developed by the authors.

respective firm's portfolio. This measurement approach of business scope of management innovation is similar to the early entropy measures proposed by research on a firm's diversification degree (Jacquemin & Berry, 1979; Palepu, 1985).

Third, *functional scope* refers to the extent to which a firm's management innovations affect multiple functions and is measured similar to scope. It indicates how many organizational functions (e.g., finance, marketing etc.) are affected by the management innovation (Jansen et al., 2006). To obtain functional scope we asked respondents to indicate the number of organizational functions that are on average affected by a firm's management innovations.

Fourth, we included the *relatedness* degree of a firm's business portfolio. The relatedness measure serves as a proxy for a firm's diversification degree. Today, numerous approaches to measure relatedness exist. For example, product and market relatedness measures a firm's diversification degree based on the standard industrial classification (SIC) codes of the businesses (e.g. Palepu, 1985; Rumelt, 1974), strategic relatedness based on strategic assets (e.g. Markides & Williamson, 1994), and knowledge-based relatedness builds upon complementarity of knowledge assets (e.g. Tanriverdi & Venkatraman, 2005). Further, while some measures are objective, for instance, based on SIC codes; others draw upon the perception by either a firm's management or by the researcher to assess the relatedness degree. We measured a firm's relatedness degree with a 16-item scale proposed by Pehrsson (2006). We asked the respondents to indicate the similarity (1 = 'to no extent', 7 = 'to a very great extent") of the two business units that most clearly manifest the firm's core competence in the three categories product-market attributes, resource attributes, and value-chain attributes (Cronbach's alpha = 0.90).

Fifth, we measured a multibusiness firm's *centralization* of decision-making based on nine-item scale applied by Cardinal (2001). The majority of previous studies with variables

referring to a firm's centralization of decision-making applied similar measures (e.g., Aiken & Hage, 1968; Damanpour, 1991; Dewar, Whetten, & Boje, 1980; Hage & Aiken, 1967; Jansen et al., 2006). We asked respondents to indicate the extent to which decision-making authority is delegated to the business units concerning, for example, projects, staffing, and capital expenditures (1 = 'to no extent', 7 = 'to a very great extent"). From a multibusiness firm perspective, we are interested in the concentration of decision-making of the businesses at the corporate center, and therefore adapted the items accordingly. This included, for example, replacing the term "R&D" with "business units" (Cronbach's alpha = 0.86).

Finally, *formalization* refers to the extent to which a multibusiness firm's corporate center follows formalized procedures. We also obtained this variable with our questionnaire, using a five-item scale proposed by Jansen and colleagues (2006). Again, there is substantial research that applied the same measure with similar items (Aiken & Hage, 1968; Cardinal, 2001; Damanpour, 1991; Desphande & Zaltman, 1982). For our study's context, we asked the respondents to indicate the extent of formalization of the corporate center (1 = 'to no extent', 7 = 'to a very great extent"). We therefore adapted the items by replacing the term "organizational unit" used by Jansen and colleagues (2006) with "corporate center" (Cronbach's alpha = 0.66).

Control variables. We controlled our models for firm size, average industry performance, and innovation orientation. First, researchers frequently observed that larger firms tend to engage more in innovation activity than their smaller peers (Goes & Park, 1997; Kimberly & Evanisko, 1981). Damanpour (1992), for example, found that organization size is positively related to innovation. Further, corporate strategy literature indicates that size effects matter. For example, larger firms tend to be more diversified than smaller ones. Therefore, research often controlled

the diversification-performance relationship for *firm size* (e.g., Bowen & Wiersema, 2005; Villalonga, 2004), computed as the logarithm of the number of employees.

Third, we accounted for performance effects across industries. Similar to other studies in the strategic management field (e.g. Hill, Hitt, & Hoskisson, 1992), we calculated average *industry performance* for the firms in our sample by distinguishing the firms in our sample according to their primary standard industry classification (SIC) codes.

Finally, prior research found that a manager's orientation towards explorative activities or towards change in general is an antecedent for innovation (Damanpour, 1991). To control for *innovation orientation*, we adopted a five-item scale developed by Mom, Van den Bosch, and Volberda (2007) (Cronbach's alpha = 0.76). The advantage of this proxy is that it captures a manager's innovation orientation more accurately than, for example, a firm's leverage or R&D spending. Further, our measure asks for actual explorative activities within a specific period, rather than relying on a manager's perception of innovation.

ANALYSIS AND RESULTS

Table 1 presents the descriptive statistics and correlations of the variables included in our analysis. To test our hypotheses, we performed multiple hierarchical regression analysis. We followed established procedures to assess whether the necessary conditions for such an analysis are fulfilled (Hair, Black, Babin, Anderson, & Tatham, 2006). The variance inflation factors (VIF) of all variables are below the threshold of 10, indicating no presence of multicollinearity.

As reported in Table 2, we specified four different models. Model 1 contains only the control variables. In Model 2, we added the variables for the general effects, while Model 3 introduces the context factors. Finally, Model 4 contains the interaction terms of business scope and the organizational context, and functional scope and the organizational context, respectively.

To reduce the risk of multicollinearity, we mean-centered all independent variables before calculating the interaction terms. For all models, Tobin's Q serves as dependent variable.

Insert Table 1 about here

Insert Table 2 about here

Hypothesis 1 states that management innovation performed by the corporate center is positively associated with firm performance. Our results, however, do not indicate the existence of a significant relationship between these two variables. Contrary to our reasoning, the standardized regression coefficient is negative (ß = -0.060, ns). Further, we argue that two core dimensions of management innovation, business scope and functional scope have a positive impact on firm performance. Our analysis in Model 2 does not provide support for our argument for both measures of scope (Hypotheses 2a and 2b). Since the effects of both scope dimensions appeared to be very weak, we dichotomized both variables (i.e. created two dummy variables) for the subsequent analysis (the respective median served as cut-off points).

Hypotheses 3 to 5 suggest interaction effects between business scope and functional scope of management innovation and the firm's organizational context (Model 4 includes all interaction terms for business scope and functional scope). First, we find support for Hypothesis 3a stating that the relationship of business scope and firm performance is negatively moderated by a firm's business portfolio relatedness (ß = -0.348, $p < 0.05$). Further, Hypothesis 3b that deals with the positive impact of relatedness on the link between functional scope and firm

performance, is also supported (ß = 0.293, $p < 0.05$). Regarding the second contextual variable, centralization of decision-making, our analysis supports Hypothesis 4b (ß = 0.270, $p < 0.05$), however, not Hypothesis 4a (ß = 0.166, ns). While centralization appears to positively moderate the relationship between functional scope and firm performance, we do no find evidence for such an impact for business scope. Finally, we find support for Hypotheses 5a and 5b. Formalization of a firm's corporate center a positively moderates the relationship between business scope of management innovation and firm performance (ß = 0.280, $p < 0.05$), and negatively moderates the link between functional scope and firm performance (ß = -0.520, $p < 0.001$).

DISCUSSION AND CONCLUSIONS

Recently, scholars have begun to focus on management innovation – the adoption of a new management concept, practice, process, structure or technique that is intended to improve firm performance (e.g., Birkinshaw et al., 2008; 2008; Vaccaro et al., 2008). Though this research suggests that management innovation is at least equally important for achieving a competitive advantage than, for example, product and technological innovation (Hamel, 2007; Teece, 2007), tests of this hypothesis are largely missing.

In this study, we follow a resource-based view and define management innovation from the perspective of a multibusiness firm's central organizational unit, the corporate center. Contrary to our expectations, we do not find a significant relationship between management innovation and firm performance. Further, though our ideas partly draw upon the typology of management innovation proposed by Birkinshaw and colleagues (2005) as well as upon anecdotal evidence from interviews with practitioners, our data does not reveal any association between a linear relationship between business scope and functional scope of management innovation and firm performance. We find two explanations for these findings.

First, management innovation, as well as the two scope dimensions may exhibit a non-linear relationship with firm performance. One may argue, for example, that management innovation or its scope is beneficial up to a certain extent and that too much or too broad management innovation activity suffers from too high levels of business or functional heterogeneity and may thus result in increased adoption costs that exceed the benefits (Jansen et al., 2006). During our analysis, we considered this alternative explanation. Our tests of non-linear associations such as the above stated curvilinearity hypothesis were again not significant.

Second, our results for Hypotheses 3 to 5 offer a further explanation why we do not find a significant relationship between management innovation and performance. We analyzed the interaction of the two dimensions of management innovation with three commonly considered organizational context factors – relatedness of the business portfolio, centralization of decision-making, and formalization of the corporate center. Our findings are consistent with the notion that innovative activity in firms depends upon many different factors (Damanpour, 1996). While relatedness of the business portfolio negatively moderates the relationship between business scope of management innovation and performance, it positively moderates the link between functional scope and firm performance. In order to become effective, business scope and functional scope of management innovation performed by the corporate center must fit with the firm's portfolio relatedness. Our study provides empirical support that top management teams should align the role of the corporate center with the firm's corporate strategy (Collis et al., 2007), and that distinct approaches towards the management style of the multibusiness firm exist (Chandler, 1991; Goold & Campbell, 1987). In addition, the results of our study contribute to research on diversification. We not only introduce a novel corporate management aspect to the

debate, but also find some evidence that the diversification discount or surplus is not because of diversification itself (e.g. Markides & Williamson, 1994).

Though we do not find a significant interaction effect between business scope and centralization of decision-making, our findings support that innovations characterized by broad functional scope are likely to be successful in firms with a high degree of centralization. As suggested, it appears that complex multi-functional management innovations require centralized efforts in order to be successful. While prior research found that centralization affects innovation either positively (Cardinal, 2001), or negatively (Jansen et al., 2006), our findings suggest that benefits depend on its fit with the (business) scope of (management) innovation.

Finally, we find a significant interaction between a multibusiness firm's corporate center formalization and scope of management innovation. Similar to the arguments for exploitative and explorative innovation (Jansen et al., 2006), we expected that formalization facilitates the implementation of management innovations characterized by broad business scope, while we suggested that low levels of formalization are beneficial for broad functional scope. The results of our study confirmed our reasoning.

This study is subject to several important limitations and offers some interesting avenues for future research. We developed a partly new scale to measure a firm's management innovation activity and introduced two core dimensions of management innovation and alternative scales and typologies may lead to differing results. Considering three organizational context factors, however, we also neglected other important aspects, for example, the environmental context. Further, we focused on the performance effects of management innovation and thus offer only limited insight into the management innovation process. Scholars may therefore want to consider research designs with an emphasis on *how* management innovation leads to sustained corporate

advantage. In addition, we argued that a corporate center's management innovation activity explains performance variations across firms. However, we did neither account for corporate-business relationships (Gupta, 1987), nor for the role of business and middle managers (Floyd & Wooldridge, 2000). Prior studies indicate that both factors may determine successful strategy implementation.

Noteworthy limitations also concern our measures and the sample of our study. First, though we adopted established measures, its validity may be limited due to, for example, managerial biases (Golden, 1992). Alternative measures may potentially lead to different results. Second, our sample may raise concerns related to its generalizability. As legal frameworks, accounting and reporting standards, as well as cultures vary across countries, studies based on alternative samples covering other geographic regions may not find support for our hypotheses. Future studies may therefore want to test our argument based on broader samples. Third, although we assessed a relatively large period of management innovation activity and included a time lag for the performance measure, longitudinal studies on the adoption of management are needed. In large and diversified firms, it sometimes takes several years until the benefits of management innovation become visible.

To conclude, this study partly confirms the proposition by Teece (2007) and Hamel (2007) that management innovation matters. When considering specific characteristics of management innovation, for example, business scope and functional scope, as well as the organizational context, management innovation appears to be particular useful to explain corporate-level effects. Since our results indicate that purposefully engaging in management innovation is important for value creation for the overall firm, we hope that our study stimulates future research on the intersection of management innovation and corporate strategy.

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TABLE 1

Descriptive Statistics and Correlations

Variable	Mean	S.D.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. Firm performance (in 2007)	1.470	1.482									
2. Firm size (log employees)	8.130	2.323	-0.254 **								
3. Industry performance (in 2007)	1.484	0.546	0.371 **	-0.036							
4. Innovation orientation	5.416	0.871	0.129	-0.052	0.049						
5. Management innovation (MI)	4.897	1.156	-0.021	-0.115	-0.026	0.222 **					
6. Business scope of MI	0.729	0.269	0.053	-0.192 *	0.110	0.025	0.065				
7. Functional scope of MI	5.804	3.832	-0.053	-0.016	0.096	0.053	0.146	0.331 ***			
8. Relatedness	4.509	1.066	0.076	0.038	-0.129	0.244 **	-0.046	-0.076	-0.054		
9. Centralization	4.538	1.107	-0.149 +	0.354 ***	0.053	0.188 *	0.067	0.033	0.029	0.084	
10. Formalization	4.433	0.989	-0.164 +	0.252 **	0.007	0.160 +	0.163 +	-0.083	0.094	0.131	0.039

Note: n = 139; + p<0.1; * p<0.05; ** p<0.01; *** p<0.001.

TABLE 2

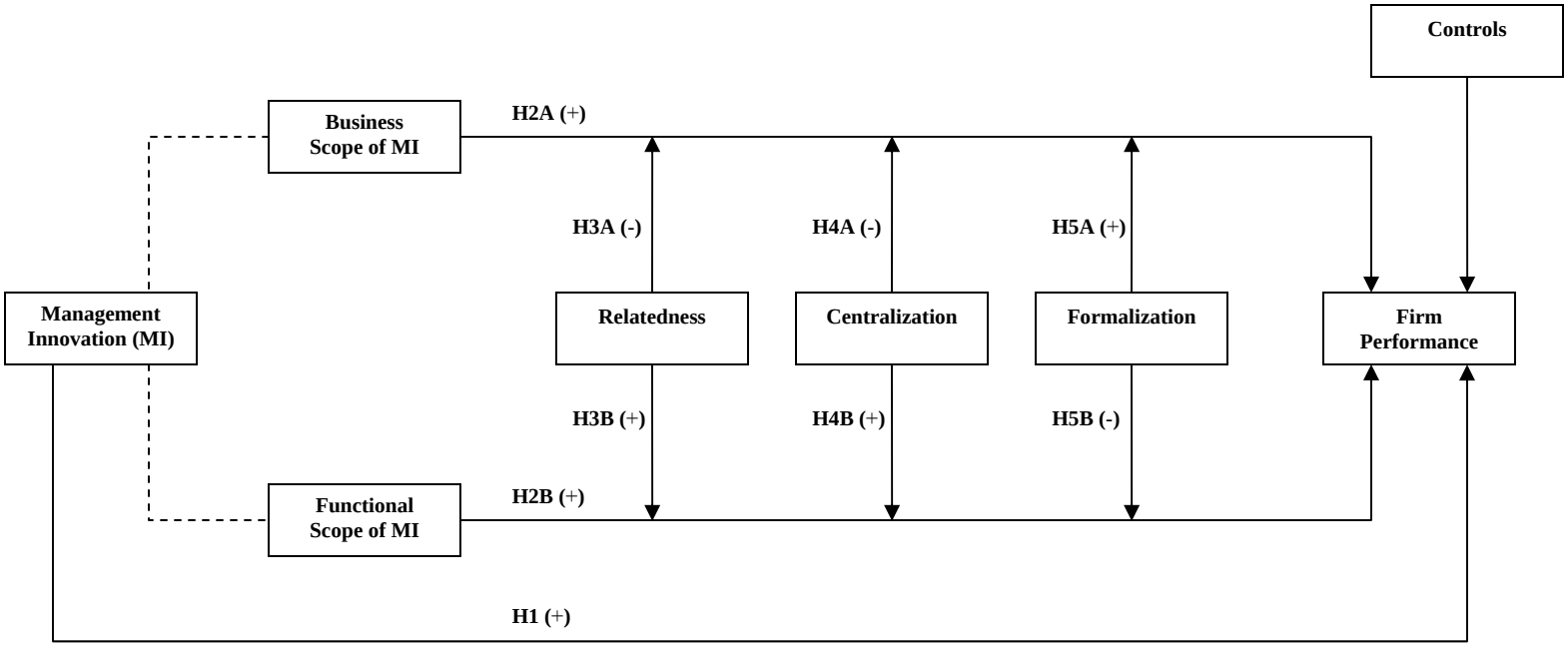
Results of Hierarchical Regression Analysis for Tobin's Q

Variable	Model 1	Model 2	Model 3	Model 4
Controls				
Firm size (log employees)	-0.236 *	-0.253 **	-0.156	-0.226 *
Industry performance (in 2007)	0.357 ***	0.355 ***	0.384 ***	0.464 ***
Innovation orientation	0.099	0.115	0.128	0.185 *
General effects				
Management innovation (H1)		-0.060	-0.015	0.003
Business scope of MI (H2a)[a]		-0.073	-0.066	-0.031
Functional scope of MI (H2b)		-0.014	0.020	-0.039
Moderators				
Relatedness			0.130	0.094
Centralization			-0.140	-0.493 **
Formalization			-0.162	0.134
Interaction effects				
Business scope X relatedness (H3a)				**-0.348 ***
Functional scope X relatedness (H3b)				**0.293 ***
Business scope X centralization (H4a)				0.166
Functional scope X centralization (H4b)				**0.270 ***
Business scope X formalization (H5a)				**0.280 ***
Functional scope X formalization (H5b)				**-0.520 *****
R^2	0.205	0.215	0.258	0.459
Adjusted R^2	0.180	0.164	0.183	0.361
F	8.164 ***	4.196 ***	3.445 ***	4.687 ***
ΔR^2	0.205	0.010	0.044	0.200
ΔF	8.164 ***	0.386	1.740	5.115 ***

Note: Standardized regression coefficients are reported; bold values indicate hypothesized results;
n = 139; * p<0.05; ** p<0.01; *** p<0.001.;

FIGURE 1

Dimensions, Contextuality, and Performance Implications of Management Innovation[2]



[2] A "+" denotes a hypothesized positive relationship/moderating effect and a "-" denotes a negative effect.