

Control in Multidivisional Firms: Levels Issues and Internal Differentiation

**Control in Multidivisional Firms:
Levels Issues and Internal Differentiation**

Proefschrift

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Preface

This dissertation is not the result of a carefully developed career plan. Rather, a career in science was not something to which I aspired, but seem to have rolled into anyway. Students in Business Administration just do not consider science a logical career move. Therefore, even after feeling very comfortable in doing scientific research as a graduation project it simply did not cross my mind to accept a temporary position as university lecturer, something I did anyway because I expected to develop and improve skills and knowledge that I could benefit from in subsequent jobs (and also out of curiosity I must confess). Two years later my decision to start a career in business was turned back once more and all of a sudden I found myself combining my position as a lecturer with conducting a Ph.D. study, a combination that is getting rare at Tilburg University these days. Somehow, my view of scientists as inspired intellectuals who considered science their destiny the moment they leave primary school did not fit in with this unplanned career path. This does not imply that decisions at separate points in time were taken without careful deliberation (friends and relatives might recognize my willingness to carefully deliberate about most decisions I make). Still, the lecturer-Ph.D. student combination and my view of “the scientist” hampered me in finding my way in the beginning and caused an occasional doubt as to whether the chosen way was the right one. My view of the scientist changed along the way as I found out that scientists come in many different shapes and some started their careers in a comparable, unplanned, manner. Moreover, although I realize the advantages of the thorough theoretical and methodological basis provided in a full-time Ph.D. program, the combination of lecturing and conducting Ph.D. research was tough but proved stimulating and allowed me to mix the best of both worlds.

Hence, decisions taken at different points in time resulted in this dissertation. I am extremely grateful to the many people that have stimulated and advised me in that process. I feel privileged to have had Sytse Douma and Aswin van Oijen as promotores. I thank Sytse Douma for the trust he put in me, for stimulating me into conducting Ph.D. research, and for his advice and support at several stages of the process. My cooperation with Aswin van Oijen began during the writing of my master thesis and has not finished since then. His insights and

critical remarks, and the in-depth discussions we frequently had (and still have) stretched my aspiration levels and quality standards and made me realize that good is often simply not good enough. Moreover, it was Aswin who stimulated me to apply for a position as a lecturer in the first place.

I am proud that my dissertation has been approved by professors Harry Barkema, Christophe Boone, Jan Eppink, and Niels Noorderhaven. Their willingness to be a member of the committee is highly appreciated. It is a pleasure to be a member of the same department as Harry Barkema and Niels Noorderhaven. I thank them and all other colleagues and supporting staff for creating a pleasant and informal departmental atmosphere. Professors Tammo Bijmolt and Laurence van Lent crossed departmental boundaries when commenting on work in progress and I thank them for their willingness to do so. Arjen, Aswin, Corma, Rejie and Rian have been pleasant company when traveling to conferences in far away places. Sjoerd Beugelsdijk, Carla Koen and Frank Wijen advised me in translating the questionnaire that formed such an important tool for data collection. I am also grateful to Frank for his willingness to discuss methodological issues with me. It was a pleasure to exchange experiences with fellow Ph.D. students, especially those who were (on the point of) undertaking the journey through the “wilds” of survey research. I thank Jeff for advising me on language issues when I was writing the draft version of this preface. The willingness of a large number of managers made it possible to test my ideas in practice. Their contribution to the dissertation is invaluable. I learned a lot from the anonymous scholars that reviewed the conference papers that ended up as chapters 3 and 4 of this dissertation. Jaume Franquesa is acknowledged for his critical review of the very first version of chapter 3. I had the opportunity to work together with, and learn from a large number of students. It is a pleasure to have some as colleagues now and to keep in touch with others on various occasions and locations, including, for instance, meeting for a beer in downtown Aveiro a few hours before an important soccer match.

Finally, I thank my friends, family, and family-in-law for their interest and support. In particular, I want to thank my parents for sowing the seeds of this dissertation, for stimulating me at moments when the value of good education was not yet clear to me, and for their ability to foresee me finishing a Ph.D. study before I even considered starting one. I thank Jolin and Luc for their willingness to provide moral support during the defense. Luc, thanks for welcoming me as a housemate at “High school lane” about twelve years ago. See what it all

led to....! Jolin has been my best friend since secondary school and reminds me that friendship is something to cherish and invest in. Thanks for showing a continued interest in the study and for commenting on parts of the dissertation. Anne and Isabel stimulated me in leaving the office in time and protected me from spending too many hours behind my computer in the attic at night. Anne makes me realize that the work I do is something to be proud of rather than to wave aside as common. Isabel makes me (all fingers and thumbs) feel a first-class handyman after performing the rare odd job around the house. Both of you make the average person I am feel very special.

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Tilburg, december 2004.

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1

Introduction

1.1 Introduction

This dissertation is about control in multidivisional firms. In its most simple form the multidivisional firm consists of a corporate center or headquarters, responsible for the overall management of the firm, and a number of semi-autonomous divisions, subsidiaries or business units, each responsible for its own region, industry, or product-market combination. Hence, the multidivisional firm resembles a collection of single-business firms operating under corporate management. Compared with single-business firms, however, multidivisional firms are faced with cost disadvantages due to corporate overhead, which can be offset only if divisions perform better as members of a corporate family than as stand-alone entities. Here lies a crucial task for corporate center management. For example, divisions may benefit from the knowledge and experiences of corporate executives in determining divisional strategies (Chandler, 1991). Corporate headquarters may also play an active role in creating the organizational infrastructure for realizing synergies through the exploitation of interrelationship across divisions (Goold & Campbell, 1998; Moss Kanter, 1989; Porter, 1985). Furthermore, internal efficiency of divisions may improve upon exposing them to the discipline of an internal capital market (Williamson, 1975). In this dissertation, the crucial task of corporate headquarters is labeled *control* and refers to the mechanisms used by corporate center executives to manage, coordinate, direct, and monitor the actions of divisional management. Through the adoption of these control mechanisms corporate headquarters can add value to the divisions in the corporate portfolio and this is what makes

control such a crucial issue for a multidivisional firm: it provides an important justification for its existence. This chapter will make clear how this study attempts to contribute to existing research on control in multidivisional firms. A bird's eye view of the existing research will be provided first, though.

1.2 Control in multidivisional firms

Research on the organization of the diversified firm started with Chandler (1962), who studied the development of large American firms over time. Chandler found that the functional structure, which most of these firms had adopted, has some intrinsic weaknesses. These weaknesses emerged particularly after a strategy of expansion into new product lines or geographical regions. For example, top management tended to become so engrossed in operational coordination that long-term planning suffered. According to Chandler, these firms found the solution to their problems in re-organizing the firm into self-contained divisions, each responsible for a distinct business and in the possession of all relevant functions to perform their task. The decentralization of responsibility for operating decisions and business level strategic decisions to the distinct divisions enabled the corporate center to concentrate on the long-term strategic direction of the corporation as a whole. Since the new structure consisted of separate divisions that could be held accountable for the financial performance in their respective businesses, control over, and resource allocation to divisions could be relatively easy established by measuring and comparing the financial contributions of the distinct businesses. In line with this, Williamson (1975) compared the functions of general management in multidivisional firms with those of outside investors in the capital market: to allocate scarce financial resources among competing divisions or investments and to discipline the efficiency of poor performers.

Traditionally, then, the multidivisional structure was considered superior to other organizational forms because it established a strict separation of responsibilities and ensured performance accountability of divisions, which together provided opportunities to expose divisions to the discipline of an efficient internal capital market. This view changed when researchers began to identify variations in multidivisional structures in terms of degree of centralization, internal controls, and reporting structures (see, e.g., Hill & Pickering, 1986)

and related these to variations in diversification strategies (see, e.g., Hill & Hoskisson, 1987; Hill, 1988b). Whereas the traditional multidivisional firm (or M-form firm) was still considered appropriate for unrelated diversifiers, a more complex variant proved better equipped to realize the benefits of related diversification. The potential benefits of exploiting excess resources in related businesses had since long been recognized (Penrose, 1959; Rumelt, 1974; Teece, 1982). Yet, many firms failed to reap these potential benefits because they lack the appropriate organizational arrangements (Moss Kanter, 1989; Porter, 1985). Hence, the solution to this problem was found in a variant of the traditional M-form, which became known as the centralized M-form (Hill, 1988b) or cooperative form (Hill, Hitt & Hoskisson, 1992; Hill, 1994). The upshot of the studies that followed is that performance in multidivisional firms depends on the correct fit between diversification strategy type and M-form control characteristics. More specifically, the traditional M-form characteristics, including strict separation of strategic and operational responsibilities and the use of strict financial controls, were found appropriate for unrelated diversifiers. In these firms, the independent divisions could be treated as separate investments to achieve the benefits of an efficient internal capital market, as propagated by Williamson (1975). More complex mechanisms were required in related diversified firms. These mechanisms included direct involvement of corporate center executives in operational affairs. Moreover, in the face of performance ambiguity, financial controls had to be replaced by strategically oriented controls to more adequately assess the contributions of individual divisions. A number of studies followed these initial observations but perhaps the most comprehensive study is the one performed by Hill et al. (1992) who focused on multiple administrative arrangements, including degree of centralization, lateral integration mechanisms, control systems, and incentive schemes. With the exception of some mixed findings for the use of integration mechanisms, they found support for the contingency relationship between diversification strategy and administrative attributes. More recently the studies of Markides and Williamson (1996) and St. John and Harrison (1999) provide additional support. In sum, contingency thinking found its way in research on multidivisional firms (see also Pitts, 1980).

In contrast with the corporate focus of the studies described so far, other researchers began to focus more on intra-firm differences in strategic contexts and control arrangements. Some first evidence was obtained by empirical studies on portfolio planning practices of multibusiness companies (Bettis & Hall, 1983; Haspeslagh, 1982). Portfolio planning techniques, which were popular among these companies in the 1970s (Goold & Luchs, 1993),

emphasize the creation of balanced portfolios that enable firms to generate cash in one industry to finance investments in others. Hence, divisions are assigned different missions. The findings of these studies suggest that firms should differentiate their administrative processes accordingly. In a conceptual paper, Govindarajan (1986) provided the theoretical underpinnings of these findings, using insights from contingency theory. Focusing on one specific structural attribute, the degree of centralization, he shows that divisional effectiveness depends on the fit between corporate structural arrangements and divisional contextual factors, such as environmental uncertainty, mission, degree of interdependence, and business strategy. Subsequent empirical studies support this notion for various aspects of structure and control, including degree of centralization (Golden, 1992; Gupta, 1987), performance evaluation (Gupta, 1987), and the incentive system (Govindarajan & Gupta, 1985; Gupta & Govindarajan, 1986)¹. The general claim is that studies on M-form structural arrangements are far from complete if they fail to account for intra-firm differences in business unit context. Nohria and Ghoshal (1994, p. 492), who studied headquarters-subsidary relationships in multinational corporations, make a similar point: "... the literature on the governance of headquarters-subsidary relations suffers from [...] the reductive fallacy of reducing complexity to simplicity, or diversity to uniformity."² On the other hand, this view on the control of business units is not free of criticism either. After all, such a differentiated approach is complex to manage (Lorange, 1993; Markides, 2002; Prahalad & Bettis, 1986) and may lead to jealousies and confusion among business unit managers (Goold & Campbell, 1987).

¹ An overview of main studies in this area, as well as an overview of empirical studies on the contingency relationship between diversification strategy, structure/control dimensions, and corporate performance is included in the appendix to chapter 1.

² The authors refer to Fischer (1970) who discusses a large number of fallacies in writing and researching history in his book *Historians' fallacies: Toward a logic of historical thought*.

1.3 Aim of the study

Hence, after Chandler's seminal study two views dominate research on control of business units in multidivisional firms (see also Markides, 2002). The two have remained largely distinct in the existing literature, which is unfortunate because different, and largely contradictory, implications for the management of diversified firms can be derived from the respective findings. For example, whereas one view would recommend firms to choose the controls that match their corporate strategy, the other view emphasizes the internal differentiation of control to match the circumstances of individual business units. The fact that both views received considerable empirical support adds to the confusion even more because it is now unknown whether control should be treated as a corporate-wide or business unit-specific phenomenon.

Surprisingly, internal control differentiation and the associated complexities play a somewhat peculiar role in the previous studies. It is largely absent in the first view, as the emphasis is on the overall corporate control style under the, often implicit, assumption of uniformity across business units. It is very much present, but never actually studied, in the second view. In these studies, conclusions on the merits of differentiation are based on studies of individual business units. The actual differences in control styles between business units of the same firm, as well as the complexities of adopting such a differentiated control style for the corporation as a whole, usually fall beyond the scope of these studies. Hence, the role of control differentiation differs between the views but has not been the subject of direct investigation in either one of them.

The multidivisional firm remains one of the dominant organizational forms for large corporations (Galunic & Eisenhardt, 1996; Whittington & Mayer, 1997), indicating the importance of research in this area. Therefore, the aim of this dissertation is to provide a more comprehensive understanding of the management of diversified firms by integrating the insights and implications from the two prevailing views and by studying, as one of the first, the complexities associated with the internal differentiation of control mechanisms. This will be done in four different projects, each contributing to our understanding of control of business units in multidivisional firms. The results of these projects are discussed in the four

chapters that form the core of this dissertation. Before taking a preview of these chapters, some additional demarcation of the research topic is considered appropriate.

1.4 Demarcation

Figures 1a to 1d have been derived from Galunic and Eisenhardt's (1996) typology of existing research on multidivisional firms and can be used to further clarify the position of this dissertation. The two views discussed above are summarized in figures 1a and 1b. Galunic and Eisenhardt (1996) speak of "Corporate strategy and structure fit" and "Intracorporate fit" to denote the focus on control arrangements as either corporate- or business unit-specific phenomena, respectively. Figure 1c represents research on the structures and controls *in* business units. The business units in diversified firms can be organized along functional lines but can also operate as a multidivisional firm themselves. The latter is not unusual in large corporations where semi-autonomous, self-contained units can be found at multiple levels in the hierarchy (Chandler, 1991). The internal structures of business units and the control of subunits by business unit management fall beyond the scope of this study, as the focus will be on control *of* business units by company headquarters rather than the internal organizational arrangements within the business units. Throughout this dissertation the terms business unit, division, and subsidiary will be used interchangeably to refer to the organizational units that are placed directly below the corporate center.

Figure 1d represents the growing stream of research on intra-firm networks and horizontal relationships between business units (see, e.g., Tsai, 2000, 2001). In this study these horizontal linkages are taken into account in two ways. First, as discussed earlier, the degree of inter-unit resource sharing is an important determinant of the nature of control mechanisms used by company headquarters. Second, the literature on network structures considers lateral integrating devices as important alternatives to hierarchical means of coordination and control (Ferlie & Pettigrew, 1996). The position taken here is that these lateral means of coordination are among the mechanisms of coordination and control that can be found in multidivisional firms, the use of which can differ between (Hill et al., 1992) and within (Gupta & Govindarajan, 1991) firms.

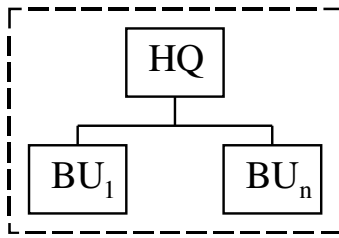


Figure 1a: Corporate strategy and structure fit

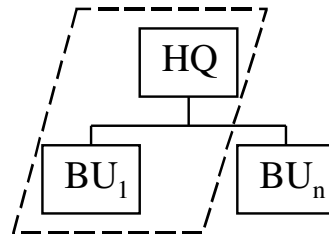


Figure 1b: Intracorporate fit

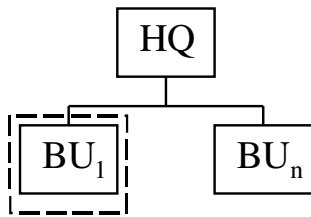


Figure 1c: SBU strategy and structure fit

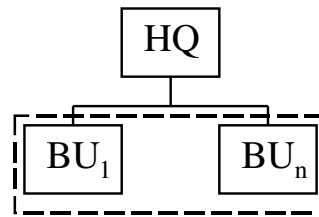


Figure 1d: Intracorporate networks

Figures 1a-d: Research on organizational arrangements in multidivisional firms (Source: Galunic & Eisenhardt, 1996).

At this point it seems appropriate to briefly elaborate on the term control as it is used in the remainder of this study. As evidenced by Hill and colleagues (1992), a variety of control arrangements exists. This is in line with general research on organizational design, which has identified different organization design variables, including centralization, planning and control systems, formalization, lateral relations, and compensation systems (see, e.g., Galbraith, 1977; Khandwalla, 1977). All these design attributes may be used to establish control over divisions. In fact, organizations and the attributes of organization design have been equated with issues of organizational and managerial control (Das, 1989; Fisher, 1995; Flamholtz, 1983; Tannenbaum, 1968), and the ways to achieve control have been considered numerous, including, for example, the creation of shared norms and values (Ouchi, 1979). This implies that control is more than comparing results to planned targets and taking corrective actions (Fisher, 1995). Control, then, involves all those mechanisms through which business units with potentially divergent interests can be managed by company headquarters

to achieve the organization's goals (cf. Lebas & Weigenstein, 1986; Ouchi, 1979; Tannenbaum, 1968). In the literature, various other labels are used to denote control mechanisms in multidivisional firms, including, for example, administrative mechanisms (Govindarajan, 1988), administrative tools (Grant, 1988; Prahalad & Bettis, 1986), internal organizational arrangements (Hill et al., 1992), control practices (Alexander, 1991), or corporate-SBU (Strategic Business Unit) relations (Golden, 1992; Gupta, 1987). Although control will be used as the common denotation, combinations of the various labels will also be used interchangeably throughout this dissertation.

Finally, although not positioned in the international management literature, this dissertation lends from, and contributes to the research on control of business units in multinational corporations as well. Firms adopt multidivisional structures as a response to diversification into new businesses, into new geographical regions, or, very often, a combination of both. The latter applies to a small country such as the Netherlands, which formed the basis for the empirical studies in this dissertation (see section 1.6). Because of the limited size of the home country, one will have a hard time finding large Dutch companies that have diversified into new businesses without expanding internationally also. Still, many Dutch firms obtain a considerable part of their sales from domestic operations and even the truly multinational corporations among them usually have a considerable number of business units located in the home country, especially at the highest level at which these semi-autonomous units can be found. Hence, this study is not limited to purely domestic or purely multinational corporations because the boundaries between the two are often blurred and the insights and findings generated from studies in one of these settings can easily be transferred to the other (see also Ghoshal & Nohria, 1993; Gupta & Govindarajan, 1991; Nohria & Ghoshal, 1997). Nonetheless, the international context does not play a prominent role in the positioning, theory development, and empirical studies of this dissertation. Insights from studies in that context will be frequently used, though.

1.5 Structure of the dissertation

The body text of this dissertation consists of four chapters that are written in the form of independent papers. Hence, each chapter can be read independently from the others. The first two chapters deal with the distinction between business unit and corporate level. It will be argued that, rather than keeping the two levels separate, research can benefit from incorporating both levels jointly. Chapter 2 is a conceptual paper. The existing literature on control of business units is discussed and gaps are identified. It is concluded that much of the existing confusion stems from the focus on either the corporate or the business unit level as the dominant focus of previous studies. A multilevel theoretical framework is developed to increase understanding of control of business units in multidivisional firms, establish integration between the two views that dominate existing literature, and present new theoretical insights.

Chapter 3 is an empirical study that uses a multilevel modeling technique to examine the corporate and business unit effects of corporate control mechanisms. Hypotheses are developed, and supported, for the relationships between the resource sharing intensity of individual business units and four dimensions of corporate control: autonomy, strategic control, integration mechanisms, and network-based incentives. Corporate effects are controlled for in a multilevel analysis of the data. Multilevel modeling techniques are relevant in this area because they allow simultaneous examination of data at different levels in the multidivisional firm.

Chapters 4 and 5 deal with the complexities of control differentiation using theoretical perspectives that are relatively new to the study of control practices in diversified firms. Chapter 4 uses an upper echelon perspective. The central idea is that the adoption of multiple control styles places requirements on the information-processing and cognitive capacities of corporate center executives. It is found that control differentiation is negatively related to the performance of the corporation as a whole because of the complexities associated with it. It is also argued that top management team composition may play a moderating role because top management teams are supposed to differ in their ability to deal with complex situations. Results partially support this notion.

Chapter 5 uses a procedural justice perspective to study the effects of control differentiation on the performance of individual business units. It is argued that differences in the controls used across business units may give rise to feelings of unfairness because business unit managers associate these differences with political favoritism and discrimination. It is hypothesized, and supported, that the effects on business unit performance depend on the specific contexts of business units, notably the degree of resource sharing with other business units, the communication with corporate headquarters, and the size of the business unit.

Chapter 6 recapitulates the findings in a discussion of five topics that cut through the different studies of this dissertation. Rather than elaborating upon the conclusions and findings of each study individually (something already done in the respective chapters), the focus will be on general insights gained from the studies. Subsequently the following five topics will be discussed: multilevel perspective, types of relatedness, new organizational forms, control differentiation, and control mechanisms. The discussion aims to set the stage for future research.

1.6 Methodological considerations and samples used

In chapter 2 the emphasis is on the development of a conceptual framework that uses a multilevel perspective to link together the two prevailing views on control of business units in an attempt to further our understanding in this area. Chapters 3, 4 and 5 combine theory development and empirical testing in empirical studies on control of business units in Dutch corporations. The widely available literature makes it possible to ground the studies in, and depart from, the existing research in this area. For example, the information-processing perspective adopted in chapter 3 is well established in research on organization design in general and control of business units in particular. Moreover, although control differentiation and its associated complexities have not been examined directly in the two views discussed earlier, early conceptual work (e.g., Prahalad & Bettis, 1986) and empirical research on the basis of in-depth case studies (e.g., Bartlett & Ghoshal, 1989; Goold & Campbell, 1987) paved the way for theory development in this area, and guided the search for applicable theories and perspectives to draw upon. This resulted in the use of theoretical perspectives

that are relatively new to this research area, such as the upper echelon perspective adopted in chapter 4 and the procedural justice perspective adopted in chapter 5.

Because data on control practices in diversified firms are usually not publicly available, many of the data had to be collected from primary sources. The empirical testing of hypotheses justifies a quantitative methodological design (Baumard & Ibert, 2001; Charreire & Durieux, 2001)³. Therefore, it was decided to use surveys as the primary means of data collection. This made it possible to target a larger number of companies and business units than would be possible with alternative data collection methods (Ibert, Baumard, Donada & Xuereb, 2001). This was considered important for at least two reasons. First, since we⁴ were interested in examining both corporate- and business unit-level effects in chapter 3, a substantial number of observations at both levels was considered necessary. Second, most of the existing empirical evidence on the complexities of control differentiation, which took up a central role in chapters 4 and 5, is based on a limited number of in-depth case studies. Hence, it was considered worthwhile to strive for findings that could be generalized across a larger number of organizations. In addition, survey is the dominant data collection approach in the two prevailing views of control in diversified firms, which enabled us to use, combine, learn from, and draw upon a wide array of existing survey instruments and measures.

Two separate data collection projects were undertaken. The first project consisted of a survey among the managing directors of business units and took place late 2001 and in the first half of 2002. We sent questionnaires to the managing directors of 614 business units and obtained a response rate of 22.8% (140 responses). The final sample consists of 136 usable observations. The business units are part of 45 different corporations and exploit activities in a variety of industries (construction (12.5%); manufacturing (27.2%); printing/publishing

³ Charreire and Durieux (2001) distinguish between exploration and testing as two central processes in the construction of knowledge. Exploration is the process through which researchers seek to develop new theoretical explanations and predictions, either by connecting theoretical insights (theoretical exploration) or by observing empirical facts (empirical exploration). Testing is the process used to compare these explanations and predictions with reality. Although the two processes do not presuppose a particular data collection approach, exploration is usually associated with qualitative methods while quantitative methods are more frequently used to serve the purpose of testing. However, the distinction between the two is often blurred (Baumard & Ibert, 2001), many methods are mixtures of both (Ghauri, Grønhaug & Kristianslund, 1995), and empirical research methods that have been considered predominately qualitative in nature, such as case-studies, can be used to test as well as generate theories (see, e.g., Eisenhardt, 1989; Yin, 2003). The same could hold for quantitative methods as evidenced in chapter 3 of this dissertation, in which we use a quantitative method to test hypotheses at the business unit level but at the same time examine corporate level effects in a more exploratory fashion.

⁴ The plural form is chosen for consistency reasons. It reflects that some of the chapters are the result of joint work and have been presented as co-authored papers on academic conferences. The content of this dissertation, including any remaining errors or inconsistencies, remains the sole responsibility of the author, however.

(10.3%); service (28%); trade (22.1%)). A total of 34 business units (25%) were located outside the Netherlands. On average, the business units employed 1596 employees. The data collected in this project were used in the empirical studies of chapters 3 and 5 and were used to cross-check some of the data obtained in the second survey.

The second survey was set up independently from the first one and involved data collection among corporate center executives and staff. The data were used in the empirical study of chapter 4. Questionnaires were sent to multiple key informants in 96 corporations. Responses were obtained from 55 corporations (57.3% of our initial sample of 96 corporations), of which 54 were used in the final analyses. Additional data were collected from secondary sources. The average corporation in this sample has eight business units that report to corporate center management directly, employs 24370 employees, operates in four different industries, and exploits activities in 21 countries. Main activities of the firms in this sample include construction (7.3%), manufacturing (38.2%), printing/publishing (5.5%), service (30.9%), and trade (18.2%).

Although the two surveys were set up as independent studies, there was some overlap in the measures and some corporations are present in both samples. This overlap was used to validate some of the measures used in chapter 4. For a total of 17 corporations in sample 2, data for at least three business units were also included in sample 1.

1.7 In conclusion

This dissertation contributes to the understanding of control of business units in multidivisional corporations. The following chapters present the findings of four studies that were undertaken as part of the dissertation project. The four chapters have been written in the form of separate papers and can therefore be read independently. Nonetheless, the interested reader would find the first paper (chapter 2) a logical starting point because it provides an overview of the existing literature as well as a comprehensive conceptual framework that captures many of the issues discussed in the chapters that follow. The three empirical studies use different theoretical perspectives to develop hypotheses that are subsequently tested on a

sample of business units (chapters 3 and 5) or corporations (chapter 4). Chapter 6 differs from the others as it contains a brief discussion of topics that cut through the various papers.

A final note pertains to the overlap that exists between some of the chapters. To guarantee the readability of chapters 2, 3, 4, and 5 as separate papers, some repetition across these chapters is considered unavoidable. This repetition stems from the fact that the four research projects, though very different in focus, share the common theme of control of business units in multidivisional firms and depart from, and aim to contribute to, the existing research in this area. The presentation of the research projects as separate papers also implies a limited number of cross-references. With the exception of chapters 1 and 6, the chapter texts contain only few references to other parts of the dissertation.

2

Control of business units:

Review of the existing literature and a multilevel framework

2.1 Introduction

Thirty years of research on the linkage between diversification and performance have not produced consistent results (Hoskisson & Hitt, 1990; Palich, Cardinal & Miller, 2000; Ramanujam & Varadarajan, 1989). One of the factors that may cause the lack of consistency is the organization of the diversified firm, because the potential value of product diversification only materializes if the correct organization is in place (Hill, 1994; Hoskisson & Hitt, 1990; Nayyar, 1992, 1993; Ramanujam & Varadarajan, 1989; St. John & Harrison, 1999). The importance of the organization of the diversified firm is reflected in the large number of studies that have addressed this topic in the past decades.

In these studies, it is generally recognized that the creation of self-contained, semi-autonomous business units or divisions is an adequate first step in organizing a diversified firm. Since long, researchers have also acknowledged that multidivisional firms are not identical organizations (Hill & Hoskisson, 1987; Hill & Pickering, 1986) but differ widely in terms of the mechanisms corporate center executives use to manage, coordinate, direct, and monitor the actions of business unit management. As already indicated in the introductory chapter of this dissertation, two views of how these control mechanisms differ prevail (see also Dess, Gupta, Hennart & Hill, 1995; Galunic & Eisenhardt, 1996; Markides, 2002). The first view focuses on differences across corporations, treating control within firms as relatively uniform. The second view focuses on control of individual business units,

propagating within-firm differences in the control mechanisms used by company headquarters. Both views have received considerable support in the literature but are not free from criticism either. For example, the assumption of uniformity has been considered overly simplistic as it fails to recognize the different strategic contexts that business units within the same corporation face (Calori, Johnson & Sarnin, 1994; Nohria & Ghoshal, 1994). Alternatively, control differentiation within a firm may lead to a better fit between control mechanisms and business unit specific circumstances but is complex to implement (Lorange, 1993; Markides, 2002; Prahalad & Bettis, 1986) and may bring about feelings of jealousy and confusion among business unit managers (Goold & Campbell, 1987, 2002).

The control of business units is one of the most crucial and difficult tasks for corporate center management. The appropriate execution of this control task allows firms to realize benefits from operating in multiple industries while mitigating the risk of opportunistic behavior of business unit managers (Chandler, 1991; Hill, 1994; Markides, 2002). Given its importance, a comprehensive understanding of the antecedents and performance implications of this control task remains a challenge to both researchers and practitioners. The two views on control of business units both add to our understanding of the complexities of organizing the diversified firm. At the same time, they present us with a paradox. When considered in isolation, each view provides suggestions of how to control business units in diversified firms. When considered jointly, however, the suggestions seem to be in conflict: firms should either choose control mechanisms in line with the strategy of the firm as a whole and apply these across the portfolio of business units in a relatively uniform manner, or they should differentiate control to cope with business unit-specific circumstances. Resolution of this issue is important if we are to further our understanding of control in diversified firms and all its associated complexities. Therefore, in this paper, we combine the two views into a new, integrative framework on control in diversified firms. The framework is based on the acknowledgement that control is a multilevel issue, which allows us to integrate the different views, whilst taking the critiques of both into account.

Multilevel researchers emphasize the multilevel nature of organizations and stress the limitations¹ of only focusing on a single level of analysis (Klein, Dansereau & Hall, 1994, p. 198): “No construct is level free. Every construct is tied to one or more organizational levels or entities, that is, individuals, dyads, groups, organizations, industries, markets, and so on.” Hence, it is the challenge of multilevel research to make explicit how phenomena at different levels relate to one another. In doing so, the multilevel perspective takes into account the contextual influence that higher-level phenomena exert on lower-level phenomena as well as the bottom-up processes through which lower-level characteristics combine or aggregate to form higher-level constructs². Altogether, this should lead to a more accurate understanding of organizational phenomena that unfold across different levels in an organization (Klein & Kozlowski, 2000, p. XVI): “A multilevel perspective may thus add depth and richness to theoretical models and studies of topics traditionally examined at just one level of analysis.”

A multilevel perspective is relevant, given the context of our study. Control of business units, the antecedents, and the performance outcomes, have been traditionally examined either at the corporate-wide or the business unit-specific level³. By combining both levels in a multilevel framework we aim to reconcile the two, seemingly conflicting, views, and add depth and richness to the literature on control in diversified firms.

¹ Much of the discussion on limitations of single level studies centers around their limited generalizability: false conclusions may be drawn when the research findings are generalized to a higher or lower level than the one used to generate the findings. Although this is also very much related to data collection and analysis issues in empirical research, the focus of this study is on developing a theoretical framework mainly.

² An example of how top-down and bottom-up influences co-exist is organizational culture. Organizational culture influences the behavior and values of individuals. At the same time, the behaviors and values of these individuals combine to form organizational culture (cf. Kozlowski & Klein, 2000).

³ An exception is Egelhoff (1988) who developed and tested a cross-level theory of organizational design in multinational corporations, the insights of which were conducive to the development of our framework as well. Our framework differs from Egelhoff as it makes use of the multilevel guidelines and principles developed in adjacent disciplines in order to more fully capture the potential of the multilevel perspective.

We begin our paper with a review of the existing literature on control of business units in diversified firms. Existing research is classified into four categories. We discuss why two views on control of business units prevail, explain the assumptions underlying the two views, and motivate how a multilevel perspective can lead to reconciliation. The multilevel theoretical framework is presented next. We make explicit, and discuss, the linkages between theoretical concepts that have been traditionally examined at a single level of analysis. In our framework we include control as a corporate level concept and control as a business unit-specific concept and explain the relationship between the two. The antecedents and performance outcomes at both levels will be made explicit as well. The implications that can be derived from the framework will be discussed thereafter. Finally, we end with a number of concluding remarks.

2.2 Literature review

In this section the existing research on control of business units in diversified firms will be discussed. We classify the existing literature into four categories, starting with the seminal works of Chandler (1962) and Williamson (1975), and ending with the literature on business unit specific control. From these four categories⁴ the two views of control of business units are derived. The review section ends with the conclusion that a multilevel perspective can add to our understanding because previous studies focused only on a single level of analysis.

Multidivisional structure

Research on the organization of the diversified firm started with Chandler (1962), who studied the development of large American firms over time. Chandler found that the functional structure, which most of these firms had adopted, has some intrinsic weaknesses. These weaknesses emerged particularly after a strategy of expansion into new product lines or geographical regions. For example, top management tended to become so engrossed in operational coordination that long-term planning suffered. As a remedy, firms adopted the multidivisional structure. A firm with a multidivisional structure is composed of a number of

⁴ These four categories should not be confused with the typology presented in chapter 1 (figures 1a-d) of the dissertation. Rather, the first three categories discussed in this review section could be placed under what Galunic and Eisenhardt (1996) labeled the “Corporate strategy and structure fit” research. The fourth category represents what Galunic and Eisenhardt (1996) called “Intracorporate fit” research.

self-contained divisions and a corporate office or headquarters. The allocation of tasks between the two levels is fixed. Each division controls all functional activities and can take all operational decisions pertaining to a specific business. The corporate office focuses on strategic planning, allocation of resources to the divisions, appraisal or monitoring of the performance of the divisions, and coordination of the divisions.

Williamson (1975) interpreted the advantages of the multidivisional structure in the framework of transaction cost economics. For example, the multidivisional structure is assumed to economize on bounded rationality and reduce opportunism, mainly because top managers are not overburdened by operational affairs and strategic planning is less susceptible to partisan influences of lower-level functional managers. Accordingly, Williamson (1975) devised the *M-form hypothesis*, which predicts superior performance for the M-form, or pure multidivisional structure. Basically, this comes down to the notion of “one size fits all”. One specific type of divisionalized structure is assumed to be optimal for all larger firms, irrespective of, for example, the corporate strategy they have followed.

Results of the empirical tests of the M-form hypothesis are mixed. Some studies found support for the hypothesis, other studies did not support the hypothesis, and the outcomes of a third category of studies were ambiguous (for an overview, see Cable, 1988). What led to the next stream of research on the organization of the diversified firm were the findings from a number of studies of British firms (Hill, 1988a, 1988b; Hill & Pickering, 1986; Steer & Cable, 1978). These showed that the M-form was not as ubiquitous among large corporations as might be expected because of its hypothesized superior performance. A possible explanation is that the suitability of the M-form depends on the specific strategy a firm has chosen (Hill & Pickering, 1986).

Corporate control models

The second stream of research still presupposes a divisionalized structure, but rejects the notion that one particular type would be optimal for all larger firms. Instead, the corporate office can choose from a number of alternative models to control the divisions. Since the stream originates from criticism of Williamson’s M-form (1975) hypothesis, the alternative corporate control models originally were very close to his work. Apart from the above-mentioned M-form, Williamson and Bhargava (1972) distinguished, among others, the CM-form, or *corrupted* multidivisional. Firms that have adopted the CM-form are labeled

corrupted, because their corporate offices are involved in the operations of the divisions. However, Hill (1988b) and Hill and Hoskisson (1987) argue that the realization of synergies requires exactly this kind of involvement. CM-form then becomes *centralized* multidivisional (Hill, 1988a, 1988b).

The appropriate corporate control model for a given firm has been argued to depend on its diversification strategy. Since each firm can have a distinct diversification strategy the internal organizational arrangement must differ between firms as well. Consequently, because diversification strategy applies to the entire firm the focus is on control differences across, but not within firms. According to the *contingency hypothesis* (Markides & Williamson, 1996), the M-form is expected to be appropriate for unrelated-diversified firms, whereas related-diversified firms are expected to be better off with a CM-form (Hill, 1988a, 1988b, 1994; Hill, Hitt & Hoskisson, 1992; Hill & Hoskisson, 1987; Hoskisson, 1987). Empirical tests of the contingency hypothesis can be found in several studies. They seem to agree that the M-form is more appropriate for unrelated diversification than for related diversification (Hill, 1988b; Hoskisson, 1987; Hoskisson, Harrison & Dubofsky, 1991; Lamont, Williams & Hoffman, 1994). This does not automatically imply that highly or unrelated-diversified firms should choose an M-form, because there is some evidence of superior performance of the CM-form for these firms (Hill, 1988a, 1988b). In addition, there are doubts about the suitability of the CM-form for related-diversified firms. Although Hill (1988b) reports that these firms are most profitable when they have adopted the CM-form, Markides and Williamson (1996) find that the CM-form is only appropriate for some types of strategic relatedness. Therefore, the results of the tests of the contingency hypothesis are inconsistent.

In more recent studies, Williamson and Bhargava's (1972) M-form and CM-form have evolved into, respectively, the *competitive* organization and the *cooperative* organization (Hill, 1994; Hill et al., 1992). Other exponents of the second stream of research on the organization of the diversified firm are Goold and Campbell (1987). They identified eight management styles for the corporate offices of diversified corporations, such as *strategic planning* and *financial control*. A possible explanation of the inconsistent results of tests of the contingency hypothesis can be found in the design of the empirical studies of these more recent corporate control models. Hill et al. (1992) did not manage to test relationships with product diversification at the level of the competitive and the cooperative organization. Instead, they had to apply a "reductionist analytical strategy" (Hill et al., 1992, p. 518),

meaning that they tested relationships at the level of the control mechanisms that make up the two organization forms, such as centralization and evaluation. The eight management styles Goold and Campbell (1987) identified, were based on a study of only sixteen firms. Each management style represents a specific combination of two control mechanisms: the influence the corporate office has on the strategic plans for the divisions and the type of control exercised by the corporate office. If a study of only sixteen firms already yields eight combinations, a study of additional firms may produce even more possible combinations of the two control mechanisms.

Both studies indicate that corporate control models, although didactically attractive, may not be not very realistic (Hill et al., 1992) or parsimonious (Goold & Campbell, 1987) representations of the organization of diversified firms. Focusing on specific corporate control mechanisms could be more productive. This is what the next stream of research entails.

Corporate control mechanisms

The third stream of research on the organization of the diversified firm appears to be a loose collection of conceptual (e.g., Dundas & Richardson, 1982) and empirical (e.g., Vancil, 1978), and inductive (e.g., Chandler, 1991) and deductive (e.g., Hitt & Ireland, 1986) studies that have been performed over a long period of time (e.g., Berg, 1969; St. John & Harrison, 1999). What they have in common is a focus on the relationship between diversification strategy and one or more mechanisms the corporate office of a diversified firm can use to control its divisions. Mechanisms that are most frequently proposed are strategic planning, allocation of resources, monitoring of performance, selection and rotation of key personnel, compensation of managers, coordination, and centralization of services (see, e.g., Berg, 1969, 1973; Collis & Montgomery, 1998; Dundas & Richardson, 1980, 1982; Galbraith & Nathanson, 1978; Grant, 1988; Hall, 1987; Mintzberg, 1979; Pitts, 1977; Porter, 1985, 1987; Vancil, 1978). The pattern that emerges from the available studies is that firms do not adopt, for example, either an M-form or a CM-form to manage diversification. Instead, their corporate offices can choose from a rather wide array of mechanisms to manage diversification. They are able to substitute mechanisms and they are not forced to choose extreme versions of the mechanisms, but can opt for more intermediate positions (see also Van Oijen & Douma, 2000).

Business unit-specific control

The corporate focus of the studies described so far has been criticized for not recognizing the specific circumstances of individual business units. Indeed, in most diversified firms, strategic variety among the business units along various dimensions is likely to occur (Calori et al., 1994). For example, business units within one firm can differ with respect to the uncertainty and complexity of their environments (Ghoshal & Nohria, 1989; Govindarajan, 1984; Nohria & Ghoshal, 1994), the maturity of the industries they are active in (Chandler, 1991; Collis & Montgomery, 1998; Grant, 1988), the resources and capabilities they own (Ghoshal & Nohria, 1989; Nohria & Ghoshal, 1994; Tsai, 2001), the degree of resource sharing with other business units of the same firm (Govindarajan & Fisher, 1990; Gupta & Govindarajan, 1986; Tsai, 2000), and their missions and strategies (Gupta, 1987; Hamermesh & White, 1984). This requires the application of different control mechanisms by the corporate office, resulting in differentiation of control within one firm (Dess et al., 1995; Goold & Luchs, 1993; Govindarajan, 1984; Gupta, 1987).

This can be illustrated with portfolio planning. Portfolio planning techniques highlight the importance of a balanced portfolio of businesses. The balance can be achieved by assigning different missions to the business units. For example, business units with a strong position in a low growth industry should harvest, in order to generate cash flows. The cash flows are redirected to promising business units with a build mission. Business units with dissimilar missions require different corporate control instruments (Bettis & Hall, 1983; Haspeslagh, 1982). For example, the compensation of a manager of a business unit with a build mission should be based on the improvement of the competitiveness of the business unit, even if this harms short-term profitability. In contrast, the manager of a business unit with a harvest mission should be rewarded for his or her ability to increase short-term profitability.

The relationships between the strategic characteristics or contexts of business units and corporate control mechanisms have been the subject of a number of empirical studies (Golden, 1992; Govindarajan, 1984, 1988, 1989; Govindarajan & Gupta, 1985; Govindarajan & Fisher, 1990; Gupta, 1987). In these studies, business unit mission, competitive strategy, and environmental uncertainty are related to a wide range of administrative arrangements, such as degree of decentralization, degree of subjectivity used in evaluation and reward systems, budgetary control style, openness and informality of corporate-business unit

relations, and selection of business unit managers. Overall, the studies provide support for the argument that corporate control mechanisms should be tailored to the needs of individual business units.⁵ Nonetheless, studies that propagate internal differentiation of control mechanisms have not remained free from criticism either. After all, differentiation of control does have clear drawbacks, as it is complex to implement (Markides, 2002) and may lead to fragmentation (Bartlett & Ghoshal, 1987) and jealousies (Goold & Campbell, 1987) among business unit managers.

Conclusion

Above we classified research on the organization of the diversified firm into four categories. From the first to the fourth category, the degree of complexity increases. The first two seem overly simplistic. The notion that one specific type of multidivisional structure is optimal for all large firms has to be rejected, because firms can follow different diversification strategies, which require different organizations. The notion that firms can choose from a number of corporate control models also has to be approached with skepticism, given the inferences that can be drawn from several empirical studies. In practice, a virtually infinite number of corporate control models might exist, because corporate offices can choose from a wide array of mechanisms to manage product diversification and mechanisms can be substituted and used to varying degrees, as indicated by the third category. The fourth category seems to entail even more complexity because the appropriate configuration of mechanisms can now differ between business units as well. Hence, each business unit may present corporate center management with a different control problem, requiring different combinations of control mechanisms within the firm.

Thus, two views prevail. Both focus on the various mechanisms the corporate office can use to control its business units, but they differ in the level of analysis. Whereas the first view concentrates on the corporate level, the second one takes individual business units as the

⁵ The subsidiaries of a multinational are almost by definition characterized by strategic variety, because of the different geographic regions they usually work in. Therefore, it should not come as a surprise that the notion of *differentiated fit* became a popular theme in international management research as well. For example, Bartlett and Ghoshal (1989), in their seminal work on the management of multinational corporations, found that some of the most successful companies they studied were able to differentiate their systems of planning and control to fit the contexts of different units. Nohria and Ghoshal (1994) reported similar findings in a study of headquarters-subsidary relations in 54 multinational firms. Recent attention is directed towards differences in role or strategic importance of subsidiaries in the corporate network and the implications these roles have for the nature of the headquarters-subsidary relationship (Birkinshaw, Holm, Thilenius & Arvidsson, 2000; Birkinshaw, Hood and Jonsson, 1998; Birkinshaw & Morrison, 1995; Ghoshal & Nohria, 1989; Gupta & Govindarajan, 1991; Nohria & Ghoshal, 1994; O'Donnell, 2000).

primary level of analysis. Both views provide interesting insights into the organization of diversified firms and received considerable empirical support. However, both views also have their limitations. For example, a focus on the corporation as a whole ignores potential differences that exist at lower levels in the organization (Govindarajan, 1988; Gupta, 1987; Nohria & Ghoshal, 1994). Similarly, a focus on individual business units ignores the wider implications, such as the costs and complexities associated with the adoption of different styles of control under the same corporate roof (see, e.g., Collis & Montgomery, 1998; Goold & Campbell, 1987; Lorange, 1993; Markides, 2002; Prahalad & Bettis, 1986). Hence, a thorough understanding of control of business units in diversified firms is hindered because of the existence of two distinct views, neither of which is superior to the other per se, and the suggestions of which seem to be in conflict with one another. For example, it remains unclear whether control is a corporate-wide phenomenon that should be aligned with the strategic context of the firm as a whole, or whether it should be treated as a business unit-specific phenomenon, tailored to the needs of individual business units. As long as researchers continue to focus on either the corporate or the business unit level of analysis, reconciliation of this issue seems out of reach. Hence, in this paper the solution is found in adopting a multilevel perspective.

2.3 Levels issues and underlying assumptions

Levels issues are receiving more and more attention in organization theory and research (see, e.g., Klein & Kozlowski (2000) for an overview of developments in multilevel theory development and data analysis). The importance for conducting strategy research has been elaborated upon as well (see Dess et al., 1995). The multilevel perspective highlights that studies with a single-level focus often fall short in developing a full understanding of the complexity of many organizational phenomena. After all, the typical organization is multilevel in nature and many relationships exist between the different levels (Klein et al., 1994). Hence, the focus on a single level of analysis⁶ almost by definition implies making,

⁶ The emphasis of this paper is on developing a theoretical framework. Hence, level of analysis should not be equated with level of data analysis. Rather, it refers to the level of the target (e.g., business unit or corporate level) or level of the theoretical construct (e.g., control) that we examine (cf. Klein, et al., 1994; Kozlowski & Klein, 2000). Klein and colleagues (1994) distinguish between level of theory, level of measurement, and level of statistical data analysis. The levels of measurement and statistical data analysis do not play a major role in this paper as they pertain to empirical research.

often implicitly, simplifying assumptions about the others. For example, studies that examine control as a corporate-level issue, seem to be built on a homogeneity assumption (cf. Klein et al., 1994), which is typical when the focus is on a collective, higher-level phenomenon under the assumption that the entities that belong to this collective are similar with respect to the phenomenon of interest. Indeed, the focus is on determining a control style for the corporation as a whole without taking into account differences that may exist in the controls used for different business units. On the other hand, the focus on control of individual business units seems to be built on the assumption of independence (cf. Klein et al., 1994), which is typical for studies that focus on an individual entity without taking into account the higher-level context in which this entity is embedded and without taking into account the other entities that belong to the same higher-level collective. The focus of these studies is on determining the appropriate control mechanisms for an individual business unit. The corporate-level context in which these business units operate and the control mechanisms used for other business units in the corporation do not usually play a major role⁷. Hence, it remains unclear what the implications of such a tailor-made approach are for the corporation as a whole.

Aligning the two views requires adopting a multilevel perspective. One of the fundamentals of such a perspective is the recognition that top-down and bottom-up processes link together concepts that have previously been examined at a single level only (Kozlowski & Klein, 2000). For example, top-down processes may refer to the group or organizational context in which individuals operate and that influences the behaviors, actions and perceptions of these individuals. On the other hand, bottom-up processes may refer to the influence of the behaviors, actions and perceptions of individuals on the context of the group or organization to which they belong. With these bottom-up processes multilevel researchers accentuate that many collective phenomena emerge from the characteristics of lower-level entities that belong to that collective. As a result, a phenomenon that becomes manifest at, for instance, the group level often characterizes the patterns, shared properties or variability among individual group members' contributions to that group level phenomenon (cf. Kozlowski & Klein, 2000). Examples include group size, cohesiveness, working

Needless to mention that the levels of theory, measurement and data analysis should be in line if one is to avoid drawing erroneous conclusions.

⁷ Although it is not uncommon to include corporate factors as control variables in statistical tests of business unit-level phenomena (see, e.g., Gupta, 1987), the corporate-level effects and implications fall outside the scope of these studies.

participation, demographic diversity and performance. Each of these can be used to characterize a group but they cannot be separated from the individuals that form the group.

In a similar vein, the relevant concepts of studies on control of business units can be linked to one another. The studies have in common that they examine the contingency relationships between strategic context, control mechanisms, and performance, but they differ in the levels at which these concepts are examined. An important feature of the framework that we present next is the recognition of the multilevel nature of these three concepts. Hence, we recognize that strategic context, control, and performance manifest at the corporate and at the business unit level⁸. A discussion of the cross-level linkages explains how these concepts, which have previously been examined at separate levels, relate to one another. In doing so, we take issue with the simplifying assumptions of previous studies. For example, the homogeneity assumption is relaxed because internal differences between business units are accounted for in the framework. Moreover, the independence assumption is considered unrealistic because business units do not operate in a vacuum but are influenced by factors at a higher level in the corporation. In turn, these higher-level factors are in large part also influenced by the characteristics of individual business units. Altogether, the adoption of a multilevel perspective should lead to reconciliation of the issues that remain unresolved when the two levels of analysis are kept strictly separated.

In sum, we aim to identify the relevant constructs at different levels, make explicit the links between them, and provide new insights by shifting from a single level to a multilevel of analysis. In essence, this is what multilevel theory development is about (see, e.g., Klein, Tosi & Cannella, 1999; Kozlowski & Klein, 2000; Morgeson & Hofmann, 1999).

⁸ In a sense, control can also be thought to reside at an intermediate level as it characterizes the relationship between corporate headquarters and its business units. However, the fact that control may be business unit specific justifies its treatment as a business unit-level factor. The corporate level equivalent captures the characteristics of all headquarters-business unit relationships within the corporation, as we will explain later. The treatment of control as a business unit-level or a corporate-level phenomenon is in line with the distinction made in the two prevailing views discussed earlier.

2.4 Theoretical framework

Figure 1 presents the multilevel control framework for a company with n business units. Each business unit operates in a specific strategic context and is subject to the specific control mechanisms used by corporate headquarters, which includes corporate center management and supporting staff. Business unit strategic contexts can be characterized along a number of dimensions, including for instance, competitive strategy, mission, role in the corporate portfolio, or the degree of resource sharing with other units in the corporation⁹. Similarly, the control relation between corporate headquarters and a business unit can be characterized on such dimensions as the degree of centralization and the criteria used to evaluate business unit performance. Hence, it may include any combination of control mechanisms corporate headquarters have at hand to manage, coordinate, monitor or steer the actions of a business unit. In line with the findings of the studies that have taken the business unit as their level of analysis, we argue that business unit performance is positively affected by the degree to which controls are tailored to business unit context¹⁰. The corporate-level conceptualizations of strategic context, control, and performance are based on the aggregated bottom-up influences of all the business units in the corporation. In turn, the corporate-level concepts strategic context and control form the context in which individual business units operate and exert influence on these business units in a top-down relation. In the remainder of this section the key linkages will be elaborated upon.

⁹ For the sake of simplicity these horizontal linkages between business units are not visualized in the framework. They are included as characteristics of strategic context, however. In a similar vein, lateral integration devices, such as committees, liaison positions, or project teams, are treated as part of the range of control mechanisms that can be used in a headquarters-business unit control relation. The argument is that the use of these mechanisms can differ between business units, although we acknowledge that the horizontal nature of these devices implies that the use of these mechanisms for one business unit, almost by definition implies the use for at least one other business unit as well. Hence, we do not discard the growing attention paid to multi-unit organizations as intraorganizational networks (see, e.g., Tsai, 2000, 2001) but consider these lateral linkages as part of the debate: one can examine the existence of lateral linkages at a corporate or at a business unit level.

¹⁰ It is by no means our intention to provide a full explanation of performance. Rather, we limit ourselves to the performance implications of control.

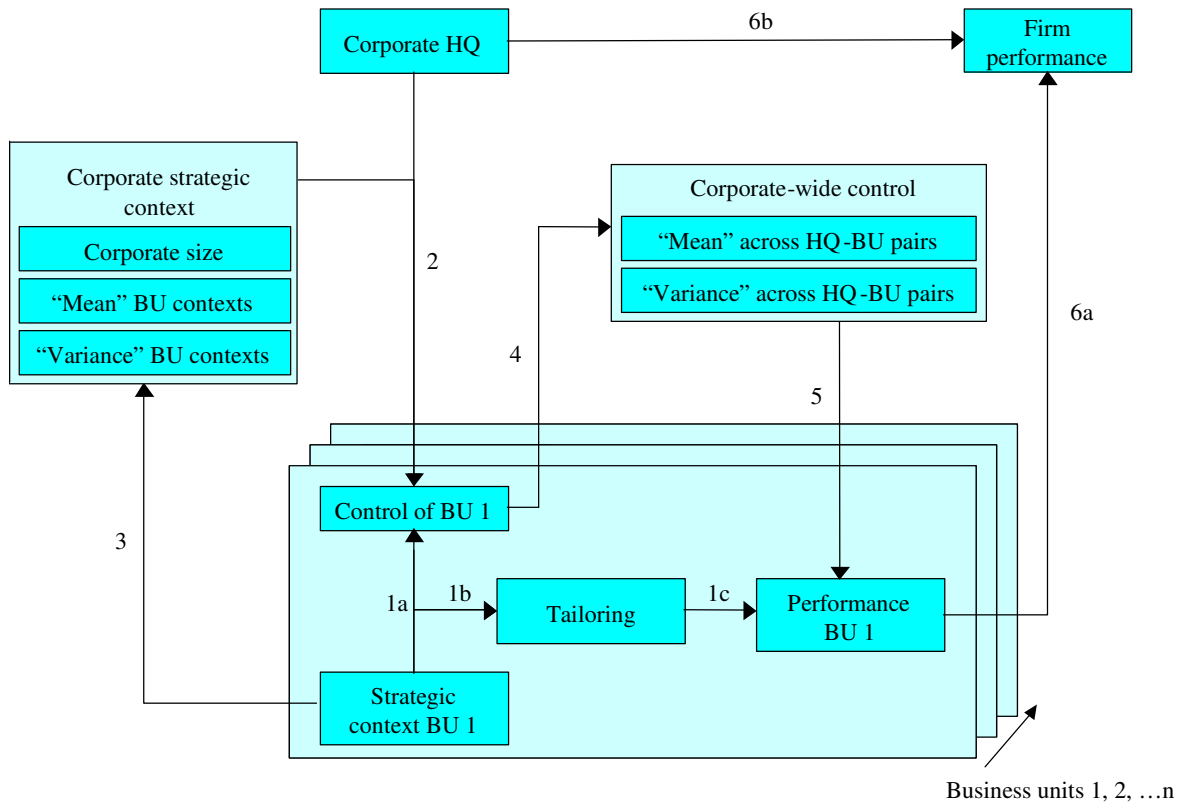


Figure 1: Multilevel framework of control of business units in multidivisional firms.

Link 1: Control of individual business units. Linkage 1 is a set of relationships that represent the dominant focus of the second view of control in diversified firms: the primary level of analysis is that of the individual business unit. In short, the general line of reasoning can be summarized as follows. Each business unit can be characterized along dimensions such as its strategy, environment, or role in the corporate portfolio. The characteristics of an individual unit place requirements on the controls used for that business unit (1a). Tailoring¹¹ refers to the degree to which the controls match the business unit's characteristics (1b), which should ultimately enhance business unit performance (1c). Theoretically, this can be explained using a number of perspectives. Here we rely on the information-processing

¹¹ We are unsure about who first coined the term tailoring in this context although Haspeslagh (1982) was probably one of the first to speak of corporate top managers who tailor their attention to each business unit. More general terms such as fit, matching, and aligning are also frequently used in subsequent studies to emphasize the contingency nature of this relationship. Moreover, most studies have usually equated tailored control with differentiated control. We will explain later that the two need to be treated as separate concepts.

perspective, which is widespread in organization theory and has been widely used in studies of control of business units in diversified (see, e.g., Golden, 1992; Govindarajan, 1986; Gupta, 1987) and multinational (see, e.g., Egelhoff, 1988) corporations¹². The information-processing perspective (see, e.g., Egelhoff, 1988; Galbraith, 1977; Tushman & Nadler, 1978) holds that organization design variables should be aligned with the information-processing requirements imposed by an organization's strategic context to ensure its effectiveness. Because organizational design variables differ in the information-processing capacities they possess, the nature and use of them differs across strategic contexts as well. Hence, the controls used for an individual business unit should have enough information-processing capacity to deal with the information-processing requirements of that business unit's strategic context. Consider, for example, the difference between a unit in a mature, stable industry and one that operates in a turbulent, newly-established business, where new product development and innovation are central to success (see, e.g., Chandler, 1991). Whereas strict financial targets can be imposed on the former, performance evaluation of the latter requires more information-richness in the controls to adequately assess the quality of decisions rather than the magnitude of their short-term financial contributions (cf. Hitt, Hoskisson, Johnson & Moesel, 1996). Moreover, the information-processing perspective also holds that, in the face of high environmental uncertainty, decision-making authority should be decentralized to the business unit level to allow for timely responses to environmental changes and appropriate local decision-making (Golden, 1992). Alternatively, in the case of interdependence with other business units in the firm more decision-making authority is placed in the hands of corporate center management because the wider perspective available at a higher level allows for better inter-unit coordination (cf. Egelhoff, 1988). Empirically, these ideas have been supported as well (see our literature review). Hence, the message of these first relationships is unequivocal: business unit performance benefits from the tailoring of control to business unit strategic context.

¹² The information-processing perspective recognizes the various dimensions of control, unlike, for example, agency theory, which is commonly used for only some dimensions of control, notably incentive systems. However, the use of agency theory to theoretically ground the importance of fit between business unit context and control mechanisms used by the corporate center is recognized (see, e.g., O'Donnell, 2000), just as we recognize the use of Ouchi's control framework (Hennart, 1991), or some combination of the two (Govindarajan & Fisher, 1990).

Link 2: Corporate context and control of individual business units. The information-processing arguments above suggest a need to tailor control to the strategic context of an individual business unit. However, the information-processing capacities available at the corporate center may be limited and may prohibit the adoption of the control mechanisms that would be appropriate given the information-processing requirements of the individual business units. These limitations stem from the bounded rationality (Cyert & March, 1963; March & Simon, 1958) of corporate center management and supporting staff. The degree to which they can cope with uncertain and complex situations to a large extent depends on how well their information-processing capacities stick up with the information-processing requirements of the situation they face. Since this situation is not limited to an individual business unit but includes all business units the corporate headquarters is confronted with, the total corporate level information-processing requirements are a function of the overall corporate strategic context. This is recognized in the literature, which has identified a number of relevant dimensions of corporate strategic context, including the overall degree of relatedness in the portfolio, the overall degree of product-market uncertainty, the size of the corporation, and the need to cope with widely varying contingencies (see, e.g., Alexander, 1991; Henderson & Fredrickson, 1996; Hill, 1994; Hill & Hoskisson, 1987; Hitt et al., 1996; Markides, 1995). As we will discuss under link 3, however, these corporate strategic characteristics can be conceptualized as originating from the strategic contexts of the individual business units.

When the information-processing requirements of the corporate strategic context exceed the available information-processing capacity, corporate office executives may economize on the scarce capacities available at the corporate center by using an arm's length style of management. This entails delegation of decisions to the business level and the use of relatively easy to measure financial criteria to assess business unit performance, even if this is inappropriate given the strategic contexts of the business units¹³. Similarly, there is a tendency of corporate center management teams to cling to the limited range of control mechanisms they are most familiar with when faced with widely varying contingencies in their portfolio, in part because the prevailing worldview makes apparent dissimilarities in business unit

¹³ Alternatively, and not necessarily related to information-processing limitations, corporate center executives may also have the tendency to interfere in business unit affairs without direct need or install complex mechanisms of control and coordination to seek synergy in places where there is no potential for it. Unproductive interference and redundant hierarchy could be the results (Goold & Campbell, 2003).

contexts remain unnoticed (Prahalad & Bettis, 1986). In both cases the control mechanisms adopted may deviate from those required by an individual business unit¹⁴. Hence, linkage 2 suggests that corporate level information-processing requirements and capacities can impose constraints on the ability to tailor control in individual headquarters-business unit relationships (cf. Egelhoff, 1988).

Link 3: Corporate and business unit strategic context. In the previous linkage, we discussed a number of likely sources of information-processing requirements. These sources include the size of the corporation and the overall degree of uncertainty, relatedness, and variety in the firm's portfolio. The existing manners in which these corporate level strategic dimensions have been conceptualized do not offer much help in our multilevel framework, however. For example, discussions on corporate strategic context focus predominately on the conceptualization and measurement of a firm's product diversification type. And although the bottom-up nature of this corporate-level construct is acknowledged (see, e.g., Hoskisson, Hitt, Johnson & Moesel, 1993), internal variations in degree of relatedness between business units do not usually play a major role. The same holds for corporate-level conceptualizations of the overall degree of product-market uncertainty. Furthermore, although strategic variety should capture these internal variations, this concept remains largely unspecified in the corporate-level studies discussed in our literature review. This is unfortunate. For instance, Grant (1988, 2002) already pointed at the fact that business units can be considered strategically unrelated, or different, if they require different management and control approaches from the corporate center. However, whereas Grant points at the difficulties of specifying the relevant strategic characteristics of business units to determine strategic relatedness, we would argue that the existing studies on business unit specific control provide a good starting point. For example, the relevance of environmental uncertainty, business unit mission, competitive strategy, and degree of resource sharing has been theoretically grounded and empirically supported by a number of previous studies, as we saw in our literature review. Hence, a corporate-level conceptualization of strategic context based on the lower-level strategic context of the individual business units seems appropriate.

¹⁴ This is one of the reasons why limits to efficient diversification exist. The diversification literature argues that firms cannot diversify indefinitely (Hill, 1994; Markides, 1995). At a certain point information-processing limitations prohibit further profitable diversification (see, e.g., Palich et al., 2000). Inappropriate controls cause problems when firms diversify beyond this point. As a reaction to this, firms could either increase their information-processing capacity or reduce their level of diversification.

Linkage 3 visualizes the relationship between business unit- and corporate-level strategic context. This bottom-up relationship indicates that individual business units form the basis for the corporate-level conceptualization of strategic context, just as individual members of a group often form the basis for characterizations of the group as a whole. Besides the size of the corporation, which is an important indicator for the complexity of the control task facing the corporate center (see also Hill & Hoskisson, 1987)¹⁵, two other dimensions stand out. These other dimensions capture the “pattern” and “variability” of individual business unit characteristics (cf. Kozlowski & Klein, 2000, p. 29), for which we use the labels *mean* and *variance* respectively¹⁶. The mean reflects the average corporate position on each of the relevant business unit characteristics. For example, it reflects the average degree of uncertainty or resource sharing across the whole portfolio of businesses units. It also reflects the average corporate standing on other important business unit characteristics, such as business unit strategy and mission. The variance, then, refers to strategic variety (cf. Prahalad & Bettis, 1986) or the variation in the strategic contexts of all the business units in the company. Inclusion of strategic variety acknowledges that within diversified firms business units may face different environments, play different roles, or pursue different strategies or missions. Moreover, it acknowledges that business units may display different degrees of relatedness, leading some to become more involved in resource sharing than others (Gupta & Govindarajan, 1986; Govindarajan & Fisher, 1990; Tsai, 2000). Note that strategic variety can be low or non-existent. This would, for example, reflect a situation where business units have identical strategic characteristics. Also, note the distinction between two kinds of relatedness. The first refers to the average degree of resource-sharing potential that exists across all the business units in the corporate portfolio. Hence, it is represented as a mean in the framework and resembles the traditional related diversification category so dominant in corporate-level studies of control. The second refers to the degree of strategic variety. In this respect a firm would be classified related when the business units have identical strategic characteristics, irrespective of their resource-sharing potential (cf. Prahalad & Bettis, 1986). This type of relatedness has also been labeled organizational relatedness, to refer to the degree to which control of business units can be organized in similar ways (Collis, 1995).

¹⁵ In this context Hill and Hoskisson (1987) speak of corporate span of control and the number of business units that are controlled by corporate headquarters directly as a more concrete proxy of corporate size.

¹⁶ It is not our intention to discuss the exact operationalization and measurement of constructs. Hence, mean and variance should not be strictly interpreted in terms of the statistical equivalents. However, we believe that the chosen labels do capture a firm’s standing on a number of critical strategic characteristics.

Link 4: Control as a corporate-level concept. Similarly, a conceptualization of control at the corporate level may be based on the mean and variance in the control mechanisms used in each headquarters-business unit relationship. For example, firms may display a high average degree of decentralization across the business units or make high overall use of financial controls to assess the performances of their business units. This average position is in line with previous studies that have examined control at the corporate level, as the focus of these studies is on the overall corporate policy towards a, potentially, wide array of control mechanisms available to corporate center management (see, e.g., Hill et al., 1992). The corporate level focus of the studies makes them treat these mechanisms as homogeneous across the business units within firms, however. Therefore, variance is included in our framework as an indicator for the degree of control differentiation that exists in a firm's portfolio. For example, whereas mean in centralization would be indicative for the corporation's standing on this control mechanism, the variance would indicate the degree to which the business units of the firm differ in terms of the decision-making authority they have. Naturally, the higher the variance in centralization, the lower the accuracy of mean in centralization as a sufficient statistic for classifying corporate control style. Together, however, mean and variance provide a more accurate characterization of a firm's configuration of control mechanisms.

Link 5: Corporate control and the effects on business unit performance. Linkage 5 suggests that business unit managers compare the controls imposed on them with those used for other business units in the firm. A number of problems may result when this comparison reveals differences with the rest of the corporation, or at least with the business units that serve as reference group for the focal business unit. For example, differences may lead to jealousies and create ambiguities as business unit managers fail to understand the different styles their superiors use (Goold & Campbell, 1987). Bartlett and Ghoshal (1987) pointed at the danger of fragmentation as business units receive different treatment from the corporate office. This issue was also raised by Collis and Montgomery (1998), who found that uniform compensation systems facilitated rotation of managers and, consequently, transfer of knowledge and experiences throughout the firm.

Additional insights come from literature on procedural justice, which focuses on the perceived fairness of decision-making processes (see, e.g., Leventhal, 1980; Lind & Tyler, 1988; Thibaut & Walker, 1975). According to the procedural justice perspective, observed

differences may cause business unit managers to question the inherent fairness of the corporate control system because dissimilar treatments by corporate executives may be associated with discrimination and political favoritism (cf. Kim & Mauborgne, 1993b, 1995). Unfair treatment triggers a variety of negative attitudes, including distrust in superiors and low commitment to the organization as a whole (see, e.g., Folger & Konovsky, 1989). These attitudes may in turn result in lack of cooperative behavior, unwillingness to share information, and sabotage of future decision processes (Kim & Mauborgne, 1998; Korsgaard, Schweiger & Sapienza, 1995). Given these observations, and given the fact that the quality of strategic decision making in multidivisional firms usually requires some degree of interplay and cooperation between corporate and business level executives (Lorange, 1993), unfairness perceptions are expected to place the performance of business units at stake. Linkage 5 is included to capture these negative effects of unfairness perceptions as well as the ambiguity, jealousies, and fragmentation discussed before.

In multilevel theory the relative or comparative effect is known as frog-pond effect¹⁷, which implies that individual behavior is strongly affected by the assessment of one's relative standing in a reference group (Firebaugh, 1980). In a similar vein, the managers of business units compare their situation with those of other business units in the firm. This comparison may yield a negative or positive evaluation of their own treatment, or it may reveal no differences at all. This suggests that differences may also have a positive effect on business unit managers' attitudes. However, we would argue that the observed differences are, in general, more likely to cause negative effects for at least three reasons. First, to the extent that differences may be positive for some but negative for others, resource and knowledge sharing between interdependent business units will undoubtedly suffer from the animosity of some of the parties. Second, the exact treatments of peers might be largely unknown. However, just as people overestimate the pay levels of co-workers (Bloom, 1999) they may also overestimate the treatments received by the company headquarters. Third, fairness perceptions are largely based on the treatment of the group as a whole (Naumann & Bennett, 2000). To the extent that differences may be thought to result from discrimination of some group members, they will influence the perceptions even of those managers that can be considered better off than

¹⁷ The frog-pond metaphor is used to illustrate the comparative effect: depending on the size of a pond the very same frog may be considered large or small (see also Klein et al., 1994). The effect applies to a variety of situations, including, for example, school performance and income satisfaction (Firebaugh, 1980).

the others. Moreover, these managers may fear becoming the victim of political favoritism in the future themselves.

Link 6: Consequences for corporate performance. Linkages 6a and 6b capture the corporate-level performance implications of control of business units. Linkage 6a indicates the bottom-up relationship that exists between corporate performance and the performance of individual business units. Such a bottom-up linkage is in line with the arguments of others, who claimed that the effects of value-creation in diversified firms become most apparent at the level of individual business units (Dess et al., 1995; Golden, 1992; Gupta, 1987; Montgomery, 1985). Indeed, although some value creation will relate primarily to the corporation as a whole, the benefits from operating in multiple businesses materialize especially at the level where competitive battles are fought (cf. Gupta, 1987; Gupta & Govindarajan, 1986; Govindarajan & Fisher, 1990; Hill, et al., 1992; Markides & Williamson, 1996; Porter, 1985). Hence, linkage 6a suggests that control of business units affects corporate performance through its effect on the performance of individual business units. The performance implications for individual business units were discussed as part of the argumentations used for links 1 and 5. We will refrain from repeating these arguments here and limit ourselves to pointing at the fact that the corporate performance implications may differ between the business units in a firm. For example, whereas a corporate center may succeed in tailoring control to the contexts of some business units, they may fail to do so for others. In a similar vein, negative reactions to control differentiation may not be equally strong across business units. Hence, the corporate influence on business unit performance can differ between business units in the same corporation (Brush & Bromiley, 1997), and so do the contributions of individual business units to the performance of the corporation as a whole.

Finally, linkage 6b points at the relationship between corporate headquarters and corporate performance. Again, we limit our discussion to control-related effects, which we believe to be negative in this case. The argument is that the control of business units incurs costs, which can be associated with the required information-processing capacity at the corporate center (see, e.g., Hill & Hoskisson, 1987; Hill, 1994; Jones & Hill, 1988). As discussed before, control of business units places demands on the information-processing capacities of corporate center executives and their supporting staff. As these demands become more severe, either the available capacity needs to be expanded, or else a failure to adopt the

appropriate control mechanisms can result. In both cases the “costs” of control rise. Either directly, for instance through increases in the size of corporate center staff and the development of sophisticated management information systems, or indirectly, because restrictions at the corporate level hinder the tailoring of control to business unit circumstances¹⁸. The latter manifest in lower performance of individual business units, which affects corporate performance through linkage 6a. The former manifests at the corporate level predominately, which explains linkage 6b at the top of our framework.

2.5 Implications

In the preceding sections we presented our integrative framework of control of business units in diversified firms by incorporating two dominant levels of analysis. We made explicit the assumptions of previous studies and illustrated how, by relaxing these assumptions, a more complete picture can be drawn of this topic. At the same time, the concepts and relationships that have dominated previous studies remain visible. It becomes apparent, then, that the two distinct views on the organization of diversified firms need not be mutually exclusive. In fact, our framework shows that control mechanisms can be tailored to business unit strategic contexts *and* corporate strategic contexts at the same time. Moreover, it shows that this can lead to uniformity *or* differentiation in the control mechanisms used. This can be illustrated with an example. Suppose two firms, A and B, are identical in the sense that both of them display a high average degree of resource sharing across their portfolio and both show the accompanying control characteristics, such as a high average degree of centralization to facilitate coordination. The firms differ in terms of variance, however. Whereas firm A displays low levels of variance in resource sharing across business units (i.e., business units are equally involved in resource sharing), firm B witnesses a high degree of variance (i.e., business units differ considerably in the degree of resource sharing with other units in the corporation). To the extent that the amount of variance in degree of centralization matches the amount of variance in resource sharing, both firms exhibit control styles that are tailored

¹⁸ The results could be unproductive interference in business unit affairs and controlling against the wrong targets (Goold & Campbell, 2003; Goold and Luchs, 1993; Markides & Singh, 1997; Prahalad & Bettis, 1986). In this context, Prahalad and Bettis (1986) speak of the hidden costs of diversification. Other costs result from opportunistic behavior of business unit managers (see, e.g., Hill, 1994; Jones & Hill, 1988). In our framework these costs have a dampening effect on business unit performance, mainly through the failure of company headquarters to adopt the adequate control mechanisms given a business unit’s context.

to the business units as well as to the context of the corporation as a whole. Naturally, firm A would be characterized by a low degree of control differentiation whereas firm B would be characterized by a high degree of control differentiation¹⁹.

As a response to the complexities inevitably involved in differentiating control to fit the strategic contexts of individual business units, corporations have been advised to create portfolios of business units with similar strategic characteristics (see, e.g., Collis & Montgomery, 1998; Goold & Campbell, 1987). Indeed, the framework implies that this enables corporations to achieve the benefits of tailoring, while preventing the difficulties of differentiating. However, creation of uniform portfolios seems an advice too simplistic for most of today's corporations. After all, the mere fact that business units evolve, industries change, and newly acquired firms become part of a corporate family, inevitably leads to differences across the whole range of business units in most corporate portfolios. In fact, the claim has been made that the ability to keep entrepreneurial ventures structurally and culturally separated from the core divisions is a prerequisite for large firms to exploit their core activities while exploring new ones at the same time (Day & Schoemaker, 2000; Markides, 1998; Tushman & O'Reilly, 1997). In a similar vein, the creation of balanced portfolios almost by definition implies different treatments by the corporate center because business units will be assigned different missions (Bettis & Hall, 1983; Haspeslagh, 1982).

Hence, discussions should not be limited to the inherent goodness or badness of control differentiation but may focus more on how to deal with the complexities associated with it. In that respect our framework points at two crucial issues. First, it points at the complexities at the corporate level. Limitations in the capacities available at the corporate center could very well hinder the effective differentiation in the first place. Alternatively, investing in information-processing capacity could increase the costs at the corporate level to levels where the benefits of tailoring at the business unit level are outweighed by the costs associated with it at the corporate level. Second, the framework points at the complexities at lower levels. After all, the use of different control styles may lead to fragmentation, jealousies, confusion, and feelings of unfairness, which may have a dampening effect on business unit performance. Whereas previous studies focused on the importance of tailoring,

¹⁹ At least, based on this one dimensions of control: the degree of centralization. We could have picked any other dimension of control for illustration purposes.

our framework points at the importance of taking into account the differentiation that could, but need not necessarily, be associated with it as well. This implies that control differentiation should be given a more prominent role in studies on the control of business units in diversified firms.

Using multilevel thinking we proposed a conceptualization of corporate-level concepts on the basis of business unit-specific characteristics. The proposed conceptualizations complement and refine existing ones in at least three ways. First, the framework emphasizes organizational entities (business units) rather than industries, segments, or product-market combinations, as the basis for determining corporate strategic context. In doing so, we recognize the existence of relevant strategic characteristics of business units, other than the characteristics of the industries they operate in. In a similar vein, it recognizes that sometimes industry characteristics are poor indicators for the control mechanisms required from the corporate center. For example, resource sharing potential between industries or segments could be accommodated for by grouping related activities together under business unit management to stimulate intra-business unit coordination, while keeping inter-business unit interdependence to a minimum (cf. Goold & Campbell, 2000). Second, our corporate-level conceptualizations of strategic context and control include mean and variance to capture both a corporation's overall standing as well as the internal variation. Traditionally, equivalents of the former have dominated corporate-level studies of control. The framework implies that assessments of variation or dispersion may be equally important because high levels of internal variation may lead to false conclusions when one relies on mean scores only. Again, this can be illustrated with the example of the two firms, A and B, used earlier. Now suppose that firm B, characterized by a high degree of variance in resource sharing, adopts a standardized control style in which business units are given an equal, fairly low, degree of autonomy for decision making. The firm could, again, display a fit between the average degree of resource sharing and the average degree of autonomy in the portfolio. However, control would not be tailored to the specific contexts of individual business units. Redundant or inappropriate interference by company headquarters (Goold & Campbell, 2003; Prahalad & Bettis, 1986) or inability to react quickly to environmental changes (Markides, 2002) could be the results. Finally, the framework provides a basis for assessments of strategic variety, a corporate level concept that has remained largely unspecified in the literature. Although a wide variety of dimensions could be relevant in determining the degree of differences in business unit strategic contexts (Grant, 1988, 2002), the theoretical underpinnings and

empirical support for a number of them can be found in the existing literature on business unit-specific control. Hence, the multilevel perspective allows for a more profound assessment of strategic variety, one that is both theoretically grounded and empirically supported by previous research.

2.6 Concluding remarks

The multilevel perspective allowed us to align the two views that have dominated research on control of business units in diversified firms. Although distinct in the existing literature, the two views seem to be complementary rather than contradictory. By aligning both in a multilevel framework, a more comprehensive understanding of control of business units could be achieved. This is important considering the importance of the organization of diversified firms for the performance of business units and firms as a whole. The multilevel linkages between concepts that have previously been examined at either the corporate or the business unit level provide a more accurate foundation for the antecedents and performance outcomes of control. They also provide the basis for more refined measurements of traditional corporate-level concepts, such as corporate strategic context and the overall style of control.

The linking together of studies that differ in their levels of analysis can be considered one of the major contributions of the multilevel perspective in general, and multilevel research on organizational phenomena in particular. Therefore, multilevel research has contributed to the integration of different disciplines as well. For example, multilevel research combines the micro perspective of individuals, common in psychology, with the macro orientation of group, as is common in sociology (see, e.g., Kozlowski & Klein, 2000). Given its multidisciplinary, multilevel, and eclectic nature, the multilevel perspective provides an important avenue for future research in strategic management too, as researchers before us already pointed out (Dess et. al., 1995; Hoskisson, Hitt, Wan & Yiu, 1999).

3

Control in multidivisional firms: New insights from a multilevel analysis

3.1 Introduction

The effectiveness of large companies depends on their ability to establish integration between differentiated subunits in order to accomplish the task and purpose of the organization as a whole (Lawrence & Lorsch, 1967). This paper deals with a specific type of these large companies: the multidivisional firm. Multidivisional firms are organized into different divisions or business units, responsible for their own industry, region, or product-market combination. A crucial task for the corporate center, or corporate headquarters, is to establish control over the divisions. Control refers to the use of management instruments and organization design variables to ensure that divisions operate in congruence with the goals of the firm (cf. Ouchi, 1979). Examples of these instruments are centralization of decision making, horizontal integration, remuneration of division managers, and performance evaluation.

The literature on control in multidivisional firms can be divided into two distinct perspectives. According to one perspective, control is determined by corporate-level factors, such as corporate diversification strategy and size. For example, in firms that have adopted a strategy of unrelated diversification, few activities and decisions should be centralized at the corporate headquarters, resulting in a high autonomy for the business units. Since corporate-level factors are identical for each business unit, the consequence is that all business units of a firm are controlled in an identical way. This notion is worked out in a number of studies that

pay specific attention to the administrative differences between related and unrelated diversified firms (see, e.g., Hill & Hoskisson, 1987; Hill, Hitt & Hoskisson, 1992; Markides & Williamson, 1996). Proponents of the second perspective question this approach and argue that the characteristics of the business units of a firm can vary (see, e.g., Golden, 1992; Govindarajan & Fisher, 1990; Gupta, 1987). Control by the corporate headquarters should be tailored to the particular characteristics of each business unit, otherwise business unit performance will suffer. Examples of business unit characteristics that have been treated in the literature are the degree of resource sharing and environmental uncertainty and complexity. For example, these researchers have argued that business units of the same corporate family may display different degrees of relatedness, leading some to become more involved in resource sharing than others (Govindarajan & Fisher, 1990; Tsai, 2000). Accordingly, the degree of autonomy will differ as well.

The criticism of the traditional perspective seems justified. In most firms considerable strategic variety exists (Calori, Johnson & Sarnin, 1994) and corporate headquarters should accommodate this, as opposed to adopting a “one size fits all” approach. On the other hand, this logic does not exclude a potential corporate effect. That is, corporate headquarters may tailor control to the particular characteristics of the business units, but, at the same time, control may be influenced by corporate-level factors. This would imply a type of control that is tuned to individual business unit characteristics, but still distinct for each firm.

Therefore, a focus on either the business unit or the corporate level of analysis may reflect an oversimplification of control of multidivisional firms in practice. Instead, the issue of control in multidivisional firms calls for multilevel analysis, since contextual factors at different levels may influence the control styles used by corporate headquarters. Multilevel research has been successfully applied in various research disciplines, such as sociology and education, and has recently begun to draw the attention of management scholars as well (Hofmann, 1997). For example, it has been applied to explain individual behavior in work groups on the basis of both individual and work group characteristics (see, e.g., Kidwell, Mossholder & Bennett, 1997; Naumann & Bennett, 2000). However, so far, this approach has been absent in the research on control in multidivisional firms.

In this paper, we focus on one important business unit-level factor, the degree to which an individual business unit is engaged in resource sharing with other business units in the firm, while controlling for corporate effects in a multilevel analysis. We develop hypotheses for the relationship between degree of resource sharing and a number of key control mechanisms available to corporate center management. The choice for resource sharing is in line with traditional organization theorists who emphasized the importance of resource sharing or interdependence between sub-units as determinant of organization design in general (Galbraith, 1973; Lawrence & Lorsch, 1967; Thompson, 1967; Tushman & Nadler, 1978) and control of business units in particular (Pitts, 1980). Hierarchical Linear Modeling (HLM, Bryk & Raudenbush, 1992) is used to empirically test our hypotheses on a sample of 136 business units. HLM allows us to test the hypothesized relationships at the level of the individual business unit and, at the same time, control for both observable and unobservable corporate-level effects. Our goal is to investigate whether the application of the technique in this field generates new insights into the control in multidivisional firms, and, more specifically, into the importance of business unit- versus corporate-level factors for headquarters' control.

The paper is organized as follows. The next paragraph provides a brief theoretical background of control in multidivisional firms, which is rooted in information-processing theory (see, e.g., Egelhoff, 1988; Tushman & Nadler, 1978). We then develop the hypotheses on the linkages between resource sharing and control instruments. The subsequent paragraph deals with the methods we used in our empirical study, including a brief discussion of HLM. The results of the study are presented in the following paragraph. We conclude our paper with a brief discussion.

3.2 Background

Information-processing theorists view organizations as systems for gathering, transforming, storing, and communicating different types of information (Egelhoff, 1988, 1991; Galbraith, 1973; Tushman & Nadler, 1978). In general, the information-processing framework holds that the effectiveness of organizations depends on how well they are able to facilitate these processes through the creation of sufficient information-processing capacity in their

organization design. As the total information-processing requirements facing the organization increase, the structure and administrative arrangements to cope with these requirements become more complex and elaborated.

Historically, the adoption of a multidivisional structure has been considered to be the appropriate response to cope with information-processing limitations that functionally organized companies face as they grow in size and complexity (Chandler, 1962; Williamson, 1975). Nowadays, it is generally accepted that multidivisional organizations differ in the information-processing requirements they face. Moreover, within firms, each business unit may pose different information-processing requirements on the organization. Therefore, organization design may differ across, as well as within corporations. Environmental uncertainty and complexity, strategy, and inter-unit interdependence have been argued to affect information-processing requirements (see, e.g., Alexander, 1991; Gupta, 1987; Golden, 1992; Govindarajan, 1986; Hill & Hoskisson, 1987; Jones & Hill, 1988; Tushman & Nadler, 1978). Since we are interested in the relationship between resource sharing and organization design we will now focus our attention on the latter.

Typically, differentiating the organization into subunits implies that different types of knowledge and information reside in different places in the organization (Wolf & Egelhoff, 2002). Though fit to perform their own task, the information available in a single business unit is insufficient, as business units engage in resource sharing with other units in the corporation. Effective problem solving and coordination requires information residing in different units to be combined as input for decision making. This can only be achieved through information sharing between business units or interference by the next highest level in the hierarchy. In both cases, total information processing increases as lateral and vertical information exchange and communication become more frequent and intense. Segmenting the organization into different business units has another important implication for information processing. Almost by definition different subunits develop different frames of reference (Lawrence and Lorsch, 1967) and jargons (Ouchi, 1979) to accomplish their own task. Although this may facilitate communication and stimulate swift decision making within business units, joint decision making and coordination across business units may be severely hampered as business units approach problems from different points of view. To ease communication and increase mutual understanding, a wider perspective is required. Such a wider view on the organization is usually available at higher management levels, but

organization design arrangements can also be used to stimulate shared views and understanding at the business unit level. A final observation concerns the influence of resource sharing on the information that serves as input for the corporate control system. Information processing takes place between the corporate and the business unit level to the extent that performance information is being sent up the hierarchy and returned down the hierarchy in the form of evaluation and feedback information (Egelhoff, 1988). This process becomes more demanding to the extent that the performance of individual business units becomes dependent on the actions of other units in the corporation. Interdependence makes it difficult to assess the contributions of individual units (Gomez-Mejia & Balkin, 1992). Rich and detailed information is then required to cope with these limitations and to provide accurate assessments of business unit performance.

3.3 Hypotheses

In this section, we develop four specific hypotheses. We use four dimensions of corporate coordination and control (subsidiary autonomy, integration mechanisms, network-based incentives, and strategic control) that have been well established in the literature on headquarters-business unit relationships (see, e.g., Hill et al., 1992; Hill, 1994) and formulate hypotheses for the relationships between degree of resource sharing and each of the four.

Business unit autonomy

Our first hypothesis concerns the degree to which decision-making authority resides at the corporate or the business unit level. Traditionally, the potential information overload at the corporate level has been considered a key reason to break up the organization into separate business units and decentralize authority to the business level (Chandler, 1962; Williamson, 1975). Business units are given responsibility over important strategic and operating decisions for their own industry, region, or product-market combination. The consequence is that information becomes dispersed and different business units develop different perspectives on how to operate and take decisions in certain situations. If two business units engage in resource sharing with each other, the decisions made and the actions taken by each business unit are likely to affect those of the other. By placing decision-making authority in the hands of general management, a wider perspective can be obtained, information from both business

units can be used as input for decision making, and a better understanding of the contexts of different business units can be achieved (Egelhoff, 1988). Moreover, such a central decision-making body is able to intervene, settle disputes and resolve conflicts between interdependent units (Argyres, 1995; Hill et al., 1992; Michel & Hambrick, 1992). Centralization has been considered one of the basic information-processing mechanisms available to organizations (Egelhoff, 1988; Galbraith, 1973). It facilitates coordination (Child, 1984; Hill, 1988b), prevents suboptimization (Egelhoff, 1988), and allows corporate center management to become more actively involved in decision making at the business unit level (Markides & Williamson, 1996). In sum, we would expect the autonomy of an individual business unit to decrease as it becomes more actively involved in resource sharing with other units in the corporation. Alternatively, at low levels of resource sharing, the advantages of centralization become less apparent. The information advantages of centralizing authority at a higher level decrease. To economize on the information-processing capacities of the corporate center and to prevent unproductive interference of corporate level management in business unit affairs (cf. Goold & Luchs, 1993; Michel & Hambrick, 1992; Vancil, 1978) decision-making authority is likely to be placed at the business unit level. In sum:

Hypothesis 1: The degree to which an individual business unit is involved in resource sharing with other business units in the corporation is negatively related to this business unit's degree of autonomy.

Integration mechanisms

Despite the fact that the highest level executives in the corporation are often actively involved (Henderson & Fredrickson, 1996; Michel & Hambrick, 1992), they are unlikely to be able to coordinate all resource sharing that takes place through direct input in decision making. Rather, resource sharing also requires joint problem solving and mutual adjustment between business units. However, as we saw earlier, this requires information exchange between business units that usually have different frames of reference and use different jargons. The use of integration mechanisms has been considered one of the most important means for providing the organization with information-processing capacity (see, e.g., Galbraith, 1973; Galbraith & Kazanjian, 1986; Thompson, 1967; Tushman & Nadler, 1978). The installation of lateral linkages, such as task forces or committees, in which members of different business units participate, stimulate direct communication and information sharing between business

units. They provide the mechanisms that allow information from different units to come together and serve as input for joint problem solving. The effectiveness of communication and joint decision making can be increased if the instruments for integration are complemented by the use of socialization mechanisms to create common understanding, commitment, and openness to divergent perspectives (Edström & Galbraith, 1977; Gupta & Govindarajan, 1991; Roth, Schweiger & Morrison, 1991). The use of integration and socialization can facilitate communication (Gupta & Govindarajan, 2000; Hill et al., 1992), increase mutual understanding (O'Donnell, 2000), and stimulate the use of a common “language” (Michel & Hambrick, 1992; Tsai, 2000). We refer to these mechanisms broadly as integrating mechanisms and we would expect company headquarters to stimulate and facilitate the use of these mechanisms if resource sharing between business units takes place. For an individual business unit, this implies that the more the unit is involved in resource sharing, the more it will be integrated with other units in the corporation. Alternatively, we expect little use of integration mechanisms for business units that are mainly self-supporting, as these business units benefit little from communication and information exchange with other units. Moreover, these mechanisms have been considered costly in terms of time and effort (Tushman & Nadler, 1978) and may hamper the flexibility of the business units. Therefore, in order to guarantee flexibility and economize on costs, integrative efforts and mechanisms will be used more sparingly for independent business units. In sum:

Hypothesis 2: The degree to which an individual business unit is involved in resource sharing with other business units in the corporation is positively related to the use of integration mechanisms for this business unit.

Network-based incentives

Incentive systems can complement the use of integration mechanisms to stimulate information exchange and mutual adjustment. The use of variable compensation is a strong mechanism to align the goals of business units with those of other parts of the corporation. When compensation contains a variable part, business unit managers are motivated to do their task and opportunistic behavior is reduced. For interdependent business units, performance is largely based on the benefits from resource sharing with other business units in the corporation. Likewise, the more interdependent business units are, the more likely it is that the variable compensation of subsidiary depends on these other business units as well.

Therefore, the pay system will emphasize performance of a larger cluster or network of business units rather than individual business unit performance alone (Gomez-Mejia, 1992; Gomez-Mejia & Balkin, 1992; Hill et al., 1992; Hill, 1994; Lorsch & Allen, 1973). The use of network-based incentives increases information processing in two ways. First, it increases the willingness of business units to cooperate and engage in information exchange and joint decision making (Golden & Ma, 2003). Second, it facilitates information processing, as it stimulates the business units to adopt a wider perspective (Gupta & Govindarajan, 1991; O'Donnell, 2000). The more a business unit is engaged in resource sharing with other business units in the firm, the more we would expect the compensation of its manager to be made contingent on the performance of his or her own business unit as well as of the business units to which it is linked. On the other hand, the managers of business units that are only marginally involved in resource sharing will become less motivated to perform their task if performance is assessed at a very high level of aggregation (Gomez-Mejia & Balkin, 1992). Therefore:

Hypothesis 3: The degree to which an individual business unit is involved in resource sharing with other business units in the corporation is positively related to the use of network-based incentives for this business unit.

Strategic control

Our final hypothesis deals with the nature of the control system. In multidivisional corporations, headquarters have been assumed to turn to either financial or strategic criteria as basis for evaluating the performance of individual business units (see, e.g., Hill, 1994). Although traditionally the emphasis has been on the use of objective, financial measures to expose business units to the discipline of an internal capital market (Jones & Hill, 1988), they provide inaccurate information to assess the contribution of interdependent business units. Resource sharing requires specific performance information to be processed, since it is argued to compromise the accountability of individual business units (Hill, 1988b; Hill & Pickering, 1986). After all, poor performance of a particular division could be the result of inefficiencies in that division, but could also have been caused by inefficiencies in other divisions or by poor interference or coordinating efforts of corporate headquarters (Hill, 1988b, 1994; Hill et al., 1992). Rather than focusing on financial performance information, corporate managers have to fall back on more subjective, strategically oriented, non-financial measures of control.

These strategic controls require deep understanding of business level affairs and involve rich information exchange between corporate- and business-level managers (Hitt, Hoskisson, Johnson & Moesel, 1996; Hoskisson, Hitt & Ireland, 1994). They are assumed to provide the richness needed to assess the quality of the decisions and contributions of each individual business unit in a cooperative relationship. In sum, the use of strategic controls to assess performance of an individual business unit becomes more important as the business unit engages in resource sharing with other business units in the corporation. Alternatively, since information-processing requirements are lower for independent business units, we expect headquarters to turn to the more simple and objective financial measures of control when resource sharing is low.

Hypothesis 4: The degree to which an individual business unit is involved in resource sharing with other business units in the corporation is positively related to the use of strategic control for the evaluation of the performance of this business unit

3.4 Methods

Sample and data collection

We conducted a study among Dutch corporations. We started with a list of all Dutch corporations listed on the Amsterdam Stock Exchange and excluded all financial corporations and corporations with less than 500 employees, because this helps to rule out firms that do not have a multidivisional structure (Mintzberg, 1983). We then studied the organizational structures of these corporations, using annual reports and the companies' websites. Our main goal was to identify the divisions, business units or operating companies that were located directly below corporate headquarters¹.

We ended up with a selection of 614 subsidiaries from 57 corporations. Since most of the data we needed were unavailable from archival databases, we conducted a mail survey.

¹ Corporations with functional structures were left out, as well as corporations for which the annual reports did not provide sufficient information on the organizational structure. We also excluded the corporation if it appeared to be majority-owned by another corporation. The argument is that control practices in these firms would be highly influenced by the control style used by the parent, instead of the arguments presented earlier (cf. Hopwood, 1973; Mintzberg, 1983).

We sent questionnaires to the managing directors of each of the 614 subsidiaries. Out of the total of 614 questionnaires sent to business unit managing directors, 140 filled out questionnaires were returned (i.e., a response rate of 22.8%), of which 136 responses were usable in this study. The 136 business units represent 45 corporations and cover industries such as manufacturing (27.2%), service (28.0%), trade (22.1%), construction (12.5%), and printing and publishing (10.3%). In total, our dataset includes business units in 14 different countries. A total of 34 business units (25%) were located outside the Netherlands. On average, the subsidiaries employed 1596 employees.

Questionnaire development and translation

We used many ideas from previous studies (both empirical and conceptual) as input for developing our own questionnaire. Some questions were almost completely derived from existing instruments. However, most questions built on prior research and were subsequently changed, newly developed, or presented differently for this study. The questionnaire was discussed at length with practitioners and colleagues in strategic management and accounting research. The questionnaire was developed in Dutch, but translated into German and English for foreign business units as well². We used backward-translation techniques to account for differences in interpretation. Based on the backward-translations and on the discussions with colleagues and practitioners, we made final changes to the questions.

Operationalization of main variables

Resource sharing. This variable was measured through eight questionnaire items. We chose the items to include both tangible and intangible resources (Porter, 1985, 1987; St. John & Harrison, 1999) and to include resource sharing in different functional areas (Gupta & Govindarajan, 1986). Subsidiary managers were asked to indicate on a seven-point scale the extent to which their subsidiary cooperated with other units in each of the following ways: (a) sharing knowledge, information, ideas, etc.; (b) sharing technologies; (c) internal deliveries (e.g., components, products, services); (d) using common brand names; (e) sharing physical assets (e.g., machines, buildings); (f) exchanging personnel on a temporary basis; (g) collectively competing with competitors; (h) shared functions or services (e.g., purchasing,

² Questionnaires in Dutch were sent to business units located in the Netherlands and the Flemish part of Belgium. We sent German translations to business units located in Germany and Austria. English translations were sent to business units located in all other countries.

marketing, logistics). Cronbach's alpha as indicator for reliability of the construct was 0.87. Factor analysis confirmed the unidimensionality of the construct.

Autonomy. The degree of subsidiary autonomy was measured with eight questionnaire items. The items were selected to represent different strategically relevant decisions (Gupta & Govindarajan, 2000; Vancil, 1978). Subsidiary managers were asked to indicate on a seven-point scale the autonomy they had in relation to headquarters in each of the following areas: (a) formulating the budget; (b) hiring managers or key staff employees; (c) determining the strategy of the unit; (d) choice of investment projects; (e) developing new markets; (f) marketing decisions (e.g., price or promotion decisions); (g) selection of strategic partners; (h) changes in the portfolio of products or services (alpha = 0.87). Factor analysis confirmed that all items loaded highly on the same construct.

Integration mechanisms. This variable was measured using seven questionnaire items. It includes formal integration mechanisms, aspects of socialization, and pure lateral as well as more vertically induced means to establish integration and coordination. The items were selected from previous studies (e.g., Galbraith, 1973; Gupta & Govindarajan, 2000; Miller & Dröge, 1986; O'Donnell, 2000; Roth et al., 1991). Subsidiary managers were asked to indicate on a seven-point scale the degree to which the following 'instruments' were used in their corporation: (a) horizontal integration through direct coordination by headquarters; (b) horizontal integration through use of integration personnel (e.g., integration managers); (c) horizontal integration through committees for joint decision making; (d) horizontal integration through project groups or teams; (e) horizontal integration through information systems (e.g., intranet); (f) origination of many subsidiary managers and key employees from other parts of the corporation; (g) participation of subsidiary managers and key employees in training programs organized by headquarters. Factor analysis confirmed the unidimensionality of the construct. Analysis of inter-item reliability yielded a Cronbach alpha of 0.82.

Network-based incentives. In line with other studies (e.g., Gupta & Govindarajan, 1986; Gupta & Govindarajan, 2000) this variable was measured as the percentage of total variable compensation that was based on the performance of a cluster or network of business units or the corporation as a whole.

Strategic control. Subsidiary managers were asked to indicate on a seven-point scale how much importance superiors at headquarters attached to non-financial criteria to assess the performance of their unit. Two items were used: (a) the importance attached to quantifiable, non-financial aspects of the performance (e.g., market share); (b) the importance attached to non-quantifiable aspects of the performance (e.g., cooperation with other units, knowledge development). Cronbach's alpha for this scale was 0.57. The choice for the two items is in line with previous studies (e.g., Hill et al., 1992; Hill, 1994).

Business-level control variables

Business units may also differ in other characteristics than the degree of resource sharing. Therefore, we controlled for a number of other business level variables. The first is *uncertainty*, which is a key driver of information-processing requirements and thus assumed to affect organizational design (Burns & Stalker, 1961; Lawrence & Lorsch, 1967; Tushman & Nadler, 1978). To account for the uncertainty faced by an individual business unit, we adapted two items from Miller and Dröge's (1986) environmental uncertainty scale. Subsidiary managers were asked to indicate on a seven-point scale the degree to which: (a) actions of competitors are easy to predict; (b) demand and client behavior are easy to predict. The items were reverse coded and averaged to obtain the measure for uncertainty. Cronbach's alpha for this scale was 0.74.

Two additional control variables were included to capture the position or role of the business unit in the corporation as a whole. Business units can play a more prominent role when they have more valuable resources, knowledge or capabilities than others (Birkinshaw, Hood & Jonsson, 1998; Frost, Birkinshaw & Ensign, 2002; Ghoshal & Nohria, 1989; Nohria & Ghoshal, 1994; O'Donnell, 2000). The control over critical resources causes a business unit to be less dependent on other parts of the corporation, which makes it more powerful and less subject to outside influences, uncertainty, and information-processing requirements (Pfeffer & Salancik, 1974; Tushman, 1977). We expected subsidiary size and the activities performed by the subsidiary to capture at least some of the differences in resource levels, power, and role played in the portfolio. *Subsidiary size* is measured as the total number of employees of the subsidiary. This variable was transformed (log) prior to inclusion in the analyses. *Activities* is a dummy variable with the value 1 if the business unit performs all three of the main activities marketing, production, and R&D and the value 0 if it performs only one or two of these activities.

Corporate-level control variables

Corporate-level effects are controlled for by using HLM as method of analysis (see below) and including a number of corporate-level control variables. In general, as firms grow in size and complexity, the overall information-processing requirements facing the organization increase. If these requirements exceed the limits of organizational design, corporate management is hindered in effectively performing its monitoring, control and coordination tasks for each business unit individually (Alexander, 1991; Hill, 1994; Hitt et al., 1996; Markides, 1995). Therefore, corporate size and complexity may influence the results of the tests of the hypotheses. Three variables were chosen as proxies for overall size and complexity: product diversification, geographic diversification and corporate size. *Product diversification* is the number of industry codes in which the corporation exploits activities (cf. Wood, 1971). *Geographic diversification* is the total number of countries in which the corporation has subsidiaries. *Corporate size* was measured as the total number of employees of the corporation (log transformed).

Common method bias

The reliance on a single key informant and the perceptual nature of many of our variables should make us aware of the risk of common method bias in this study (see also Podsakoff, MacKenzie, Lee & Podsakoff, 2003). We tried to reduce the risk by using multiple items to measure many of the constructs, by using different scale formats and anchors, by pre-testing the questionnaire to avoid complex and ambiguous questionnaire questions and items, and by targeting business unit managing directors as the persons who could be considered most knowledgeable in the subject area. Still, many constructs were measured using seven-point Likert type scale items, which may increase the probability of common method bias. Therefore, we performed an exploratory factor analysis with all construct items. Common method bias may be especially problematic if a single factor accounts for the majority of the covariance among the measures. This was not the case as we found six factors with eigenvalues greater than one, with the first factor accounting for 29.2% of the variance.

HLM and analysis strategy

Since our aim is to test relationships between variables at the business unit level, taking into account the existence of a possible corporate effect, we decided to use hierarchically linear (or multilevel) modeling (see, e.g., Bryk & Raudenbush, 1992; Hofmann, 1997; Hox, 1995, 2002; Kreft & De Leeuw, 1998; Snijders & Bosker, 1999) to test our hypotheses. HLM offers a number of advantages. First, it allows the estimation of the effects of business unit- and corporate-level variables in one regression equation, taking into account the different sample sizes at the two levels. Second, it takes into account that business units are not independent observations, since control styles might be more similar within corporations than across corporations. Third, total variance in dependent variables can be decomposed into business unit-level and corporation-level effects to assess the existence of corporate effects.

Our analysis strategy is adapted from the full multilevel analysis strategies proposed by Hofmann (1997) and Hox (1995)³. We begin with the estimation of the intercept-only or null model. The null model contains no explanatory variables and is equivalent to a one-way ANOVA with random effects. It can be used to assess the proportion of total variance in the dependent variables that can be explained by the grouping structure in the population (Hox, 2002). Thus, the output of the null model provides information on the possible existence of a significant corporate-level effect. Next, we estimated random intercept models with explanatory variables at the business unit level. The random intercept model estimates the overall regression equation for each dependent variable and enables us to investigate to what extent the intercepts of these equations differ across corporations. If a significant corporate effect is present, then we also include our corporate-level control variables to investigate to what extent these corporate-level variables can explain the corporate effect in the dependent variable⁴.

³ A full multilevel analysis strategy can be used as an exploratory strategy in the absence of strong theoretical predictions (Hox, 1995) or to test a full multilevel theoretical framework, including hypothesized cross-level interactions (Hofmann, 1997). Here, we adopt a simplified analysis strategy without random slope effects and cross-level interactions.

⁴ This complete model is estimated by the following regression equation for the predicted value of dependent variable Y for a particular business unit (i) in a particular corporation (j): $Y_{ij} = \beta_{0j} + \gamma_{10} \text{resource sharing}_{ij} + \gamma_{20} \text{business unit size}_i + \gamma_{30} \text{uncertainty}_{ij} + \gamma_{40} \text{activities} + r_{ij}$; in which $\beta_{0j} = \gamma_{00} + \gamma_{01} \text{product diversification}_j + \gamma_{01} \text{geographic diversification}_j + \gamma_{01} \text{corporate size}_j + u_{0j}$. In these equations the gamma's are assumed to be fixed across corporations.

3.5 Results

We used the program HLM 5 (Raudenbush, Bryk & Congdon, 2000) to perform analyses for each of the four dependent variables. One of the dependent variables, network-based incentives, displayed a highly skewed distribution with relatively many observations with the score zero and violated the assumption of equal residual variance in groups. Therefore, we also considered transforming this variable to achieve a more normal distribution. Because analyses with a transformed variable (square root and logit) as well as analyses with the non-linear extension of HLM provided similar results to the ones produced with the untransformed variable and the linear models, we decided to report the findings of the latter only⁵.

Descriptive statistics and correlations have been included in the appendix to chapter 3. Analyses continued with estimating four null models, one for each of the four dependent variables. Table 1 shows the decomposition of total variance in each of the dependent variables into corporate- and business unit-level effects (i.e. the variances of corporate- and business unit-level residual error terms are specified). Intra-class correlations are reported to indicate the proportion of total variance that can be explained by corporate membership. HLM uses chi-square statistics to determine the significance of corporate-level variance. For autonomy and strategic control, these tests indicate that corporate-level variance does not significantly differ from zero. This is a first indication that corporate-level variables do not affect the degree of autonomy business units have and the extent to which strategic controls are used to evaluate business unit performance. Significant corporate effects do exist for the use of integration mechanisms and network-based incentives. The intra-class correlations indicate the variance in integration mechanisms (24%) and network-based incentives (12.9%), which can be explained by the grouping structure in the sample. Chi-square tests indicate that these effects are significant at the $p < 0.001$ and $p < 0.05$ levels respectively.

⁵ The logit transformation, $\log(x / (1-x))$, is generally considered suitable for proportion data (Hox, 1995; Pieters & Bijmolt, 1997), which we obtained by rescaling the dependent variable to a score on a 0-1 scale rather than 0-100 scale. To facilitate transformation we replaced a score of 0 by 0.0001 and a score of 1 by 0.9999 (cf. Pieters & Bijmolt, 1997). We also rescaled the dependent variable to resemble count data and used the non-linear extension of HLM to run Poisson regression models with overdispersion (see also, Anderson, 2002; Hox, 1995; Huebner, 2003).

Table 1: Intercept-only or null models: models with no explanatory variables

	Autonomy	Integration mechanisms	Network-based incentives	Strategic control
<u>Regression coefficients</u>				
Intercept (γ_{00})	5.252 (0.093) ***	3.216 (0.127) ***	18.424 (2.016) ***	4.459 (0.109) ***
<u>Variance components</u>				
Corporate level (u_{0j})	Variance 0.000	Variance 0.328	Variance 52.610	Variance 0.031
Business unit level (f_{ij})	χ^2 (df) 38.915 (44)	χ^2 (df) 87.008 (44) ***	χ^2 (df) 63.178(44) *	χ^2 (df) 45.984 (44)
Intra-class correlation	1.164	1.037	355.553	1.483
	0.000	0.240	0.129	0.020

*: $p < 0.05$; ***: $p < 0.001$

Regression coefficients are shown with standard errors in parentheses.

Sample sizes: $n = 136$ for business unit level and $n = 45$ for corporate level.

Tests of significance: t-tests (two tailed) are used to assess significance of regression coefficients; χ^2 tests are used to assess significance of corporate level variance.

Table 2: HLM estimates of models with random intercepts and fixed slopes

	Autonomy	Integration mechanisms	Network-based incentives	Strategic control
<u>Regression coefficients</u>				
Intercept (γ_{00})	5.252 (0.087) ***	3.225 (0.078) ***	18.683 (1.573) ***	4.460 (0.097) ***
Resource sharing (γ_{10})	-0.257 (0.067) ***	0.571 (0.054) ***	6.074 (1.213) ***	0.371 (0.075) ***
Business unit size (γ_{20})	0.055 (0.123)	-0.022 (0.145)	0.148 (2.218)	-0.025 (0.137)
Uncertainty (γ_{30})	0.063 (0.071)	-0.146 (0.055) **	-1.341 (1.287)	0.019 (0.079)
Activities (γ_{40})	0.171 (0.177)	-0.062 (0.145)	-1.649 (3.199)	-0.028 (0.197)
Product diversification (γ_{01})		0.033 (0.038)		
Geographic diversification (γ_{02})		0.099 (0.263)		
Corporate size (γ_{03})		0.228 (0.207)		
<u>Variance components</u>				
Corporate level (u_{0j})	Variance 0.001	χ^2 (df) 39.803 (44)	Variance 0.063	χ^2 (df) 59.799 (41) *
Business unit level (f_{ij})	1.024		0.554	334.392
			0.493	36.770 (44)
			0.001	38.316 (44)
			1.274	

Asterisks indicate significance at the 0.05 (*), 0.01 (**), and 0.001 (***) levels, respectively.

Regression coefficients are shown with standard errors in parentheses.

Sample sizes are $n = 136$ for the business unit level and $n = 45$ for the corporate level.

Tests of significance: t-tests are used to assess significance of regression coefficients (two-tailed tests reported for all coefficients); χ^2 tests are used to assess significance of corporate level variance.

In the next stage, we introduced resource sharing and the three business-level control variables to estimate a random intercept model for each dependent variable. As expected, introducing these variables improved the models significantly⁶ and, except for the corporate-level variance component for autonomy, decreased total variance at both levels. The decrease in corporate-level variance after including business unit predictors is common in multilevel modeling (Snijders & Bosker, 1999; Hox, 1995). The argument is that business unit explanatory variables may also have a corporate-level aspect, since the means of these variables may differ across corporations (Snijders & Bosker, 1999). Investigation of the variance components further indicates that no significant corporate effects were present for business unit autonomy, strategic control, and network-based incentives. This indicates that the intercepts of the regression lines do not differ significantly across groups for these three dependent variables. The results show significant corporate effects for integration mechanisms. Therefore, we included our corporate-level control variables in the regression equation for integration mechanisms, but not for autonomy, network-based incentives, and strategic control. Table 2 contains the results of the estimation of the four random intercept models.

The results confirm the strong relationship between resource sharing and all four dimensions of corporate control and coordination. The coefficients have the expected sign and are significantly different from zero at the 0.001 level. This supports all four hypotheses and confirms the importance of resource sharing as a business unit-level determinant of organizational design. Analysis of the variance components of the models for autonomy, network-based incentives, and strategic control indicates that total variance decreases upon introducing the business unit-level explanatory variables and that no significant corporate effects exist. The significant corporate effect we found in the null model for network-based incentives vanished in the random intercept model, indicating that the business unit-level variables explained much of the differences across corporations as well. The random intercept model for integration mechanisms contains business unit-level and corporate-level variables. We find a strong positive relationship between resource sharing and integration mechanisms. Moreover, the use of integration mechanisms is negatively related to the degree of uncertainty

⁶ We assessed improvement of overall model fit by comparing the deviance statistics of the random intercept models with those of the null models. As deviance is a measure of model misfit, a decrease in deviance indicates an improvement of fit. Chi-square statistics indicated that the decrease in deviance was significant for all four models.

facing the business unit. This could indicate that links between business units are removed to ensure flexibility when business units face more uncertain environments. The three corporate-level control variables have no significant effect on the use of integration mechanisms. After introducing these variables, a significant part of the corporate-level variance in the use of integration mechanisms remains unexplained. Apparently, our three corporate-level variables cannot explain this variance.

Additional analyses

The group sizes in our data vary from 1 to 11 observations per corporation (median = 3). Although varying group sizes and group sizes of one are not problematic for the use of hierarchical linear modeling (Snijders & Bosker, 1999), we decided to run similar analyses with a more balanced data set. We left out corporations with 1, 2 and 11 observations. This resulted in a dataset with 89 observations at the business unit level and 22 observations at the corporate level (minimum = 3 observations per corporation; maximum = 7 observations per corporation). The results of these additional analyses were fairly similar to the ones produced by the initial analyses (see the appendix to chapter 3 for the results of the additional analyses).

We performed additional analyses to take a closer look at the corporate effects we found for integration mechanisms and network-based incentives. Because we expected resource sharing to be a corporate-level as well as a business unit-level explanatory factor, we decided to run regression models that included both. We computed the average resource sharing per group for the corporate-level variable and included group mean centered scores on resource sharing for individual business units. To determine the appropriateness of including a group average score on resource sharing we assessed the intra-corporate agreement and inter-corporate variation on this variable (see also Kidwell et al., 1997). Almost 36% of variance in resource sharing could be attributed to the corporate level and internal agreement within corporations appeared to be reasonably high (0.76, which is above the commonly used cut off point of 0.70; see e.g. James, Demaree & Wolf, 1984, 1993)⁷. The findings reveal significant effects for both resource-sharing variables, indicating that the corporate average as well as individual business units' relative score could be potentially relevant predictors. We

⁷ The agreement index varied between near absence of agreement to perfect agreement within corporations. For a discussion on the use of the interrater agreement index, see also Bliese (2000). For a discussion of the 0.70 rule-of-thumb, see Harvey and Hollander (2004).

also performed these additional analyses with the compressed dataset. Both resource sharing variables were significantly related to the use of integration mechanisms. Corporate average resource sharing was also related to network-based incentives. The group mean centered measure of resource sharing at the business unit level was not significant. This suggests that network-based incentives are more influenced by corporate average resource sharing than by the relative resource sharing of individual business units. The results for the analyses with the compressed dataset are included in the appendix to this chapter.

3.6 Conclusions and implications

In the research on control of business units in multidivisional firms, two distinct perspectives can be distinguished. According to the first perspective, the choice of control mechanisms depends on corporate-level factors. Since these corporate-level factors are identical for all business units of a firm, this view implies that the corporate headquarters applies a similar type of control to all its business units. Therefore, control may vary across firms, but remain similar within firms. Proponents of the second perspective argue that the choice of control mechanisms depends on business unit-specific factors. The consequence of this view is that control of business units may be differentiated within firms. Our original suspicion was that both perspectives represent an oversimplification of the management of multidivisional firms in practice. Tuning control to business unit specific factors might enhance business unit performance. At the same time, corporate-level factors might influence the choice of control instruments, for instance because of information-processing constraints at the corporate level.

The application of multilevel analysis has confirmed our suspicion. Multilevel research has been adopted by researchers in a variety of disciplines, but gained popularity among management scholars only fairly recently (Hofmann, 1997). To the best of our knowledge, multilevel analysis has not been previously applied to research on control in multidivisional firms. Given the complexity of these firms, involving many organizational levels, there seems to be much to gain from further development of multilevel research in this area.

In our study, multilevel analysis has generated new insights into the importance of corporate-level versus business unit-level factors for the choice of control mechanisms. We analyzed four common control mechanisms: autonomy (cf. decentralization), integration mechanisms, network-based incentives, and strategic control. The results showed that all four control mechanisms are tuned to the business unit-specific degree of resource sharing. For two control mechanisms, integration mechanisms and network-based incentives, we also found corporate effects. The upshot is that control in multidivisional firms may be influenced by both corporate-level and business unit-specific factors, but that the influence depends on the particular control instrument. All control mechanisms seem to be tailored to business unit-specific characteristics, implying differentiation of control within firms, and some control mechanisms are also subject to corporate-level influences, implying differentiation of control both within and across firms. Consequently, the application of multilevel analysis suggests that the two traditional perspectives on the control of business units in multidivisional firms are complementary rather than conflicting.

The present study is not without limitations. For example, the use of product and country count measures of diversification and internationalization could be a shortcoming, because more sophisticated measures of these corporate-level factors are available in existing research. For example, strategy scholars have used the entropy measure of product diversification, which includes weighting factors on the basis of sales rather than only a simple count of the number of codes (e.g., Hoskisson, Hitt & Moesel, 1993). Similar measures are available to better capture the degree of internationalization (e.g., Kim, 1989). Inclusion of these more sophisticated measures could potentially better operationalize the overall size and complexity of firms. Alternatively, more accurate measures of these corporate-level variables could be based on the recognition that many higher-level concepts originate from the characteristics of lower-level entities. Hence, the insights from chapter 2 of this dissertation, in which we proposed a conceptualization of corporate strategic context on the basis of the lower-level strategic characteristics of the business units, could be of help in developing more accurate measures of these corporate-level variables. The study is also limited in the sample size we use. Although no specific rules exist for sample size requirements (Hofmann, 1997), a larger number of business units per corporation in our sample would increase the potential for multilevel analysis, including testing of cross-level interactions. Here, however, lies a general problem of research in this area: the absence of publicly available data on internal control processes in multidivisional firms (Hill, 1988b).

Despite these limitations, the study has provided new insights into control in multidivisional firms. Advances can be made by further exploring multilevel research in this area. We discuss three avenues for future research. First, other explanatory variables could be included to capture the many potential determinants of corporate control style. At the business unit level, competitive strategy and mission have been found to be of relevance (Gupta, 1987). At the corporate level, top management team characteristics could be taken into account. Previous research has found that control styles are influenced by the experiences, backgrounds, skills, and personalities of corporate center managers (Goold & Campbell, 1987; Prahalad & Bettis, 1986). The control styles corporate center managers prefer can possibly account for some of the corporate effects of control. Second, new theories need to be developed to explain some of our findings. For example, we found that only two of the examined control mechanisms are influenced by corporate factors. Apparently, corporations are distinguished in some dimensions of control, but not in others. It is not clear yet why this phenomenon occurs. Third, it is worth exploring the performance implications of establishing fit between control mechanisms and factors at both levels of analysis. Our findings suggest that firms adjust their control styles to business unit specific characteristics. This may indeed induce the performance of individual business units. However, the information-processing costs associated with tailored control may offset the benefits at the corporate level.

Altogether, this study shows the relevance of applying multilevel analysis and hierarchical linear modeling techniques to research on control in diversified firms. In line with Hofmann's (1997, p. 741) observations, there is much to gain from further developing the multilevel perspective in this and related areas: "Although hierarchical linear models, given their infancy, are far from perfect, they represent a great technical leap forward and can provide a mechanism for adequately testing relationships between variables that cross hierarchical levels. The continuing calls for the integration of macro and micro concepts into *organizational* theories, coupled with these technical advancements, should lead to a better understanding of organizations in all of their complexity."

4

Control differentiation, performance and the corporate TMT

4.1 Introduction

In his classical study on the relationship between strategy and structure, Chandler (1962) found that many large firms adopted a multidivisional structure to cope with the problems of size and complexity after they had expanded into new product lines and regions. Today, many large firms still group their activities into semi-autonomous business units or divisions, which are responsible for the strategic and operating decisions in their respective areas. A crucial task for the top executives of these firms is the management of the business units through the adoption of the appropriate control arrangements. It should come as no surprise then that the nature of headquarters-subsidary relationships has received much attention in strategic management research (Gupta, 1987; Hill, Hitt & Hoskisson, 1992; Markides & Williamson, 1996).

A factor that determines the success of headquarters-subsidary relationships appears to be the degree to which corporate executives succeed in tailoring their styles of control to the needs of the businesses in the corporate portfolio (Chandler, 1991; Lorange, 1993). Since tailoring may imply a better fit between context and organization design (Galbraith, 1973), it could improve performance for individual business units, as well as the corporation as a whole (Golden, 1992). This notion is supported by many empirical studies, all highlighting the importance of tailoring corporate control processes to the contexts of individual business units (see, e.g., Gupta, 1987; Govindarajan & Fisher, 1990). From these findings, the studies

have concluded that differentiation of structures, control processes, and reward systems improves firm performance.

However, such a conclusion overlooks three important aspects. First, tailoring does not necessarily imply differentiation. If all business units of a firm are faced with a similar strategic context, their control needs are relatively homogeneous. Consequently, they can be controlled in a uniform way, which avoids the complexities of differentiated control. In other words, creating portfolios of businesses that share a similar logic enables firms to tailor without the need to differentiate their styles of control (Collis & Montgomery, 1998; Goold & Campbell, 1987; Prahalad & Bettis, 1986). Second, if control differentiation does take place, it could involve problems that reduce firm performance. In particular, subsidiary managers may react negatively to inconsistencies and dissimilarities in the procedures used by their superiors (cf. Kim & Mauborgne, 1993a; Taggart, 1997). This could, for example, result in a breakdown of cooperation among business units and a loss of synergy. Third, the effectiveness of control differentiation depends on the capacities of the corporate top management team (TMT). The average TMT is limited in the number of control styles it can effectively use (cf. Prahalad & Bettis, 1986). However, sufficient cognitive capacities at the TMT level might aid tailoring and thus alleviate some of the negative performance consequences of control differentiation.

In sum, while previous studies have provided insights into the benefits of tailored control for individual business units, they have not shed light on the corporate level performance implications of control differentiation. In general, the problems of differentiation have been largely neglected in the literature on corporate management and control processes. Studying them is relevant though, since the drawbacks of differentiation may compromise the benefits of tailored control. Therefore, in this paper, we investigate the consequences of control differentiation for corporate performance. We theorize that these consequences will be negative, due to the problems outlined above. However, given that corporate management teams differ with respect to their cognitive and information-processing capacities (cf. Hambrick & Mason, 1984), well-equipped and organized teams may partially offset these problems.

The paper is organized as follows. We begin our study with a brief background section. Subsequently, our theoretical arguments are outlined and summarized in the form of hypotheses. These hypotheses are then tested on a sample of large Dutch corporations. A discussion and conclusions section closes the paper.

4.2 Background

Tailoring and differentiation

Among the first to highlight the importance of control differentiation were researchers who studied the portfolio planning practices of large corporations (e.g., Bettis & Hall, 1983; Haspeslagh, 1982). Portfolio planning, which became popular among firms during the 1970s (Goold & Luchs, 1993), emphasizes the importance of a balanced portfolio of businesses. The balance can be achieved by assigning different missions to the business units. For example, business units with a strong position in a low growth industry should *harvest*, in order to generate cash flows. The cash flows are redirected to promising business units with a *build* mission. Business units with dissimilar missions require different corporate control instruments. For example, the compensation of a manager of a business unit with a build mission should be based on the improvement of the competitiveness of the business unit, even if this harms short-term profitability. In contrast, the manager of a business unit with a harvest mission should be rewarded for his ability to increase short-term profitability.

These ideas were picked up by a number of researchers who investigated the business level performance implications of a fit between corporate control instruments and business unit contextual factors such as mission, strategy, environmental uncertainty, and interdependence with other units in the corporation (Golden, 1992; Govindarajan, 1984, 1988; Govindarajan & Gupta, 1985; Govindarajan & Fisher, 1990; Gupta, 1987; Gupta & Govindarajan, 1986). Theoretically, these studies are well grounded in organization and agency theory. Empirically, the results of quantitative studies support the relevance of fit. However, as we already argued in the introduction, conclusions on the benefits of differentiation are unwarranted, since the studies address, and support, the importance of tailored control at the business unit level instead of differentiation. Some studies, based on qualitative rather than quantitative empirical research, addressed the issue more directly. For

example, Chandler (1991) found that corporate executives at Du Pont and General Electric realized that their planning and control systems had to vary with the characteristics of the different industries in which they operated. Others found that corporate executives were limited in the number of control styles they could effectively adopt and suggested firms to build portfolios of businesses with similar characteristics to match the dominant control style and managerial skills of the corporate center (Collis & Montgomery, 1998; Goold & Campbell, 1987).

Dominant logic

In line with these latter observations, Prahalad and Bettis (1986) speak of the dominant logic that may hinder managers in managing a variety of businesses. Dominant logic refers to the dominant worldview or mindset that exists among corporate top managers, responsible for “managing the totality of the firm” (Prahalad & Bettis, 1986, p. 489). In diversified firms, this view of the world is reflected in the way corporate managers perceive and approach the separate businesses of the firm and determines how effectively they can control, monitor, and coordinate the actions of business-level management (Grant, 1988; Prahalad & Bettis, 1986). Although formal control systems, structural arrangements, coordination devices, and other administrative tools can handle some of the variety in the portfolio, the concept of dominant logic additionally implies the creation of sufficient cognitive capacity within the corporate management team: “... as well as adopting adequate administrative mechanisms, handling diversity requires high cognitive complexity from top managers in order to embrace the complexity of his or her environment” (Calori, Johnson & Sarnin, 1994, p. 438). We will elaborate on this in the next subsection.

The upper echelon perspective

The focus on the top management team is in line with the upper echelon perspective, which states that managerial characteristics influence strategies, administrative processes, and, consequently, firm performance. The general upper echelon framework, presented by Hambrick and Mason (1984), builds on the notion of bounded rationality (Cyert & March, 1963; March & Simon, 1958). Because managers, like all human beings, are boundedly rational, they use cognitive schemas when confronted with complex decision-making situations. Cognitive schemas can take the form of pre-existing knowledge systems (Prahalad & Bettis, 1986) or managerial lenses (Miller, 1993) that determine managerial perceptions and interpretations (Hambrick & Mason, 1984). These lenses may act as filters that reflect

managers' knowledge, wisdom, values, beliefs, and assumptions in a certain area, and help managers to "... wade into the ocean of events ..." (Daft & Weick, 1984, p. 286) that surrounds them. However, cognitive schemas remain a simplification of reality (Noorderhaven, 1995) and may prove detrimental when applied in situations that are different from the ones experienced before.

Limited by their experiences, individual managers are usually constrained in the amount of variety they can effectively manage (Prahalad & Bettis, 1986). Similarly, in groups of top managers, the individual managerial lenses may converge into a higher order perceptual and interpretative filter (cf. Daft & Weick, 1984), comparable to the dominant logic discussed above. This makes many top management teams limited in their ability to manage variety as well. Failure to develop multiple managerial lenses creates problems which Prahalad and Bettis (1986, p. 497) have called the "hidden cost" of diversification: "A high level of performance in a diversified firm requires the ability to 'respond fast' to competitor moves, as well as 'respond appropriately'. One of the implications of our thesis, so far, is that top managers are less likely to 'respond appropriately' to situations where the dominant logic is different, as well as not respond quickly enough, as they may be unable to interpret the meaning of information regarding unfamiliar businesses."

Managing variety requires management teams with high levels of sociocognitive complexity, which refers to the ability to develop multiple perspectives, interpretations and understandings of the different situations they are faced with (cf. Bartunek, Gordon & Weathersby, 1983; Ginsberg, 1990). Although not every management team is equipped with sufficient "sociocognitive horsepower" (Carpenter, 2002, p. 277), upper echelon researchers have proposed a number of team characteristics that make the difference (for overviews see, e.g., Finkelstein & Hambrick, 1996; Hodgkinson & Sparrow, 2002). We return to a number of these characteristics in the next section.

4.3 Hypotheses

In line with Prahalad and Bettis (1986), we distinguish between two different levels of general management in a diversified firm: the corporate and the business level. The corporate management team is responsible for managing, coordinating, evaluating, and rewarding business-level management, which is the next highest level in the hierarchy. Business-level management refers to the managers (or management teams) responsible for the various business units, divisions or subsidiaries that report directly to the corporate level. Control differentiation refers to the degree to which the administrative processes used by corporate center top management teams differ across the various business units. We will argue that, on average, control differentiation will be negatively related to corporate performance. However, we also claim that the relationship will be moderated by top management team structure and composition.

The main effect of control differentiation

Our first hypothesis deals with the main effect of control differentiation, which we believe to be negative. The disadvantages of control differentiation are various. For example, the use of different styles may cause fragmentation (Bartlett & Ghoshal, 1987) and unclearness (Goold & Campbell, 1987) at the business unit level. Furthermore, dissimilarities in the procedures used across business units may cause feelings of unfairness (Taggart, 1997) and associated problems such as distrust, lack of cooperation, low commitment, and even sabotage by subsidiary managers (Kim & Mauborgne, 1998). To the extent that differentiation improves fit between control and subsidiary context, these disadvantages can be outweighed by the benefits of tailoring. However, teams with insufficient sociocognitive complexity may differentiate their styles of control but fail to do so in an effective way, since the managers keep seeing things in terms of their functional expertise (Goold & Campbell, 1987) or the businesses they know best (Chandler, 1991). In other words, their lenses of experience make them focus on, perceive, and interpret information incorrectly. This may lead to late or unproductive interference in business level affairs or controlling against the wrong targets (Goold & Luchs, 1993; Michel & Hambrick, 1992). Unless corporations create sufficient sociocognitive complexity in their top management teams, attempts to tailor control through differentiation are unlikely to succeed. Since the average team presumably lacks the required capacities to effectively adopt multiple control styles, the “hidden costs” of diversification

add to the other disadvantages of control differentiation. In sum, under the assumption that the average team has insufficient sociocognitive complexity to manage variety, the relationship between control differentiation and performance will be negative:

Hypothesis 1: Control differentiation is negatively related to corporate performance

The moderating effects of TMT characteristics

Teams differ in the cognitive skills and capacities they have and these differences can be attributed to team structure, composition, and processes. Control differentiation requires teams with the capacity to adopt multiple mindsets at the same time so that the variety in the understandings and interpretations is equivalent to the variety in the situation they face (Bartunek et al., 1983; Ginsberg, 1990). In other words, control differentiation requires high levels of sociocognitive complexity. To the extent that top management team characteristics foster sociocognitive complexity, we expect teams to be able to effectively differentiate control and avoid the “hidden costs”. Hence, these teams are able to reap the benefits of tailoring which may offset all, or part of, the other disadvantages of differentiation. High sociocognitive complexity can be achieved if team members’ managerial mindsets are diverse rather than uniform and if team processes and interaction stimulate divergence rather than convergence. In line with Finkelstein and Hambrick (1996), we use team size, demographic heterogeneity, and the roles performed by team members as moderator variables. These moderator variables meet the conditions for sociocognitive complexity, as we will discuss below.

TMT size. The total sociocognitive complexity of a team reflects the cognitive complexities of each of its members (cf. Ginsberg, 1990). Likewise, the larger the team, the greater its sociocognitive complexity will be. This is consistent with the observation that the number of team members determines the resources available to a team (cf. Hambrick & D’Aveni, 1992). Researchers have identified a number of advantages that large teams have over small ones. These advantages include a broader range of perspectives, greater information-processing capacities, greater ability to process large amounts of diverse information, and greater potential for dissimilarity (see, e.g., Amason & Sapienza, 1997; Eisenhardt & Schoonhoven, 1990; Finkelstein & Hambrick, 1996; Halebian & Finkelstein, 1993; Hambrick & D’Aveni,

1992; Sanders & Carpenter, 1998; Wiersema & Bantel, 1992). Hence, team size increases the likelihood that diverse mindsets exist in the first place. Moreover, larger teams usually display more cognitive conflict and less cohesiveness than smaller teams (Amason & Sapienza, 1997), which stimulates discussion of alternative viewpoints and reduces conformity pressures, premature consensus, and convergence (Priem, Harrison & Kanoff Muir, 1995). In sum, large teams are likely to develop sufficient sociocognitive complexity to differentiate their styles of control without running into the problems that cause the “hidden costs”. Firms with large top management teams may still have to face the other problems of control differentiation, but the capacities of the team allow them to reap the benefits of tailoring.

Hypothesis 2: Team size moderates the negative relationship between control differentiation and corporate performance.

Demographic heterogeneity. Demographic heterogeneity is an important indicator of the cognitive diversity in a team (see, e.g., Boeker, 1997; Finkelstein & Hambrick, 1996; Hambrick & Mason, 1984; Wiersema & Bantel, 1992)¹. Cognitive schemas are reflections of the backgrounds and experiences of managers. To the extent that managers differ in terms of their functional, firm and industry background, the perceptual and interpretative filters are likely to differ as well (cf. Sutcliffe, 1994; Sutcliffe & Huber, 1998). Heterogeneity also influences the interaction among team members. The presence of multiple knowledge and belief systems implies less cohesiveness, more information sources, views, and perspectives and more discussion of alternatives (Hambrick & Mason, 1984; Miller, Burke & Glick, 1998; Wiersema & Bantel, 1992). Also, group members tend to disagree more often and are more eager to challenge the ideas put forth by others (Miller et al., 1998). The debate with others confronts managers with new views and perspectives and stimulates them to draw on their own knowledge base and rethink their own points of view (Simons, Hope Pelled & Smith, 1999). All in all, heterogeneity meets the conditions for high sociocognitive complexity. Moreover, heterogeneity may also reduce part of the other problems associated with control differentiation. More specifically, heterogeneity may foster perceptions of fairness by

¹ For alternative viewpoints from authors who question the use of observable demographic proxies for managerial cognition see, e.g., Markóczy (1997) and Miller et al. (1998).

communicating that competing interests are taken into account by the corporate management team (Carpenter & Fredrickson, 2001). Altogether, this leads to hypothesis 3.

Hypothesis 3: TMT demographic heterogeneity moderates the negative relationship between control differentiation and corporate performance.

Role differentiation. Our final hypothesis deals with role differentiation in the team. In most teams, some form of division of labor or role differentiation takes place. In fact, the distinction of different roles can be an important determinant of the effectiveness of teams (Belbin, 1981). In its most basic form, role differentiation can involve the distinction between a CEO and the rest of the corporate management team. However, in many teams, each single member is assigned a formal role or responsibility. We argue here that assigning responsibilities over (groups of) business units to specific members of the corporate top management team can increase the ability to adopt control differentiation. We have four reasons for this. First, division of labor encourages specialization (Mintzberg, 1983). Giving managers the responsibility over a particular group of business units allows them to become familiar with the specific circumstances of those business units and the styles of control that are appropriate for those business units. Second, role differentiation allows selection of the manager that fits the control style of certain business units best. In this way, managers can be selected on the basis of their backgrounds and experiences, and, consequently, on the basis of their mindsets and belief systems. Third, role differentiation allows individual managers to focus on their own divisions, regions or business units in particular. This requires less mutual adjustment and lateral communication than would be the case in functionally differentiated teams (cf. Finkelstein & Hambrick, 1996) or in teams that have no clear role differentiation. Likewise, the influences managers exert on each other's viewpoints will be less as well. Finally, role differentiation induces the creation of different subgoals and frames of reference (cf. Lawrence & Lorsch, 1967), which reduces the likelihood of excessive cohesion and the associated risk of a too narrow view of the world. In sum, assigning team members responsibility over separate (groups of) business units, divisions, or regions stimulates the creation of different mindsets and reduces the likelihood that interaction among team members leads to premature consensus. This may reduce the potential negative effects of control differentiation. This leads to the final hypothesis:

Hypothesis 4: Role differentiation moderates the negative relationship between control differentiation and corporate performance.

4.4 Methods

Sample and data collection

We tested our hypotheses on a sample of Dutch corporations listed on the Amsterdam Stock Exchange. We selected corporations with more than 500 employees to rule out the chance that functionally organized or single business unit corporations would be targeted (cf. Mintzberg, 1983). The initial sampling procedure yielded a list of 96 usable corporations for which measures of performance, our dependent variable, were widely available. Since many of the required data to measure our independent variables were not available from secondary sources, we also conducted a mail survey. Questionnaires were sent to a key informant (mostly the CEO) in all 96 corporations. We chose corporate-level informants since they are usually best informed about corporate-wide management issues. In most corporations, we were also able to identify a second or third informant, mostly people holding other important corporate-level positions such as CFO or Director of Corporate Strategy. A total of 209 questionnaires were sent, of which 79 were returned (a response rate of 37.8%). The 79 respondents provide data of 55 corporations (57.3% of our initial sample of 96 corporations), of which 54 were usable. Tests for non-response bias revealed that the corporations in our sample did not differ significantly from the non-respondents in terms of Return on Assets and total number of employees. Marginal differences exist in total assets. Corporations in our sample are larger in terms of total assets than the non-respondents ($p < .10$). Corporations in our sample represent the following industries: construction (7.3%), services (30.9%), trade (18.2%), manufacturing (38.2%), and printing & publishing (5.5%).

Unit of analysis

In line with Prahalad and Bettis (1986), we focus on the corporate management team and its relationship with the next highest level of line management in the corporation, being either business-, group-, or divisional-level management. In Dutch corporations, the corporate management team, or Board of Executives, is usually fairly easy to observe from public sources such as annual reports or company websites. It usually consists of a CEO and a

number of other executives² responsible for managing the corporation as a whole. Differentiation of control was assessed for the hierarchical level in the line organization directly below the corporate management team. As such, we observe the degree to which different approaches are used by the corporate management team to control or manage the different business units at the hierarchical level directly below them³.

Operationalization of main variables

Performance. We used Return on Assets (ROA) as indicator of corporate performance. We used the average ROA over 2001 and 2002 in the analysis. Other performance measures were used to check robustness of the models (see Additional analyses).

Control differentiation. Although research has generated several high quality measures of internal structure and control arrangements in diversified and multinational corporations (see, e.g., Hill et al., 1992; O'Donnell, 2000), measures of the degree of differentiation of these arrangements were not available. From the many possible dimensions of structure and control we identified four, which we considered key in identifying the relationship between headquarters and the separate divisions or business units in a corporation: centralization, evaluation, compensation, and formalization. Respondents were asked to indicate on a five-point scale to what extent differences between business units exist in terms of: (a) the degree of autonomy business units have to take important decisions (e.g., with respect to strategy, investments, etc.); (b) the nature of the criteria that are used for evaluating business unit performance; (c) the nature of the criteria that are used to determine compensation of business unit managing directors; (d) the degree to which procedures and directives have to be followed by the business units (e.g., with respect to the budgeting process). Factor analysis showed that all four items loaded highly on one factor. The answers to the four questions were averaged to create a composite measure of differentiation. Cronbach alpha for this scale is 0.61, which is low and acceptable for early stages of research only (Nunnally, 1967). Considering the “newness” of the control differentiation scale, we decided to accept the scale. However, we also ran tests with surrogate variables (see Hair, Anderson, Tatham & Black, 1998) to check the robustness of our models (see Additional analyses). Since we had multiple

² Outside directors form a separate controlling body: the Supervisory Board.

³ In most large corporations, multiple levels of management exist, as subsidiaries or operating companies often operate under divisional management and do not report to company headquarters directly. We did not assess differentiation between units at these lower levels of management.

respondents in 20 corporations, we defined interrater agreement indices (r_{wg}) (see, e.g., James, Demaree & Wolf, 1984, 1993) to assess the extent to which respondents in the same corporation agreed on the degree of control differentiation. For each corporation with multiple respondents, we computed the agreement index. Overall the index was very high and well above generally accepted levels (median $r_{wg} = 0.93$). Therefore, we averaged the scores of multiple respondents to arrive at a control differentiation score for the corporation as a whole.

TMT size. We assessed TMT size as the total number of executive members of the corporate management team and averaged the number of team members reported in the annual reports of 2001 and 2002.

TMT heterogeneity. Many demographic proxies for TMT heterogeneity are available from existing research (see, e.g., Carpenter & Fredrickson, 2001; Carpenter, 2002; Finkelstein & Hambrick, 1996). We used the following three indicators: (a) firm tenure heterogeneity; (b) functional background heterogeneity; (c) industry background heterogeneity. We expected these three to accurately reflect the diversity of experiences required to view and manage different types of businesses and different styles of control. Since the required TMT data were not available for all corporations, we had to rely on a subjective assessment of heterogeneity by the key informants⁴. We asked them to assess the three dimensions of heterogeneity on a five-point scale. The three indicators loaded highly on one factor and were averaged to arrive at a composite scale for TMT heterogeneity (Cronbach alpha = 0.60; median interrater agreement = 0.97). Surrogate variables were used to check robustness (see Additional analyses).

TMT role differentiation. Respondents were asked to indicate what the areas were to which responsibilities in the team were assigned. Based on the answers, we developed a dummy variable. This dummy variable has a value of 1 if the team has assigned members responsibility over (groups of) divisions, business units or regions. The variable is valued 0

⁴ A complete directory of executive biographies does not exist in The Netherlands. Instead we had to rely on annual reports and company websites. In many cases, the required data were not available and could not be retrieved in other ways. Our measure of heterogeneity therefore deviates from the more common ways to measure TMT heterogeneity through objective proxies. However, the use of objective, demographic proxies is not without criticism. It has been argued that demographic diversity does not necessarily reflect cognitive diversity (see, e.g., Miller et al., 1998). Under the assumption that our perceptual measure not only reflects actual objective heterogeneity, but is also determined strongly by the key informant's own perception and experiences in group discussion and interaction, our subjective measure might actually, to some extent, counter these points of criticism.

for corporations that lack a clear role differentiation or that are differentiated to functional areas only.

Operationalization of control variables

We controlled for corporate size because this has been argued to affect the performance of firms as well as the relationship between top team composition and organizational outcomes (see, e.g., Carpenter, 2002). The variable was measured as the total assets of the corporation. Other control variables were used to test the robustness of our models (see Additional analyses).

4.5 Results

Descriptives and correlation coefficients are shown in table 1. From table 1 it becomes clear that control differentiation correlates negatively with firm performance, which suggests some first evidence in support of hypothesis 1. Results also show a significant negative relationship between performance and top management team heterogeneity. No significant relations exist between control differentiation and two of the moderator variables: TMT size and heterogeneity. There is a significant relationship between control differentiation and role differentiation, however. Total assets is positively related to team size, which is in line with what one might expect, but negatively to team heterogeneity. Descriptive statistics also reveal that control differentiation is low on average in the corporations we studied.

Table 1: Descriptives and correlation matrix

	Mean	S.D.	1	2	3	4	5
1.Performance	3.26	9.24					
2.Total assets (mln. Euro) ^a	33,414	126,057	-0.174				
3.Control differentiation	1.86	0.51	-0.391 **	0.049			
4.TMT size	3.46	1.29	-0.002	0.705 ***	-0.052		
5.TMT heterogeneity	3.53	0.75	-0.345 *	-0.278 *	0.070	-0.162	
6.TMT role differentiation	0.78	0.42	-0.050	0.262 †	0.267 *	0.260 †	-0.250 †

n=54

†: $p < 0.1$; *: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.001$ ^a: This variable has been transformed (log) to achieve a more normal distribution. Descriptive statistics are reported for the original variable.

We used regression analysis to test our hypotheses. Table 2 shows the results of the different regressions models. Model 1 reports the main effects only. The results show that control differentiation is significantly negatively related to Return on Assets, which supports hypothesis 1. Results from model 1 also indicate a significant negative relationship between Return on Assets and TMT heterogeneity. The results also indicate a negative relationship between total assets and performance for the firms in our sample. Models 2, 3 and 4 extend model 1 with a single interaction term each. The three interaction terms were computed by taking the product of control differentiation and each of the three moderator variables. Following recommendations of Aiken and West (1991), we centered each variable, except for the dummy variable for role differentiation, before composing the interaction terms. The results show that the inclusion of interaction terms improves the overall model fit of all three models. Inspection of the signs and significance levels of the regression coefficients of the interaction terms in models 2 and 4 shows support for hypotheses 2 and 4. Both team size and role differentiation moderate the negative relationship between control differentiation and performance. Contrary to expectations, we did not find similar results for TMT heterogeneity. Rather, results from model 3 show that team heterogeneity amplifies rather than moderates the relationship between control differentiation and performance. Model 5 includes all main effects and interaction terms. Overall model fit improves significantly upon including all

interaction terms. Inspection of the individual interactions now only shows significant interaction effects for TMT heterogeneity and role differentiation, which might be attributed to the small sample in relation to the number of variables in this extended model. The inclusion of interaction terms and the correlation we found between some of the independent variables could indicate the presence of multicollinearity in the regression models. However, inspection of VIF scores showed us that none of these scores exceeded the generally accepted limit of 10, indicating that no serious multicollinearity was present in any of our regression models.

Table 2: Results of regression analyses

	Model 1	Model 2	Model 3	Model 4	Model 5
(Constant)	(....) *	(....) *	(....) *	(....) *	(....) *
Total assets	-0.402 *	-0.360 *	-0.414 *	-0.359 *	-0.360 *
Control differentiation	-0.332 **	-0.411 **	-0.395 **	-0.932 ***	-0.867 **
TMT size	0.192	0.167	0.162	0.171	0.146
TMT heterogeneity	-0.397 **	-0.360 **	-0.411 **	-0.438 **	-0.423 **
TMT role differentiation	-0.005	0.058	0.089	0.093	0.160
Control differentiation X TMT size		0.276 *			0.106
Control differentiation X TMT heterogeneity			-0.308 **		-0.210 †
Control differentiation X TMT role differentiation				0.651 **	0.501 *
R ²	0.337	0.405	0.422	0.417	0.483
F-ratio	4.877 **	5.341 ***	5.713 ***	5.594 ***	5.245 ***
Change in R ²		0.069	0.085	0.080	0.146
F-ratio change in R ²		5.415 *	6.895 *	6.424 *	4.221 *

n=54

Dependent variable is Return on Assets (mean ROA 2001 and ROA 2002).

Standardized coefficients are shown.

†: $p < 0.1$; *: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.001$ (one-tailed if hypothesized; two-tailed otherwise).

Figures 1, 2 and 3 are graphical illustrations of the interaction effects (see, e.g. Aiken & West, 1991) based on the results of models 2, 3, and 4. We plotted the relationship between control differentiation and Return on Assets for high (one standard deviation above mean) and low (one standard deviation below mean) levels of TMT size and heterogeneity and for firms with (dummy variable equals 1) or without (dummy variable equals 0) the proposed type of role differentiation. The relationships are all negative, but the steepness of the lines differs across different values of the moderator variables. In line with our expectations, the relationship becomes flatter for high levels of team size and for teams with role differentiation. Contrary to expectations, the relationship between control differentiation and performance becomes steeper at high levels of team heterogeneity.

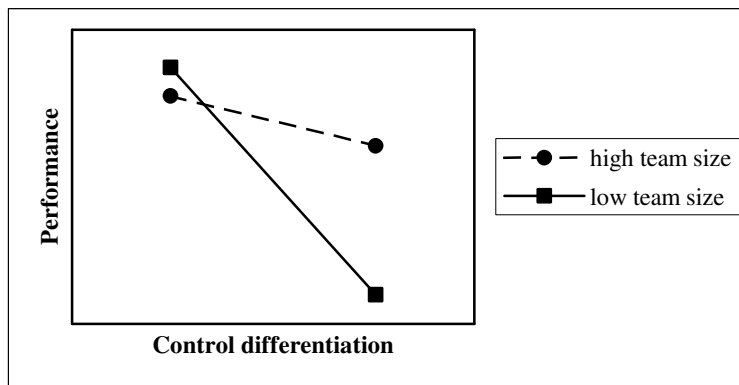


Figure 1: Moderator effect of team size

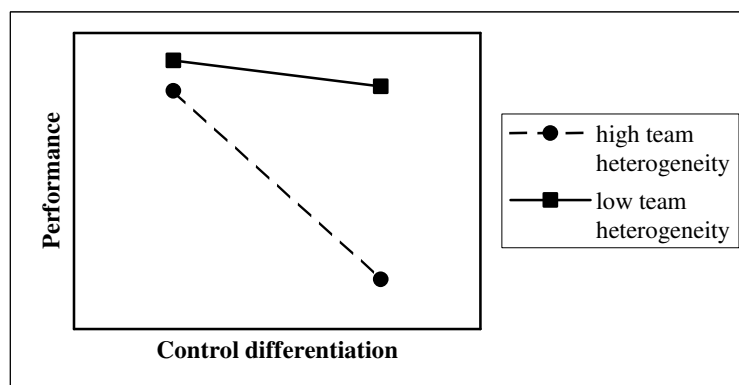


Figure 2: Moderator effect of TMT heterogeneity

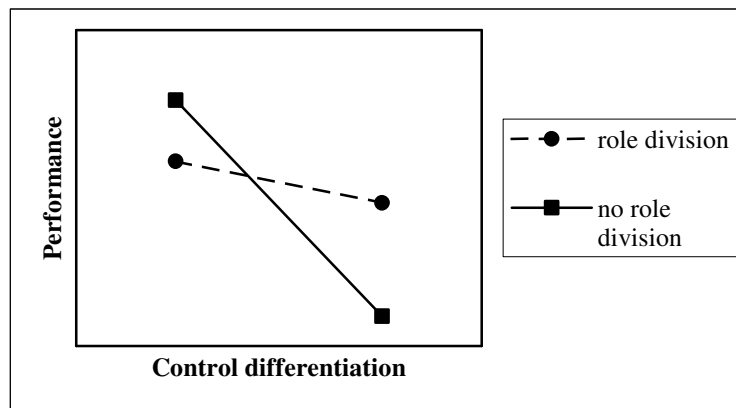


Figure 3: Moderator effect of role differentiation

Additional analyses

To test the robustness of the models and the results we found, we performed a number of additional analyses. The analyses center around three characteristics of our methods that could be potential weaknesses: the use of a single criterion for performance; the use of a limited number of control variables; the low inter-item reliability coefficients for control differentiation and TMT heterogeneity.

Performance. We addressed this issue by running the same regression models with a number of other dimensions of performance. The use of Return on Equity yielded fairly similar results as the ones presented earlier, both for the main effects of control differentiation and TMT heterogeneity as well as the three interactions. Except for the main effect of control differentiation (which became not significant) and the moderator effect of role differentiation (which became marginally significant), results were also fairly stable when we used Earnings per Share as dependent variable. The use of Market to Book value shows a different picture, as we did not find any support for the hypothesized relationships when using this variable as dependent variable. The results of these analyses are included in the appendix to chapter 4.

Control variables. The limited sample size precludes the inclusion of many control variables. Therefore, we ran separate tests with different control variables. In the original models we used total assets, but we also ran models with number of employees, number of business units, simple count measures of product and geographic diversification, and with a self-reported measure of strategic variety as control variables. The latter was based on four

questionnaire items ($\alpha = 0.69$; median interrater agreement = 0.86) that measured differences between business units in terms of: (a) the strategies pursued; (b) the growth objectives (e.g., expansion or consolidation); (c) the capital intensity of the industries in which they operate; (d) the turbulence of the markets they serve. The main effects of these control variables were not significant. More importantly, inclusion of these variables did not change the results we found earlier. Similar results were also found when we introduced industry dummies to control for industry effects on performance.

Surrogate variables. As we indicated in the operationalization section, inter-item reliability coefficients are low for control differentiation and TMT heterogeneity. Hence, we decided to run additional regression models with surrogate variables instead of these scales. Surrogate variables can be chosen from the items that make up the scale. In general, the item with the highest factor loading in a factor analysis is an adequate candidate to function as a surrogate variable (Hair et al., 1998). However, since the factor loadings did not differ much, we decided to use an alternative criterion: the extent to which we could cross-check the item with other variables⁵. This resulted in the use of *autonomy differentiation* (item a) as surrogate variable for the control differentiation scale and the use of *tenure heterogeneity* (item a) as surrogate for TMT heterogeneity. The main effects remained unchanged. Autonomy differentiation was significantly negatively related to performance. Thus, hypothesis 1 was supported. Support was also found for hypothesis 4, but hypotheses 2 and 3 were not supported. The results of these additional analyses can be found in the appendix to this chapter.

⁵ Autonomy differentiation was cross-checked with a measure obtained from subsidiary-level data. For 17 corporations in our sample we have data of at least three business units (a total of 75 business units). The managing directors of these business units were asked to rate their degree of autonomy based on eight items (α is 0.87). Subsequently, coefficients of variation were computed for every corporation. Correlation between the corporate- and business-level measures was significant (0.509; $p < 0.05$). Firm tenure heterogeneity was cross-checked with a measure (coefficient of variation) based on objective data that we had for 36 corporations in our sample. Correlation between the two measures was significant (0.568; $p < 0.001$).

4.6 Discussion and conclusions

This paper provides new insights into the control processes used by corporate headquarters in diversified firms. Despite the great amount of research in this area, the performance implications of control differentiation remain largely unknown. This paper aims at filling that gap. An important finding is that control differentiation is negatively related to corporate performance. Although previous studies emphasized the importance of control differentiation, here we claim that these studies supported the importance of tailored control for individual business units rather than control differentiation across business units. Based on these previous studies and the findings from this study, corporations are advised to create portfolios of business units with similar strategic, environmental, and industry characteristics to be able to reap the benefits of tailoring, while avoiding the costs of differentiation. This conclusion is in line with the qualitative, practitioner oriented studies of Collis and Montgomery (1998) and Goold and Campbell (1987).

To the extent that firms do face high levels of variety in their portfolio, they are advised to take into account the potential problems of control differentiation. Variety in the portfolio may be partially beyond control, for example due to changes in the environment. Furthermore, variety may be beneficial and a deliberate choice of firms, since it allows risk-spreading and the creation of balanced portfolios. To establish fit between control style and each of the business unit contexts, some degree of control differentiation is then required. Likewise, control differentiation can be found in “ambidextrous organizations”, a term used to denote organizations where entrepreneurial, innovative business units are kept culturally and structurally separated from the traditional, core business units in the organization (Tushman & O’Reilly, 1997). Our findings suggest that these firms should structure their top management teams to allow sufficient sociocognitive complexity. However, the findings suggest that this may moderate the negative effects, but not outweigh them. Therefore, more attention should be paid to the mitigation of problems of control differentiation, such as perceptions of unfairness, unclearness, and fragmentation.

Increasing the heterogeneity among team members by including members with diverse backgrounds and experiences does not appear to increase the ability of a team to adopt a differentiated control style. Moreover, we found a negative main effect of TMT heterogeneity

on firm performance. This suggests that the negative side-effects of heterogeneity outweigh the potential benefits. These side-effects may result from communication problems due to the use of different “languages” of members with different cognitive mindsets, introducing the risk of conflict and political “head-butting” (Amason, 1996; Miller et al., 1998; Schwenk, 1998; Wiersema & Bantel, 1992). From our study, it can be concluded that diversified firms benefit more from homogeneity than from heterogeneity among their TMT members. Homogeneity enhances group cohesion and consensus, facilitating intra-group communication, mutual understanding and commitment to decision outcomes (Amason, 1996; Michel & Hambrick, 1992; Wiersema & Bantel, 1992). Such a homogeneous, cohesive team might be necessary to serve the purpose of stimulating and coordinating sharing of knowledge and resources between interdependent business units (Michel & Hambrick, 1992). In fact, homogeneous teams might actually be required to prevent fragmentation in the corporation and sustain integration between differentiated business units. It has been suggested before that control differentiation yields the best results if accompanied by the existence of shared values across the different business units (Nohria & Ghoshal, 1994). Homogeneity in the team might be a first step in communicating these shared values, which may also reduce feelings of inequality at the business level.

The present study is not without limitations. We limit our discussion to shortcomings in the conceptualization and measurement of control differentiation. Despite the existence of many empirical studies in the field of corporate control mechanisms and headquarters-subsidary relationships, existing instruments are biased towards measuring the content of control. More specifically, most studies have focused on what type of control style (e.g., strategic versus financial control) is used by corporations, rather than the degree to which this control style is differentiated. Our instrument explicitly measures the degree of differentiation, but advances can be made in developing more sophisticated measures of control differentiation. These measures should also allow distinction of the different dimensions of structure and control, such as centralization, formalization, control and incentive systems, integration mechanisms, and socialization mechanisms. After all, it is not unlikely that only some dimensions of control are differentiated, whereas others are standardized across business units. Also, more informal means of control and coordination need to be incorporated. The suggestion has been made that formal planning systems are unlikely to differ across business units in the same firm (Gupta, 1987) but that, at the same

time, informal attempts to differentiate control systems to fit individual subsidiary contexts are likely to be made in many firms (Gupta, 1987; Haspeslagh, 1982).

We believe this study contributes to existing research in two ways. First, it is one of the few studies that focus on the potential complexities of control differentiation. We claim that existing research concentrated on the benefits of tailored control at the business level, while neglecting the negative consequences of differentiation for the corporation as a whole. Second, our study also contributes to upper-echelon research. Existing research on TMT composition has concentrated mainly on the relationship with strategy formulation and the strategic direction of firms (see, e.g., Carpenter & Fredrickson, 2001; Hambrick, Cho & Chen, 1996; Wiersema & Bantel, 1992), rather than strategy implementation (for similar observations, see, e.g., Michel & Hambrick, 1992; Smith & Kofron, 1996). This is unfortunate, since research in the strategy field has emphasized the importance of the correct implementation of the chosen strategies to enhance firm performance (Hill et al., 1992; Markides & Williamson, 1996; Michel & Hambrick, 1992). This study is one of the few to relate TMT composition to strategy implementation issues in general and control in diversified firms in particular.

*Control differentiation and business unit performance:
Insights from a procedural justice perspective*

5.1 Introduction

Most of today's large corporations operate in multiple businesses (i.e., they are diversified). Hence, decisions on the composition of corporate portfolios are considered of great practical and theoretical importance (Michel & Hambrick, 1992). Practice witnessed a number of trends over the last decades, including trends of conglomeration and trends of focus in corporate portfolios (Goold & Luchs, 1993). Today, still, diversification strategy is considered one of the most important topics in strategic management research (Bergh, 2001). Although researchers are still undecided over the merits of diversification (Palich, Cardinal & Miller, 2000; Van Oijen & Douma, 2000) there seems to be consistency over the fact that benefits can only be gained from diversification if the corporate center succeeds in controlling its business units in the right way (e.g., Collis & Montgomery, 1998; Golden, 1992; Goold & Campbell, 1987; Govindarajan, 1988; Gupta, 1987; Hill & Hoskisson, 1987; Hill, Hitt & Hoskisson, 1992; Markides & Williamson, 1996; Michel & Hambrick, 1992). Against this background we focus on one aspect of the management of diversified corporations: the use of different styles of control for different business units within one and the same corporation.

In many diversified corporations considerable strategic variety among the business units exists (Calori, Johnson & Sarnin, 1994). As evidenced by Chandler (1991, p. 48) this required companies such as Du Pont and GE, to tailor their corporate planning and control processes to the needs of individual businesses or divisions: "Most significant of all, they

learned that the HQ functions varied with the characteristics of the industries in which they operated. Therefore, the production and distribution of different types of products or services required different types of planning and control systems.” These observations are shared by a great many researchers, all highlighting the importance of differentiating the corporate planning and control processes to accommodate for differences in business unit, industry, or country characteristics (see, e.g., Bartlett & Ghoshal, 1989; Bettis & Hall, 1983; Chandler, 1991; Gupta, 1987; Govindarajan & Fisher, 1990; Haspeslagh, 1982; Lorange, 1993; Nohria & Ghoshal, 1994; O’Donnell, 2000).

To the extent that differentiation induces better fit between context and organization design (Galbraith, 1973), it may improve performance for individual business units as well as corporations as a whole. However, differentiation of planning and control processes may bring about a number of complexities. Some of these problems are rooted in the inability of corporate center executives to effectively adapt their management styles to a wide variety of settings (Collis & Montgomery, 1998; Goold & Campbell, 1987; Goold & Luchs, 1993; Lorange, 1993; Prahalad & Bettis, 1986). Other problems are rooted in subsidiary managers’ reactions to inconsistencies and dissimilarities in the procedures used by their superiors: “The danger is that there will be jealousies, suspicions and less than 100 per cent commitment, rather than a tolerance for diversity.” (Goold & Campbell, 1987, p. 257). These reactions of subsidiary managers have our specific interest in this study. We argue that the problems of control differentiation have been largely neglected in the literature on corporate planning and control processes. Studying them is relevant though, since the benefits of fit may be (partially) offset by the drawbacks of differentiation. In other words, corporate managers may succeed in tailoring their styles of control to specific subsidiary contexts but the resulting differences in treatment may very well evoke negative reactions from subsidiary managers.

Researchers have used various theoretical perspectives to study control practices in multidivisional corporations. For example, contingency and agency theory are helpful in determining the appropriate control style in particular contexts. However, in order to explain the reactions of subsidiary managers to differences in control styles across subsidiaries a different theoretical perspective is required. This study applies insights from procedural justice theory (see, e.g., Lind & Tyler, 1988) to shed new light on the consequences of control differentiation. Procedural justice theory holds that fair decision-making procedures are important to people because they signal respect and the belief that their interests will be met

(Lind & Tyler, 1988). Likewise, when procedures are perceived unfair they will trigger negative reactions from those affected by the outcomes of these procedures. In organizational settings these reactions include a lack of cooperation by those involved in, and affected by the decision-making procedures. Similarly, the quality of decisions and their implementation is at stake when people involved believe the procedures to be unfair (Kim & Mauborgne, 1998).

Although procedural justice concepts have not been linked yet to the issue of control differentiation, it has been claimed that inconsistent procedures in general (Leventhal, 1980) and across business units in particular (Kim & Mauborgne, 1991, Taggart, 1997) increase the likelihood of unfairness perceptions¹. Hence, corporate control differentiation triggers negative reactions of subsidiary managers through its effects on fairness perceptions. We will argue that these negative reactions will, under some conditions, affect subsidiary performance. Notably, we claim that degree of inter-unit resource sharing and ability to express voice play an important moderating role in the relationship between control differentiation and subsidiary performance. More specifically, we hypothesize that inter-unit resource sharing accentuates the negative effects on subsidiary performance whereas the ability to express voice mitigates these negative effects.

In the background section of this paper we discuss insights from procedural justice theory and translate the more general insights to the specific context of our study. Hypotheses are developed and tested on a sample of 136 business units of Dutch corporations. A discussion section concludes the paper.

¹ Throughout this paper we will use *fairness* and *perceived fairness* interchangeably. We will also use the terms *fairness* and *justice* interchangeably. Although differences exist, the interchangeable use of these terms is common in procedural justice literature. For a discussion on the difference between objective and subjective procedural justice as well as the difference between fairness and justice see, for instance, Lind and Tyler (1988).

5.2 Background

Procedural justice theory holds that people are sensitive to the fairness of decision-making processes rather than merely to the outcome of the processes that affect them (see, e.g., Leventhal, 1980; Lind & Tyler, 1988)². Likewise, unfavorable outcomes of decisions may be more easily accepted by individuals if the procedures used to arrive at those decisions are perceived to be just (Kim & Mauborgne, 1998). Originally studied in legal and judicial settings (see, e.g., Thibaut & Walker, 1975) the concept of procedural justice has now found its way in a variety of disciplines and has been applied to a variety of decision settings, including organizational ones such as budget allocation (Libby, 1999) and pay raise decisions (Folger & Konovsky, 1989). Attempts have been made to develop theoretical insights that can be generalized across different settings. Well known is the study of Lind and Tyler (1988) who, based on a thorough review of the literature, described two theoretical perspectives that explain the effects of procedural fairness perceptions. According to the first perspective, concerns over fair procedures are mainly based on self-interest of egoistic human beings. Procedures are considered fair to the extent that the outcomes of these procedures promise to meet the short- or long-term interests of persons. The second perspective emphasizes group values and group identification. According to this perspective, group or organizational membership is important to fulfill peoples' needs of self-identity, self-worth, acceptance, and respect (Konovsky & Brockner, 1993). Fair procedures strengthen these needs and increase people's loyalty and commitment to the group or organization to which they belong (Lind & Tyler, 1988). Together, these perspectives explain much of how people react to unfair procedures. In organizational settings, unfairness perceptions may lead to frustration, noncompliance with rules and procedures, negative evaluations of superiors, distrust, low quality of work life, sabotage, low commitment to the organization, and poor performance (see, e.g., Cropanzano & Randall, 1993; Folger & Konovsky, 1989; Kim & Mauborgne, 1998; Lind & Tyler, 1988).

² This distinguishes procedural justice from distributive justice, which is concerned with the fairness of the outcomes of decisions. Researchers have also distinguished interactional justice. Whereas procedural justice refers to the structural and formal aspects of processes, interactional justice refers to interpersonal treatment and social aspects of fairness. The difference between the fairness classes is not always clear, though, and interactional justice has often been considered an aspect of procedural justice rather than a separate form (for overviews see, e.g., Bies, 2001; Greenberg, 1993).

Procedural fairness in headquarters-subsidary relationships

Although the application of procedural justice literature to gain insights in the control of business units is relatively new, studies in related areas set the stage. Particularly relevant in the context of our study is Kim and Mauborgne's theoretical and empirical work on procedural fairness perceptions in headquarters-subsidary strategic decision-making processes (1991, 1993a, 1993b, 1995, 1996). Using a total sample of 221 managers³ of 19 multinational corporations, they investigated the behavioral and attitudinal effects of unfairness perceptions during and after annual strategic planning processes. Their findings suggest that procedural fairness enhances the quality of strategy implementation at the subsidiary level. For example, they found that procedural fairness was associated with subsidiary managers' compliance with corporate strategic decisions, both directly and indirectly through mediating factors such as organizational commitment, trust in corporate management, and satisfaction with the outcomes of decisions (Kim & Mauborgne, 1993a). Their findings also suggest a relationship between procedural fairness and the quality of strategy formulation. For example, they found that perceived fairness was associated with strategic decision-making processes that foster learning, strategic renewal, and a balance between corporate and subsidiary level interests (Kim & Mauborgne, 1993b). In the remainder of this section we draw upon these insights to explain the link between procedural justice perceptions and performance.

Kim and Mauborgne's treatment of strategy implementation *and* formulation is relevant in the context of large multinational or diversified corporations. In contrast with traditional views, strategy formulation and implementation cannot be strictly separated in most of today's organizations (Mintzberg, 1990). Rather, in most large and complex organizations strategic decision making is a multilayered process (Burgelman, 1983) that involves different hierarchical levels and a strategy process in which formulation and implementation, and planning and control go hand-in-hand in an iterative rather than sequential manner (Quinn, 1980). Grant (2003) illustrates this process in a study of large oil corporations. The general planning cycle in these corporations includes the setting of planning

³ The total sample consists of usable responses from 221 managers (142 at the subsidiary level; 79 at the corporate level). After a second round of data collection the sample includes usable data obtained from 119 managers at the subsidiary level and 61 at the corporate level. The studies differ in the samples used, depending on whether data from the first or second round are used, and whether the unit of analysis is the subsidiary manager or a decision-making unit. Such a decision-making unit is a group of headquarters and subsidiary managers who work together to formulate the strategy of a particular subsidiary.

guidelines by corporate headquarters. Within these guidelines business-level executives formulate their strategic business plans, which are subsequently discussed with corporate management and ultimately serve as input for annual budgeting and performance appraisal processes. In sum, strategic decision making is a combined top-down/bottom-up process that requires cooperation and interaction between corporate- and business-level executives (cf. Lorange, 1993).

Fair procedures induce such cooperation through the effects on trust and commitment (Kim & Mauborgne, 1998; Korsgaard, Schweiger & Sapienza, 1995). Identification with the organization and trust in the intentions of corporate-level management enhance the willingness of subsidiary managers to comply with organizational rules and decisions, but also to invest time and energy beyond that what is expected of them. This extra-role behavior or voluntary cooperation⁴ is important, both for strategy formulation and implementation. Strategy formulation requires sharing and synthesizing knowledge, wisdom, and insights from different parties at different hierarchical levels, and this cannot be achieved without voluntary cooperation of those involved. As Kim and Mauborgne (1998, p. 323) point out: “Creating and sharing knowledge are intangible activities that can neither be supervised nor forced out of people.” Similarly, implementation of decisions requires more than just complying with formal role requirements (Kim & Mauborgne, 1998, p. 324): “Without the creative initiatives and spontaneous actions of people – characteristics of voluntary cooperation – needed improvisation in implementing strategic decisions is not likely to happen ...”. In sum, fair procedures induce in-role (compliance with formal role requirements and decisions) as well as extra-role behavior. Unfair procedures may lead to in-role behavior at best. More likely, however, it will lead to a lack of cooperation and unwillingness to share information (Kim & Mauborgne, 1998; Korsgaard et al., 1995). These observations suggest that the quality of strategy formulation and implementation is damaged when people involved perceive the decision-making processes to be unfair. Likewise, since both strategy formulation and implementation are important for success (Govindarajan, 1988; Hill, 1994; Michel & Hambrick, 1992), unfairness perceptions place performance at stake.

⁴ Kim and Mauborgne (1996) also refer to Williamson (1975), who distinguishes between consummate cooperation and perfunctory cooperation. Kim and Mauborgne (1998) use the terms voluntary and compulsory cooperation, respectively. Extra-role behavior, consummate cooperation, or voluntary cooperation are also referred to as organizational citizenship behavior (OCB) (see, e.g., Tepper & Taylor, 2003; Van der Vegt, Van de Vliert & Oosterhof, 2003).

What determines fairness perceptions?

Researchers have identified a number of factors that determine perceptions of procedural justice (see, e.g., Folger & Konovsky, 1989; Greenberg, 1986; Leventhal, 1980). In this section we elaborate on two factors. The role of inconsistencies in procedures will be discussed first as it deals with the central topic of this study: differences in the procedures used across parties, in our case business units or subsidiaries within a multidivisional corporation. Second, the voice effect will be discussed as one of the most prominent elements of all literature on organizational justice.

Differences in treatments and inconsistencies in procedures used across different parties have been considered important determinants of fairness judgments (Folger & Konovsky, 1989; Greenberg, 1986; Leventhal, 1980, Taggart, 1997; Van den Bos, 1996). This is also recognized in Kim and Mauborgne's empirical studies. For example, Kim and Mauborgne (1993b, p. 427) speak of consistency as "a signal that a level playing field exists across subsidiary units and that political favoritism does not dominate the dynamics of the decision process." Therefore, in line with the self-interest perspective of procedural justice, consistent procedures provide individuals with a clear structure that can be considered to protect their interests. Moreover, inferences about fairness of procedures are also based on comparison with others in the "group" (cf. Naumann & Bennett, 2000). In line with the group-value perspective of procedural justice, consistencies across different parties within the group and equal treatment of these parties will strengthen identification with the group and its values and objectives. The extent to which procedures are consistent can also affect justice perceptions through other factors. More specifically, the differences in procedures used across different parties may cause ambiguity as these parties fail to make sense of the different procedures their superiors use (cf. Goold & Campbell, 1987). It has been argued that understanding and clarity of procedures, expectations, and decisions are important bedrock principles of procedural justice that, when violated, may cause feelings of unfairness to arise (Kim & Mauborgne, 1998). In sum, the lower the consistency of procedures across different parties, the lower the likelihood that these procedures will be considered fair (cf. Kim & Mauborgne, 1995).

Process control, or the ability to express voice in a decision-making process, has been considered one of the most important determinants of fairness (Korsgaard et al., 1995; Lind & Tyler, 1988; Shapiro, 1993). The voice effect (Folger, 1977) also captures many related

dimensions of procedural justice. For example, it is in line with Leventhal's (1980) representativeness rule, Kim and Mauborgne's (1998) bedrock principle of engagement, and Kim and Mauborgne's (1991, 1993a, 1993b, 1995, 1996) dimensions of bilateral communication and ability to challenge views of superiors. Voice can influence fairness perceptions because it allows people input into a decision-making process. To the extent that these inputs are taken into consideration, people gain control over the process and, ultimately, over the outcomes of these processes (Leventhal, 1980; Thibaut & Walker, 1975). Alternatively, when people have little opportunities to express voice, their ability to ensure that decisions are made in a way that protects their long-term interests will be limited as well (Johnson, Korsgaard & Sapienza, 2002). In addition to this self-interest effect, the importance of voice can also be explained using the group value model of procedural justice. Irrespective of the potential influence over outcomes, voice can enhance fairness perceptions because it gives people the ability to present their case or at least tell their side of the story (Lind & Tyler, 1988; Shapiro, 1993; Tyler, 1987; Tyler, Rasinsky & Spodick, 1985). Therefore, even if voice does not influence the final outcome of a decision-making process, people can derive value from the ability to express their ideas, opinions, and viewpoints⁵.

Procedural justice and control of business units

The arguments discussed so far suggest that procedural justice is a relevant perspective to study the effects of differences in control practices in multidivisional firms. Although the importance of control differentiation to accommodate for differences in business unit strategic contexts has been propagated by many (see, e.g., Chandler, 1991; Gupta, 1987; Lorange, 1993; Nohria & Ghoshal, 1994) the negative consequences have remained largely unrecognized. However, as discussed in the previous sections, procedural justice literature provides important new insights concerning the "interaction dynamics in head office-subsidiary decision-making dyads" (Kim & Mauborgne, 1993a, p. 504). Although we do not explicitly focus on strategic planning processes, we do focus on headquarters-subsidiary relationships and this makes our setting comparable to the one used in Kim and Mauborgne's

⁵ Some nuances can be made with respect to these statements. For example, Shapiro (1993) distinguishes between instrumental and value-expressive effects of voice but considers the two intertwined. Although people might derive value from merely telling their side of the story, part of this value might be rooted in the instrumental reasons rather than value-expressive reasons. For example, even if people are told that they cannot influence a decision (e.g., because the decision has already been made) the ability to express voice may positively affect fairness perceptions out of value-expression reasons but at the same time people may consider this a final opportunity to still influence the decision anyway. It should also be noted that many question the effect of having input in decisions when this input is not taken into consideration by those ultimately responsible for making the decision: in such a situation "voice is void of meaning" (Korsgaard et al., 1995, p. 64).

studies. As discussed earlier, in most large corporations planning and control are interrelated processes. Indeed, the literature on control of business units usually deals with elements of both (see, e.g., Goold & Campbell, 1987). Others have also pointed at the relevance of procedural justice in the context of the organizational reward system (see, e.g., Folger & Konovsky, 1989; Welbourne, Balkin & Gomez-Mejia, 1995), which is an important mechanism for the control of business units as well (see, e.g., Govindarajan & Gupta, 1985; Gupta & Govindarajan, 1986). In general, justice researchers have used the terms process or procedure to refer to “something that is a method, manner, technique, or means by which something else is accomplished.” (Cropanzano & Ambrose, 2001). To the extent that control can be seen as the processes or mechanisms by which organizations ensure that sub-units act in a coordinated manner to achieve organizational goals (Das, 1989; Lebas & Weigenstein, 1986; Ouchi, 1979; Tannenbaum, 1968) differences in these processes across business units in one and the same firm, may lead to perceptions of unfairness and their associated negative effects. In the next section we build on this notion and focus on the negative consequences of control differentiation using the procedural justice perspective.

5.3 Hypotheses

In this section we outline our arguments and summarize these in three hypotheses. Our focus is on the control arrangements that characterize headquarters-subsidary relationships in multidivisional firms. The arrangements capture important relationships that exist between company headquarters and their subsidiaries. For example, they involve the degree of autonomy granted to an individual business unit and the nature of the criteria used to evaluate its performance. The degree to which these arrangements differ across subsidiaries within one and the same corporation is called the degree of control differentiation. In terms of the procedural justice arguments outlined in the background section, we treat control differentiation as an inconsistency in the procedures used by corporate headquarters which may give rise to unfairness perceptions. Our level of analysis is the business unit level. Hence, control differentiation refers to subsidiary managers’ perceptions of the differences that exist between the control arrangements used for their own subsidiary and the arrangements used for other subsidiaries in the same corporation. The following observations provide the basis for our hypotheses. First, in line with the procedural justice literature we will assume that

perceptions of unfairness may damage trust and organizational commitment of subsidiary managers. This reduces their willingness to voluntarily cooperate in the formulation and implementation of important strategic decisions. Since performance is to a large extent determined by the quality of both, subsidiary performance will suffer as a result of unfairness perceptions. Second, strategic decision making in complex firms is a top-down/bottom-up process that requires interaction and cooperation between corporate and business level managers (cf. Lorange, 1993). However, the degree to which cooperation between the two levels is required differs across different headquarters-subsidiary pairs. Our first hypothesis deals with this effect under the recognition that voluntary cooperation of subsidiary managers is important in some contexts but less in others. Likewise, the negative effects of control differentiation vary across different subsidiary contexts as well. Third, differences in control arrangements increase perceptions of unfairness but other factors are relevant as well. More specifically, in line with the bulk of procedural justice literature we argue that process control, or voice, makes subsidiary managers less sensitive to the exact nature of the procedures used by their superiors (cf. Johnson et al., 2002). The second and third hypotheses deal with this. To the extent that subsidiary managers have the ability to exert influence over the processes that affect them, the negative performance effects of control differentiation will be mitigated. In sum, we will argue that the exact relationship between perceived control differentiation and business unit performance depends on business unit specific circumstances, notably, the required degree of cooperation and the ability to express voice. We start now with our discussion of the former.

Resource sharing

Our first hypothesis deals with the importance of cooperation. In diversified firms the cooperation required in decision-making processes very much depends on the degree to which interdependencies between business units exist. Relatedness between business units may give rise to all kinds of synergistic advantages (Penrose, 1959; Teece, 1982). However, the degree to which these relationships may actually be exploited depends to a great deal on coordination efforts of corporate-level executives (St. John & Harrison, 1999). Effective sharing of resources and knowledge usually requires intensive communication and collaboration between business units and corporate executives. Although business units are normally more knowledgeable of their local circumstances, corporate executives usually have the wider view that is required to coordinate processes in which several business units are involved (Egelhoff, 1988). Planning and control processes therefore depend heavily on the input of both levels of

the firm. Inter-unit resource sharing also requires joint decision making, information sharing, joint problem solving, and mutual adjustment between units. Under conditions of high inter-unit resource sharing cooperation in general, and voluntary cooperation in particular, becomes especially important. Therefore, the negative effects of control differentiation will become particularly evident in situations of high inter-unit resource sharing. Alternatively, under conditions of low inter-unit resource sharing the problems associated with unfairness through control differentiation may be present but carry smaller weight. This notion is in line with Kim and Mauborgne (1995) who found consistency in procedures positively related to global learning. Moreover, they found that perceptions of fairness had a stronger effect on subsidiary performance for subsidiaries in global industries than for those operating in multi-domestic industries (Kim & Mauborgne, 1993b). To the extent that "...social harmony or a cooperative atmosphere between the corporate center and subsidiary units will foster global learning by making the sharing of knowledge and information a "desirable" activity..." (Kim & Mauborgne, 1995, p. 47), their findings support our arguments:

Hypothesis 1: Inter-unit resource sharing accentuates the negative performance implications of perceived control differentiation.

Expressing voice

The first hypothesis dealt with the negative implications of unfairness perceptions caused by differences in the control arrangements used across subsidiaries. We now turn our attention to other factors that may influence perceptions of fairness under the assumption that the presence of these factors influences the likelihood that control differentiation leads to unfairness in the first place. As we argued in the background section, voice is considered one of the dominant determinants of fairness perceptions. Voice strengthens subsidiary managers in the feeling that their own interests will be taken into account and that they have control over processes and the outcomes of those processes. Moreover, even if the influence of subsidiary managers is limited, voice gives them at least the possibility to present their case. Therefore, voice is likely to reduce the negative effects of control differentiation. In the following we discuss two factors that serve as proxies for voice: subsidiary size and communication.

Subsidiary size. Within diversified firms, business units will differ in their ability to influence the planning and control processes in a way that protects their own interests. We expect larger business units to be better able to exert influence on the planning and control processes than smaller ones. In general, organizational size has been related to the resource levels an organization possesses (Haveman, 1993; Ranger-Moore, 1997) and similar observations have been made for the resource levels of subunits. Within organizations, resources are unevenly distributed across the different subunits (cf. Tushman, 1977) and unit size is an indication of the resource levels a certain sub-unit has (Gupta & Govindarajan, 2000; Tsai, 2001). Since the possession of critical resources decreases a sub-unit's dependence on other parties in the corporation, its powerbase will increase. Although power does not necessarily lead to political behavior (Eisenhardt & Bourgeois, 1988) it does provide units with the ability to exert influence. This potential influence gives subsidiary managers control over planning and control processes. Because voice or process control increases perceptions of fairness, the negative effects of control differentiation will become less pronounced. In sum, since size is a proxy for a subsidiary's resources and power (Ghoshal & Nohria, 1989; Tsai, 2001) we expect large business units to be able to exert influence on the planning and control process and as such become less sensitive to the inconsistencies in the procedures used. Therefore:

Hypothesis 2: Business unit size mitigates the negative performance implications of perceived control differentiation.

Communication. Power gives subsidiary managers more control over decision-making processes but influence in these processes can also be exerted through other ways and in the absence of power. In general, people feel that they have influence if they are able to express their ideas and if their superiors use these ideas as input into the decision-making process (Leventhal, 1980; Libby, 1999; Korsgaard et al., 1995). Moreover, people also value the opportunity to present their case even if they cannot influence processes in any way (Lind & Tyler, 1988; Shapiro, 1993). Communication plays an important role in the effect of voice: "...the ability to express one's ideas or bilateral communication [...] implies the opportunity to voice one's perceptions, knowledge, and ideas, and the need to hear opposite parties out." (Kim & Mauborgne, 1998, p. 329). Communication provides a mean to voice views and ideas to superiors (Lee, 2001; Leventhal, 1980; Libby, 1999). The intensity of personal

communication between subsidiary and corporate managers positively stimulates perceptions of fairness, either because subsidiary managers gain influence over processes or because they get a chance to present their case. Frequent communication between corporate and subsidiary managers present the latter with opportunities to express voice and this positively affects their perceptions of fairness. In sum, communication will moderate the negative relationship between control differentiation and subsidiary performance.

Communication also affects fairness perceptions in a way other than through expression of voice. As we argued earlier, inconsistencies in the planning and control process across business units may cause ambiguity as business unit managers fail to understand what the expectations are and fail to understand the different styles their superiors use. Through bilateral communication, corporate executives can make their expectations clear and business unit managers may come to know the views of their superiors in a process of information exchange. Moreover, feedback on the process by superiors may give business unit managers an account of why certain decision were made, which can further stimulate acceptance of the decisions. All in all, communication moderates the negative effects of control differentiation through voice as well as through other bedrock principles of procedural justice (cf. Kim & Mauborgne, 1998).

Hypothesis 3: Corporate-business unit communication frequency mitigates the negative performance implications of perceived control differentiation.

5.4 Methods

Sample and data collection

We conducted a study among Dutch corporations. We started with a list of all Dutch corporations listed on the Amsterdam Stock Exchange and excluded all financial corporations and corporations with less than 500 employees. We then studied annual reports and company websites to identify the business units that were located directly below headquarters⁶.

⁶ Corporations with functional structures were left out, as well as corporations for which the annual reports did not provide sufficient information on the organizational structure. We also excluded the corporation if it appeared to be majority-owned by another corporation.

We ended up with a selection of 614 subsidiaries from 57 corporations. Since most of the data we needed were unavailable from archival databases, we conducted a mail survey. We sent questionnaires to the managing directors of each of the 614 subsidiaries. Out of the total of 614 questionnaires sent to business unit managing directors, 140 filled out questionnaires were returned (i.e., a response rate of 22.8%) of which 136 responses were usable in this study. The 136 business units represent 45 corporations and cover industries such as manufacturing (27.2%), service (28%), printing/publishing (10.3%), trade (22.1%), and construction (12.5%). In total, our dataset includes business units in 14 different countries. A total of 34 business units (25%) were located outside the Netherlands. On average, the subsidiaries employed 1596 employees.

We used many ideas from previous studies as input for developing our own questionnaire (see Operationalization of variables for further details). The questionnaire was discussed at length with colleagues in strategic management and accounting research and with practitioners who held a position as managing or financial director in subsidiaries of large corporations. The questionnaire was developed in Dutch, but translated into German and English for foreign business units as well⁷. We used backward-translation techniques to account for differences in interpretation. Based on the backward-translations and on the discussions with colleagues and practitioners, we made final changes to the questions.

Operationalization of main variables

Performance. Since performance data are usually not readily accessible for subsidiaries of Dutch corporations and since we expected managers to be reluctant to share objective performance data with us, we had to rely on other measures of performance. We used Likert type scales and asked managers to rate their subsidiary's average performance over the last two years in terms of both profitability and sales growth compared to the following benchmarks: expectations of headquarters, performance in previous years, and performance of the most direct competitor. The scores on the six items were averaged to arrive at an overall score for subsidiary performance ($\alpha = 0.86$).

⁷ Questionnaires were sent in Dutch to business units located in the Netherlands and the Flemish part of Belgium. We sent German translations to business units located in Germany and Austria. English translations were sent to business units located in all other countries.

Perceived control differentiation. Although many measures of organizational design and planning and control processes are available in literature, a measure of perceived differentiation does not exist. We decided to use four dimensions of control that are widely used in existing literature. We asked subsidiary managers to indicate on a seven-point Likert scale to what extent differences between their subsidiary and other subsidiaries of the corporation exist in terms of: (a) the extent to which procedures and directives of headquarters have to be followed; (b) the autonomy subsidiaries have in relation to headquarters; (c) the way the performance of the subsidiary is evaluated by headquarters; (d) the way subsidiary managers are compensated by headquarters. The scores on the four items were averaged to create the measure for perceived control differentiation ($\alpha = 0.81$).

Inter-unit resource sharing. This variable was measured through eight questionnaire items. We chose the items to include both tangible and intangible resources (Porter, 1985, 1987; St. John & Harrison, 1999) and to include resource sharing in different functional areas (Gupta & Govindarajan, 1986). Subsidiary managers were asked to indicate on a seven-point scale to what extent their subsidiary cooperates with other units in each of the following ways: (a) sharing knowledge, information, ideas, etc.; (b) sharing technologies; (c) internal deliveries (e.g., components, products, services); (d) using common brand names; (e) sharing physical assets (e.g., machines, buildings); (f) exchanging personnel on a temporary basis; (g) collectively competing with competitors; (h) shared functions or services (e.g., purchasing, marketing, logistics). The average score on these items was used as our measure for resource sharing ($\alpha = 0.87$).

Business unit size. We asked business unit managers for the number of people employed by the business unit and used this number as an indicator for size (see also Gupta & Govindarajan, 2000).

Vertical communication. We asked the subsidiary managers to indicate how often per year they had personal interactive contact with their superiors at corporate headquarters. The answers to this open question included quantitative (e.g., “12 times a year”) and qualitative (e.g., “never” or “monthly”) statements. We recoded the qualitative statements to a concrete figure (e.g., “never” became 0; “monthly” became 12) to arrive at a quantitative measure of communication frequency for each respondent.

Control variables

We included a control variable for the extent to which shared values can be expected. Inclusion of this variable is in line with others who emphasize the importance of combining differentiated control with shared values (see, e.g., Nohria & Ghoshal, 1994). Shared values can be stimulated by socialization mechanisms such as rotation of managers and corporate training programs. We expect these mechanisms to, possibly, influence our results because they can make subsidiary managers less sensitive to differences in the control styles used by their superiors. We asked subsidiary managers to indicate on seven-point scales the extent to which they agreed on the following statements: (a) many managers and key staff employees in my unit come from other parts of the corporation; (b) managers and key staff employees in my unit often participate in training programs organized by headquarters. Together these two items measured the use of corporate socialization mechanisms ($\alpha = 0.59$).

We also included dummies to control for industry effects. Since we did not find industry effects and since including these dummies had no effects on the results, except making the overall fit of the models worse, we excluded the dummies in our final model.

Common method bias

Like most studies on the internal control arrangements in multidivisional firms (cf. Hill, 1988b) we had to rely on key informants to obtain our data. The reliance on a single key informant for every business unit should make us consider the risk of common method bias. We dealt with this concern in a number of ways (see also Brouthers, Brouthers & Werner, 2003; Podsakoff, MacKenzie, Lee & Podsakoff, 2003). First, we used a mix of open-ended questions and Likert type scales to measure our variables. Second, we included objective measures (size and communication frequency) and used multiple measurement items to measure the less objective variables. Third, we approached the managing directors of the business units to ensure that the person who could be assumed to be most knowledgeable of the subject matter acted as our key informant. Fourth, our hypotheses are based on interaction effects, which have been found relatively insensitive to problems of common method bias (Dooley & Fryxell, 1999). Finally, we performed a one-factor test to assess the likelihood of common method bias in our data. We included all the dependent and independent variables of interest into a single exploratory factor analysis. Because (a) more than one factor emerged from the analysis, and (b) there was no factor that explained the majority of the covariance among the measures, it is unlikely that our results are caused by common method bias.

5.5 Results

Results of the correlation and regression analyses are reported in tables 1 and 2 respectively. Correlation coefficients show that significant relationships exist between some of our independent variables. For example, resource sharing is negatively related to perceived control differentiation and size, and positively related to socialization and communication. Socialization appeared to be significantly related to all our independent variables as well. The results also show that none of the independent variables has a significant relationship with subsidiary performance.

Table 1: Descriptives and correlation matrix

	Mean	S.D.	1	2	3	4	5
1.Business unit performance	4.62	1.03					
2.Socialization	2.83	1.38	-0.122				
3.Control differentiation	2.78	1.19	-0.018	-0.150 †			
4.Resource sharing	3.58	1.34	-0.022	0.601 ***	-0.193 *		
5.Business unit size (empl) ^a	1596	4348	0.079	0.334 ***	-0.168 †	0.164 †	
6.Communication ^a	26.34	32.57	-0.059	0.290 **	-0.055	0.256 **	0.152 †

n=136

† : $p < 0.1$; * : $p < 0.05$; ** : $p < 0.01$; *** : $p < 0.001$

^a: Variables have been transformed (log) to achieve more normal distributions. Descriptive statistics reported for original variables.

We used regression analysis to test our hypotheses and ran two regression models with subsidiary performance as the dependent variable. Model 1 includes main effects only. From this model it becomes clear than no significant main effects exist, except for the marginally significant effect of socialization. Model 2 includes all main effects and all interaction terms. The three interaction terms were computed by taking the product of control differentiation and each of the three moderator variables. Following recommendations of Aiken and West (1991) we centered each variable before composing the interaction terms. Change statistics

indicate the increase in R^2 compared with model 1. The results show that the inclusion of interaction terms improves the overall model fit. All individual interaction terms have a significant relationship with performance, as indicated by the significance of each of the regression coefficients. The signs of the regression coefficients are in line with two of the three expected relationships. Resource sharing accentuates the negative effects of control differentiation. This confirms hypothesis 1. Subsidiary size mitigates the negative effects of control differentiation, supporting hypothesis 2. Hypothesis 3 is not supported. Although the regression coefficient is significant, it does not have the predicted sign. Communication seems to accentuate rather than mitigate the negative effects of control differentiation. Multicollinearity was assessed using VIF scores. None of these scores exceeded 10, indicating that no serious multicollinearity was present.

Table 2: Results of regression analyses

	Model 1	Model 2
(Constant)	(...) ***	(...) ***
Socialization	-0.214 †	-0.203 †
Control differentiation	-0.011	-0.035
Resource sharing	0.093	0.114
Business unit size	0.139	0.165 †
Communication	-0.042	-0.021
Control differentiation X resource sharing		-0.175 *
Control differentiation X size		0.205 *
Control differentiation X communication		-0.176 *
R^2	0.038	0.132
F-ratio	1.020	2.414 *
Change in R^2		0.094
F-ratio change in R^2		4.596 **

n=136

Dependent variable is business unit performance (as reported by the business unit manager).

Standardized coefficients are shown.

† : $p < 0.1$; * : $p < 0.05$; ** : $p < 0.01$; *** : $p < 0.001$ (one-tailed if hypothesized; two-tailed otherwise).

Figures 1, 2 and 3 help the interpretation of the results. We followed Aiken and West's (1991) recommendations and plotted the relationship between control differentiation and performance under high (one standard deviation above mean) and low (one standard deviation below mean) values of resource sharing, subsidiary size, and communication respectively. Figure 1 shows a negative relationship between control differentiation under high levels of resource sharing. The relationship changes into a positive one under low levels of resource sharing. Figure 2 shows a positive relationship between performance and control differentiation for large business units (in terms of number of employees) and a negative one for small business units. Finally, figure 3 shows the effect of vertical communication. Contrary to what we expected, the relationship between performance and control differentiation is negative under high levels of communication and positive under low levels of communication.

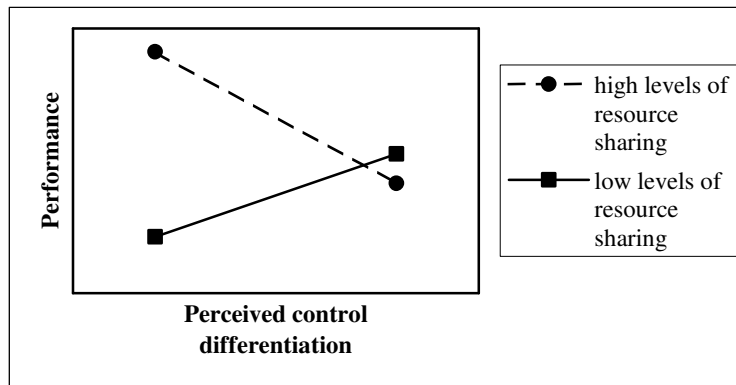


Figure 1: Relationship between control differentiation and performance at high and low levels of resource sharing

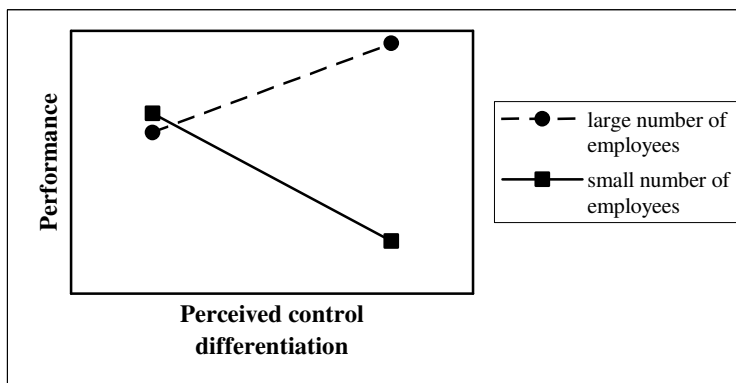


Figure 2: Relationship between control differentiation and performance at high and low size

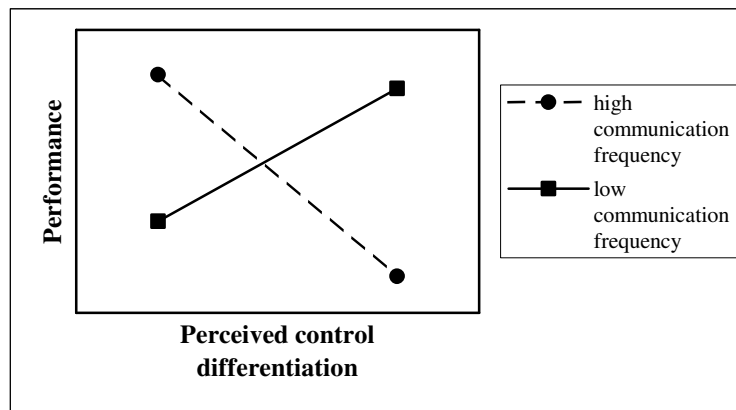


Figure 3: Relationship between control differentiation and performance at high and low communication frequency

5.6 Discussion and conclusions

In this paper we set out to create new insights into the control of business units in multidivisional firms. So far, researchers have concentrated on finding the optimal control style under different contexts. The implication is that different contexts in a multidivisional corporation necessitate the adoption of different control styles by corporate center management. However, in this paper we argued that such a conclusion is far from complete because it ignores the negative effects that may be inherent in the simultaneous use of different control styles for different subsidiaries of the same corporate family. This study provides new insights in the subject matter, both theoretically and empirically. Theoretically, procedural justice literature proved a useful theoretical perspective that can complement the more traditional theories that have been used to study control in multidivisional corporations. Empirically, we found that control differentiation was, under some conditions, indeed negatively related to subsidiary performance. Accordingly, corporations that attempt to tailor their styles of control to specific subsidiary contexts should be aware of the associated problems and the conditions under which these problems are most likely to occur.

Using procedural justice literature we argued that control differentiation reduces business unit managers' trust in their superiors, commitment to the organization, and consequently, the degree of voluntary cooperation they display. We expected the

disadvantages of control differentiation to be salient especially in situations that require high levels of voluntary cooperation. The finding that inter-unit resource sharing accentuated the negative relationship between control differentiation and subsidiary performance supports this notion. Hence, in corporations where exploitation of interrelationships between business units forms the heart of corporate strategy, adjusting the control style to subsidiary context may in fact be counterproductive. The positive relationship between control differentiation and performance under low levels of resource sharing was not hypothesized but can be explained in two ways. First, high levels of control differentiation may indicate a better fit between corporate control style and the specific contexts of the focal business units. Low levels of resource sharing could indicate that business units are strategically different from one another as interrelationships may become more difficult to achieve when business units pursue different strategic directions (Porter, 1985). These differences in strategic contexts, then, increase the need for different control styles used by corporate center management. Second, in most multidivisional firms the business units either cooperate or compete with one another (see also Hill et al., 1992; Hill, 1994). Low levels of resource sharing could indicate that competition for scarce corporate resources rather than cooperation to achieve synergistic advantages forms the core of corporate strategy. Control differentiation may strengthen the competitive atmosphere, which may then benefit rather than compromise performance.

The findings also suggest that the negative effects of control differentiation pertain to small business units but not to large ones. These findings are in line with the effect of voice, which is considered a primary dimension of fairness perceptions in the procedural justice literature. Large business units, through their larger resource base, are assumed to be better able to express voice in a way that protects their own interests. Therefore, the notion that control differentiation may be a sign of inconsistencies in the planning and control processes used by company headquarters, and therefore evoke perceptions of unfairness, may be valid only for small business units that are unable to protect their own interests. Large business units, on the other hand, can use their powerbase to influence decision making in general and corporate control processes in particular. The positive relationship between control differentiation and subsidiary performance even suggests that large business units translate control differentiation into better performance. This positive relationship can mean two things. First, as discussed above, control differentiation may be considered a sign of better fit between control style and subsidiary context. Second, control differentiation may be a sign to large business units that they are able to better protect their own interests than other business

units can. In other words, differences in control style are a sign that these business units are able to use their influence to receive better treatment than other business units.

Our findings did not support the role of communication. Communication was assumed to be an important factor to stimulate fairness perceptions. For example, we expected communication to serve the purpose of expressing voice as well as enabling feedback and increase clarity of understanding and expectations. Contrary to expectations we found that communication accentuated rather than moderated the negative effects of control differentiation. Rather than serving the purposes of voice, feedback and explanation, communication may also be an indication that intensive interaction between business-level and corporate-level management takes place. Therefore, communication can be considered an extra proxy, next to inter-unit resource sharing, for the degree of cooperation that takes place between the two levels. The significant correlation between resource sharing and communication supports this (see table 1). To the extent that control differentiation compromises performance especially in situations that require intensive cooperation, the findings may provide additional support for this “cooperation effect” rather than, for example, the presence of a voice effect.

As we argued in the introduction, previous research has concentrated on determining the appropriate controls for a particular context. Here, we acknowledge that such a tailored control style may benefit subsidiaries, but we emphasize that negative effects may also be found in the associated differentiation. In this study we moved research away from the focus on tailoring to the issue of differentiation. Future research can benefit from incorporating both. We showed that insights from procedural justice literature are useful in the context of control in multidivisional firms. The procedural justice perspective is worth exploring further, though. In this study a discrepancy existed between the conceptual arguments and the measurement. For example, concepts such as fairness, voice, commitment, and voluntary cooperation were used in our argumentation but not actually measured. This is not problematic in itself. After all, it was not our intention to develop and test procedural justice theory but rather to make use of, and apply the insights from previous procedural justice literature in a new area. Still, future research could investigate the procedural justice concepts in this context more directly to gain better understanding of the consequences of control differentiation.

6

Concluding remarks

6.1 Introduction

The findings of this dissertation have been presented in chapters 2 to 5. This chapter is not meant to summarize the findings of the individual chapters. Rather, it is meant to discuss a number of topics that cut through the different chapters in an attempt to reconcile the findings of the individual projects. The subsequent sections discuss the multilevel perspective, relatedness, new organizational forms, control differentiation, and control mechanisms, respectively. The chapter ends with a number of concluding remarks.

6.2 Multilevel perspective

The distinction between the corporate and business unit level, which is prevalent in the existing literature on control of business units, formed an important starting point for the present study. More and more, researchers are starting to emphasize the complexities of today's corporations (see also 6.4) and multilevel theory development and statistical techniques can aid researchers in getting grip on these complexities (see also Hoffman, 1997). This notion has led to the uprise of a multilevel paradigm in the organizational sciences under the belief that a true understanding of organizational issues can only be achieved by studying phenomena that manifest at different levels and by combining the insights and theories from a variety of scientific disciplines (see Kozlowski & Klein, 2000). The importance of multilevel research in strategic management has been pointed out as well. For example, Dess, Gupta,

Hennart & Hill (1995) distinguished between the corporate, business, and international levels of strategy research and suggest a number of research directions that cut across these different levels. Hoskisson, Hitt, Wan & Yiu (1999) emphasize that strategic management research swings between different theoretical perspectives on firm performance and conclude that the fruitfulness of the field depends on how well researchers succeed in integrating these perspectives, which usually focus on explanatory variables at different levels of analysis. A similar point was made by Hambrick (2004), who speaks of the need to reconcile or integrate multiple perspectives to overcome the trend towards separateness in the field of strategic management. As an example, he refers to the different spheres in which those who study corporate-level strategy and those who study business-level strategy operate.

Multilevel research is not entirely new to the field of strategic management, however. For example, there is a considerable number of studies that have examined the corporate, industry, and business unit effects of business unit performance (Brush & Bromiley, 1997; Brush, Bromiley & Hendrickx, 1999; Chang & Singh, 2000; McGahan & Porter, 1997; Roquebert, Phillips & Westfall, 1996; Rumelt, 1991). These studies depart from the recognition that business units are nested in corporations and industries and that factors at these different levels may have an impact on business unit performance. The recognition that corporate membership is an important determinant of business unit performance formed the initial starting point for this dissertation. After all, the application of control mechanisms by the corporate parent is deemed to have an effect on business unit performance over and above the effects of business unit- and industry-specific characteristics¹. In chapter 1 it was even stated that control is such a crucial task for corporate center management because it provides an important justification for the existence of multidivisional firms. The importance of corporate membership has not received consistent support from everyone, however. For example, Rumelt (1991), in one of the seminal studies in this area, found a negligible corporate effect on business unit performance, suggesting the potential irrelevance of corporate monitoring and control policies. On the other hand, Brush and Bromiley (1997, p. 829) argued that the explanation could be found in Rumelt's "restrictive assumption that corporate management must make a uniform contribution to the performance of its business

¹ Business unit characteristics include, for example, business unit specific skills and competitive resources. A relevant theoretical perspective is the resource-based view of the firm (see, e.g., Wernerfelt, 1984, and, for a more recent discussion, Priem & Butler, 2001a, 2001b; Barney, 2001). Industry effects may include the intensity of competition in the

units.” As they point out, corporate management may not be equally successful in influencing the profitability of its divisions through monitoring and control. Hence, corporate membership may benefit some but not all business units, which may have caused the averaging out of the corporate effects in Rumelt’s study. Indeed, as shown in chapter 2 of this thesis, the corporate performance implications may differ between the business units in a firm due to differences in the degrees of tailoring and in the effects of observed control differentiation. The different effects of control differentiation were also supported by the empirical findings of chapter 5: the relationship between control differentiation and business unit performance could be positive for some business units and negative for others, depending on the business units’ specific circumstances.

One of the key challenges of doing multilevel research concerns the complexities of data collection at multiple levels. Because data collection at different levels is labor-intensive and time-consuming (Kozlowski & Klein, 2000), almost by definition trade-offs must be made between the numbers of observations at different levels of analysis. An assessment of the degree of control differentiation, for example, could be based on the variance or some alternative measure of dispersion. This would require detailed information on the control mechanisms used in each headquarters-business unit relationship in a corporation. As an alternative to this, one can also opt for less demanding measures such as the ones used in chapters 4 and 5 of this dissertation. In chapter 4 we relied on the assessments of corporate center executives, who we expected to be able to base their judgment on a comparison of all corporate-business relations within the corporations. This could be more problematic in chapter 5, where we relied on business unit managers’ judgments of the degree of differentiation that existed between their business unit and the other business units in the corporation. Although this way of measuring corporate-level constructs is not without limitations, it was considered appropriate given the aim of the study. For example, although business unit managers will lack the information to adequately and objectively assess and compare all control relations within the corporation, a limited number of business units could already be sufficient to serve as their benchmark. Moreover, as procedural justice researchers have pointed out, people’s perceptions of fairness rather than the actual fairness of procedures

industry in which a business unit operates. A relevant theoretical perspective is industrial organization economics, the insights of which found their way in strategic management with the work of Porter (1980, 1985).

determine their reactions and attitudes (see also Lind and Tyler, 1988). The same holds for the perceptions of control differences.

6.3 Relatedness

The term relatedness has a central position in almost all literature on diversified corporations. As we saw in chapter 2, roughly two kinds of relatedness can be distinguished. The first deals with relatedness in terms of resource-sharing potential between business units. A variety of measures exists, including product count measures, entropy measures, and categorical measures to determine a firm's degree of relatedness (see, e.g., Lubatkin, Merchant & Srinivasan, 1993). Recently, researchers have criticized these traditional measures for being too focused on product and market similarities rather than resource commonalities between businesses (see, e.g., Collis & Montgomery, 1998). As a result, and building on insights from the resource-based view, more sophisticated measures of relatedness have been developed to more adequately capture synergy potential than traditional measures do (e.g., Brush, 1996; Markides & Williamson, 1994, 1996; Robins & Wiersema, 1995). Nonetheless, the emphasis stays on capturing resource-sharing potential between business units. Unrelated in this sense implies that few opportunities for resource sharing between business units exist.

The second type of relatedness has been labeled organizational relatedness in chapter 2. It runs as a central theme through this dissertation, although very often in the background we must admit. It is this type of relatedness that determines whether differences in the control arrangement between business units should be present or not. The implication is that businesses that seem unrelated in terms of resource-sharing potential may share a similar strategic logic that makes them related in an organizational sense. For example, except for the common brand name, the companies that belong to Richard Branson's Virgin group, active in businesses such as airline, music, retail, and health clubs, have been considered related mainly in an organizational sense (Grant, 2002, p. 90): "This array of businesses is linked, first, by the Virgin brand and, second, by the group's capabilities in managing start-up businesses with a strong customer orientation, innovative differentiation, and entrepreneurial, risk-taking cultures." Alternatively, business units that operate in almost identical businesses may differ in the strategies they pursue, making them unrelated in an organizational sense. An example is

Dutch airliner KLM, which exploits a low-cost airliner alongside its traditional, full service, passenger business.

Several authors have made the distinction between the two kinds of relatedness (Collis & Montgomery, 1998; Grant, 1988, 2002; Markides & Williamson, 1996). So far, this has not led to accurate measures of relatedness in the organizational sense. This is unfortunate since the absence of measures of organizational relatedness may have contributed to the inconsistent findings of studies on the relationship between relatedness and corporate performance (cf. Grant, 1988). Hence, more research in this area is needed. The strategic characteristics of business units identified in previous studies, including, for example, business unit mission, competitive strategy and degree of environmental uncertainty, could serve as a useful starting point in developing measures of organizational relatedness that can then be used to further our understanding of the relationship between relatedness and performance. For example, one could compare the performance implications of the different kinds of relatedness in a study that includes measures of both. Such a study could also investigate the relationship between the two kinds of relatedness. After all, the two could be related to the extent that resource sharing between business units becomes easier when the business units have similar strategic contexts (cf. Porter, 1985). On the other hand, the existence of some successful conglomerates has been explained on the basis of the relatively ease with which the business units of such firms can be managed by the corporate parent: absence of complex linkages between business units that operate in rather similar strategic contexts (cf. Goold & Luchs, 1993).

The two main types of relatedness are also important in assessing the corporate-level performance implications of control differentiation. After all, different control styles seem warranted only when business units operate in strategically dissimilar contexts (i.e. when the business units are unrelated in the organizational sense). At the same time, the results of chapter 5 indicate the importance of taking into account the first type of relatedness as well. After all, control differences were found problematic especially for business units that were heavily engaged in resource sharing with other units in the corporation. Hence, one could

expect that control differentiation is appropriate only when business units are unrelated in both the organizational and the resource sharing sense².

6.4 New organizational forms

Since Chandler's (1962) historical study on the emergence of the multidivisional structure as a new organizational form in the first half of the twentieth century, research shows a continuing interest in the complexities and challenges of managing large multi-unit corporations. For example, recent studies on multidivisional firms address cross-business synergies (Martin & Eisenhardt, 2001), strategic renewal (Volberda, Baden-Fuller & Van den Bosch, 2001), entrepreneurial M-forms (Eisenmann & Bower, 2000), structured networks (Goold & Campbell, 2002), and the dynamics of internal reconfiguration of resources and product-market responsibilities among business units (Galunic & Eisenhardt, 1996, 2001).

Each of these studies focuses on the challenges of today's corporations. What they have in common is the acknowledgement of the important role played by corporate center management. Indeed, although the rise of new organizational forms, such as internal networks, would suggest a reduced role of corporate headquarters, a recent study on the structures of European corporations suggests otherwise (Ruigrok, Pettigrew, Peck & Whittington, 1999). Internal network arrangements are undoubtedly becoming more important in some organizations, but corporate center executives continue to play important roles in managing variety, change and synergies in the firm's portfolio of businesses. All in all, the interest in new organizational forms should not lead to the impression that these are

² We tested this assertion by running a number of additional regressions. We ran a regression model that included the interaction between strategic variety and degree of control differentiation (see chapter 4 for operationalization details). The interaction term was positive and significant when using ROA ($p < 0.1$) and ROE ($p < 0.01$) as dependent variables. Plots show that the relationship between performance and control differentiation is negative under high and low levels of strategic variety but that the slope is steeper for low levels of strategic variety, indicating the importance of taking organizational relatedness into account when assessing the consequences of control differentiation. Based on the findings of chapter 5 we also reran the regression models of chapter 4 with an additional control variable that had to capture the resource-sharing relatedness in the portfolio. This measure, obtained by calculating the average number of four-digit industry codes per two-digit industry code a corporation is active in (see also Lubatkin et al., 1993; Varadarajan & Ramanujam, 1987), did not affect the results in any way. We also ran a model that included the interaction between this measure of relatedness and the degree of control differentiation. The interaction term was not significant when we used Return on Assets as dependent variable but became significant ($p < 0.05$) with Return on Equity and with Market to Book ($p < 0.1$) as the measure for performance. Since the sign of the regression coefficient was negative, some additional support for the importance of this second type of relatedness was also found. Naturally, and given the content of chapter 2, it should be noted that this measure may be a limited proxy for resource-sharing potential between business units. The results of the additional analyses with the interaction terms are included in the appendix to chapter 6.

replacing traditional M-form design (Whittington & Mayer, 1997). Most large companies, at least in the Netherlands as we experienced, are still organized as multidivisional firms. Within this broad category all kinds of variations in internal arrangements exist (see Hill & Hoskisson, 1987; Hill & Pickering, 1986), and the recent emphasis on new ways of organizing multidivisional firms add to this that more variations in the broader M-form category exist than previously acknowledged. However, these additional arrangements complement rather than replace traditional ways of organizing multidivisional firms.

6.5 Control differentiation

What traditional and contemporary studies on the design of organizations have in common is the emphasis on the challenges of striking a balance between the often conflicting demands placed on organizations: between differentiation and integration (Lawrence & Lorsch, 1967); between interdivisional cooperation and competition (Tsai, 2002); between stability and forces of renewal (Volberda, Baden-Fuller & Van den Bosch, 2001); between global efficiency and local responsiveness (Bartlett & Ghoshal, 1989); between exploitation and exploration (Benner & Tushman, 2003), and so on.

The focus on control differentiation is in line with this and points at a number of challenges corporate executives face. One of the key challenges is to differentiate control while at the same time avoid the fragmentation that may go with it (Bartlett & Ghoshal, 1987). The findings of chapter 5 suggest that this is a hard task as indicated by the negative relationship between control differentiation and business unit performance under high levels of inter-business unit resource sharing. To prevent fragmentation, firms may turn to the socialization of business unit managers to share common goals and values. However, the difficulties of combining this with different treatments have been emphasized (see Nohria & Ghoshal, 1994) and the findings of chapter 5 hold after controlling for corporate socialization. Moreover, the creation of a strong homogeneous culture can be detrimental in situations that call for structural as well as cultural separation between business units (Goold & Campbell, 2002). For example, Goold and Campbell (2003) pointed at the difficulties British Airways had in creating a low cost culture in its subsidiary Go, which had been set up to compete with

low cost carriers Easyjet and Ryanair, because of contamination influences from the rest of the organization. Hence, the use of socialization processes is limited.

As an alternative to the use of socialization mechanisms, chapter 5 reports some evidence for the importance of procedural justice in corporate control practices. In order to stimulate commitment, cooperation and trust among business unit managers who receive different treatments from the corporate center, firms should pay specific attention to the factors that determine business unit managers' perceptions of fairness. This is also consistent with Galunic and Eisenhardt (2001). In a study of charter changes in a large multibusiness corporation they found that, in order to temper internal competition, corporate executives were careful to emphasize the fairness of the processes that led some divisions to loose charters, which were defined as areas of product-market responsibility, to others. The fairness of control is worth exploring further.

In contrast with chapter 5, in which we found control differentiation to be negatively related to business unit performance only under some circumstances, chapter 4 reveals the overall negative implications of control differentiation for the corporation as a whole. These results hold after taking into account the moderating effect of top team structure and composition, and after controlling for various dimensions of corporate strategic context. Apparently, the costs of creating sufficient capacity to manage different styles add to the danger of fragmentation and feelings of unfairness that may exist among some of the business units in a firm.

The findings should make researchers and practitioners aware of the negative consequences of control differentiation and other administrative complexities in the organization. The recent emphasis on new, and often complex, organizational forms should be approached with caution. Rather than rushing into the adoption of aspects of these new organizational forms, managers should assess the necessity and consequences for their organization as a whole: "Unnecessary organizational complexity in a relative simple business environment can be just as unproductive as unresponsive simplicity in a complex business environment." (Nohria & Ghoshal, 1997, p. 189).

6.6 Control mechanisms

Our findings suggest that control of business units may be both corporate and business unit specific. Hence, conceptualizing control in terms of *means* and *variances* per firm, as was suggested in chapter 2, makes sense because the use of control mechanisms can differ between and within multidivisional corporations. Chapter 3, then, reveals that some, but not all control mechanisms differ significantly between corporations. For example, it was found that the use of lateral integration mechanisms differs between corporations whereas the degree of autonomy did not. These results suggest the importance of separating out the different dimensions of control. With the exception of chapter 3, however, we did not study each control mechanism separately. Future research is necessary to examine the role different control mechanisms play to answer questions, such as: What control mechanisms are more complex to differentiate than others? Does control differentiation in some dimensions give rise to jealousies and unfairness whereas in others it does not?

Hence, separating between the specific control mechanisms could be more productive. At the same time it should be realized that the different mechanisms of control usually interact and reinforce each other (Leifer & Mills, 1996), which could leave the effects of individual control mechanisms undetected when examined in isolation rather than in combination with the others (Govindarajan, 1988). For example, control differentiation in some dimensions could be accompanied by standardization in others to guarantee integration and prevent fragmentation. As discussed earlier, socialization to create shared norms and values is not necessarily the most appropriate overarching device to achieve this. Rather, other control mechanisms could dominate to serve this purpose (see, e.g., Ghoshal & Nohria, 1993; Nohria & Ghoshal, 1997). The findings of chapter 3 point at the dominance of lateral control mechanisms. After all, lateral integration mechanisms and network-based incentives appeared to be the only mechanisms with a corporate effect. It should be noted that this does not necessarily imply that these mechanisms are standardized across the business units of firms, though. Rather, it implies that firms differ on their average scores on these dimensions.

6.7 Concluding remarks

During the last decade, discussions on corporate governance have dominated the business press. Only recently more attention has been paid to issues of internal governance, unfortunately due to serious malpractices that led to bankruptcy of some companies and near bankruptcies of others. Although analysts provide numerous accounts of these failures, at least some of them can be attributed to inadequate control practices of corporate center management. For example, Numico, a Dutch manufacturer of baby food and clinical nutrition, found out that the newly acquired businesses required a different way of managing than they were used to. Lack of experience with managing retail and vitamins contributed to the financial problems of the company in 2002. Similarly, the near bankruptcy of Dutch retailer Ahold in 2003 is often attributed to a loss of control due to the enormous expansion of the company in the previous decade. For example, the acquisition of US Foodservice in 2000 meant a move into wholesale, an area new to the company that had previously focused on supermarket chains. Lack of experience in this area led to a situation in which this largest subsidiary became strongly separated from the rest of the corporation, including the company's headquarters. Several sources³ reveal the negative feelings that dominated this specific headquarters-business unit relationship. Whereas corporate center staff reports the reluctance of US Foodservice managers to allow corporate interference, these business unit managers in turn spoke of bad treatment and a lack of corporate attention to business unit affairs. In combination, these feelings shaped an atmosphere in which questionable accounting practices could flourish.

These examples indicate the importance of the central topic of this dissertation. Together with the findings of this dissertation, these examples also suggest that good internal governance depends on: the overall complexity of the control task facing the corporate center; the degree to which controls can be tailored to business unit contexts; the information-processing and cognitive capacities available at the corporate center; and, the perceived fairness of the control system. The four studies incorporated in this dissertation each shed a different light on these important issues. As the discussion of the five topics in this final

³ The information is largely drawn from FEM Business magazine (the issues March 1, 2003 and May 1, 2004), Dutch national newspaper De Volkskrant (February 26 and March 1, 2003) and Jeroen Smit's book on the Ahold 'disaster' (Smit, 2004).

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chapter shows, the insights and findings of these studies are not necessarily restricted to the research on control of business units but have implications outside this research context as well. For example, the possible relevance of multilevel research for the field of strategic management has been emphasized. Also, the link with recent research on new organizational forms has been made explicit. In chapter 1 the relationship with research on the organization of multinational corporations was already pointed at and it is in that context where the complexities of organizational design and the need for new organizational arrangements have been emphasized the most. Hence, although the consequences of internationalization have remained largely absent from the studies in this dissertation, our findings could contribute to research in that area as well.

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Appendix to chapter 1

Literature overview chapter 1: Findings from empirical studies on the relationship between diversification, structure and control arrangements, and performance

Study	Sample	Data collection	Performance	Structure and control	Strategy	Key findings
Hoskisson (1987)	62 US firms (covering 21 years)	Primarily public data	-Return on assets -Risk	M-form	-Related diversification -Unrelated diversification -Vertical integration (categorical measure)	M-form adoption improves performance and reduces risk for unrelated diversifiers. M-form adoption decreases performance and reduces risk for vertically integrated firms. M-form adoption had no significant effect on related diversifiers.
Hill (1988b)	156 UK firms (139 used for interaction effects)	CEO survey and public data	-Return on capital -Return on sales	Main emphasis on distinction M-form and CM-form	Main emphasis on distinction related and unrelated diversification (categorical measure)	M-form is more appropriate for unrelated than for related diversifiers. CM-form is more appropriate for related than for unrelated diversifiers but some evidence of appropriateness for unrelated diversifiers exists. Significant effects for return on sales only.
Hill, Hitt & Hoskisson (1992)	184 US firms (138 used in main analyses)	CEO survey and public data	Return on assets	-Centralization -Integration -Performance evaluation -Incentive schemes	Related and unrelated diversification (entropy measure; additional analyses with categorical measure)	Support for importance of fit between strategy type and the correct use of centralization, performance evaluation, and incentive schemes. Little evidence found of importance of integration mechanisms.
Markides & Williamson (1996)	136 US firms (minimum of 94 used in main analyses)	CEO survey and public data	Return on sales	Main emphasis on CM-form	Main emphasis on related diversification (categorical measure, entropy measure, and a newly developed measure to capture asset relatedness)	CM-form is related to increase in performance only for some types of strategic relatedness. Superiority of CM-form for related diversifiers is not supported when traditional measures of relatedness are used.

St. John & Harrison (1999)	31 firms used for assessing strategy-structure relation	Public data and interviews	Return on sales	Administrative mechanisms to facilitate coordination	Main emphasis on related diversification (new measure of manufacturing relatedness)	Use of coordination mechanisms is more widespread among high performing related diversifiers than among low performing related diversifiers.
Van Oijen & Douma (2000)	67 Dutch firms	CEO survey and public data	-Return on assets -Return on equity -Return on sales	7 roles of corporate HQ: planning, evaluation, selection, rotation, motivation, coordination, support	Degree of diversification (entropy)	High performers over the whole have a better fit between strategy and corporate HQ roles than low performers. No support was found for the contingency effect of the coordination role.

Literature overview chapter 1: Findings from empirical studies on the relationship between business unit context, structure and control arrangements, and performance

Study	Sample	Main method of data collection	Performance	Structure and control	Contextual variables	Key findings
Govindarajan (1984)	58 business units in 8 US firms	Questionnaires sent to BU managers	BU effectiveness (performance compared with superior's expectations on 12 performance criteria)	Subjectivity in performance evaluation and determination of incentive bonus	Environmental uncertainty	Positive relationship between uncertainty and subjectivity in performance evaluation and bonus determination. This effect is strongest for effective business units.
Govindarajan & Gupta (1985)	58 business units in 8 US firms (data from 46 business units used to test interactions)	Questionnaires sent to BU managers	BU effectiveness (similar to Govindarajan (1984))	-Subjective in determination of incentive bonus -Long-run or short-run criteria for determination of incentive bonus	Build or harvest mission	Reliance on subjectivity and long-run criteria in determining bonus for BU manager is positively associated with effectiveness for business units with build mission. Relationship between reliance on short-run criteria and effectiveness is independent of mission.
Gupta & Govindarajan (1986)	58 business units in 8 US firms	Questionnaires sent to BU managers	BU effectiveness (similar to Govindarajan (1984))	-Subjectivity in determination of incentive bonus -Bonus based on BU performance or performance of larger cluster -Organizational familiarity of BU manager	Resource sharing with other BUs (BU strategy is also included but not in interaction with structure and control dimensions)	Reliance on subjectivity in bonus determination is more beneficial for BUs with high resource sharing. Linking bonus to performance of a cluster of BUs is more beneficial for BUs with high resource sharing. No significant interaction effects for bonus linked to BU performance and for organizational familiarity of BU manager

Gupta (1987)	58 business units in 8 US firms	Questionnaires sent to BU managers	BU effectiveness (similar to Govindarajan (1984))	-Openness in corporate-BU relations -Subjectivity in performance assessment -Decentralization	-Build or harvest mission -Low cost or differentiation strategy	Openness in corporate-BU relations and subjectivity in performance assessment is beneficial for BUs with build mission or differentiation strategy and detrimental for BUs with harvest mission or low cost strategy. Decentralization is more positively associated with effectiveness for differentiators than for low cost business units. Mission has no moderating effect.
Govindarajan (1988)	121 business units in 24 US firms	Questionnaires sent to BU managers	BU effectiveness (performance relative to corporate standards on 10 performance dimensions)	-Importance of meeting budgetary targets -Decentralization -BU manager's locus of control	Low cost or differentiation strategy	Low emphasis on meeting budgetary targets and BU managers with high internal locus of control are more positively associated with performance for business units with differentiation strategies. Joint effect of different mechanisms is important; decentralization only has effect in combination with other mechanisms.
Govindarajan & Fisher (1990)	121 business units in 24 US firms (116 used for testing interactions)	Questionnaires sent to BU managers	BU effectiveness (similar to Govindarajan (1988))	Output or behavior control	-Low cost or differentiation strategy -Resource sharing	Complex threeway interactions exist. For BUs with low cost strategy and high level of resource sharing, output control has a positive effect on performance. For BUs with differentiation strategy and high level of resource sharing, behavior control has a positive effect on performance.
Golden (1992)	496 business units in 8 multihospital corporations (354-381 used for testing interactions)	Questionnaires sent to BU managers (secondary data used for validation)	-Profitability -Market share (categories)	Decentralization of different types of decisions	Prospector, analyzer, or defender strategy	Decentralization of marketing decisions is most positively associated with profitability and market share for prospectors. Decentralization of operational activities is most positively associated with market share for defenders. Decentralization of strategic planning is most positively associated with profitability and market share for prospectors.

Appendix to chapter 3

Analyses chapter 3: Descriptives and correlations for level-1 and level-2 variables

	Mean	S.D.	1	2	3	4	5	6	7	9	10
1. Autonomy	5.252	1.083									
2. Integration mechanisms	3.238	1.172	-0.285 **								
3. Network-based incentives	18.688	20.289	-0.270 **	0.420 ***							
4. Strategic control	4.460	1.235	0.097	0.414 ***	0.106						
5. Resource sharing	3.578	1.337	-0.328 ***	0.704 ***	0.416 ***	0.398 ***					
6. Business unit size	1596	4348	-0.009	0.222 **	0.071	0.049	0.164 †				
7. Uncertainty	4.000	1.234	0.105	-0.244 **	-0.128	-0.027	-0.117	-0.063			
8. Activities	0.522	0.501	0.115	-0.89	-0.080	-0.055	-0.104	0.134	-0.024		
9. Product diversification	4.222	2.120									
10. Geographic diversification	17.200	15.179								0.303 *	
11. Corporate size (number of employees)	25806	54733								0.267 †	0.583 ***

†: $p < 0.1$; *: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.001$

Business unit size and corporate size were transformed (log). Descriptives reported for original variables.

Analyses chapter 3: Intercept-only models (data from 22 corporations)

	Autonomy	Integration mechanisms	Network-based incentives	Strategic control
<u>Regression coefficients</u>				
Intercept (γ_{00})	5.404 (0.116) ***	3.239 (0.154) ***	18.656 (2.528) ***	4.683 (0.135) ***
<u>Variance components</u>				
Corporate level (u_{0j})	Variance 0.000	Variance 0.263	Variance 38.937	Variance 0.019
Business unit level (τ_{ij})	χ^2 (df) 16.279 (21)	χ^2 (df) 45.493 (21) **	χ^2 (df) 29.646 (21) †	χ^2 (df) 19.259 (21)
Intra-class correlation	1.194	1.009	402.739	1.533
	0.000	0.207	0.088	0.012

†: $p < 0.1$; **: $p < 0.01$; ***: $p < 0.001$

Regression coefficients are shown with standard errors in parentheses.

Sample sizes: $n = 89$ for business unit level and $n = 22$ for corporate level.

Tests of significance: t-tests (two-tailed) are used to assess significance of regression coefficients; χ^2 tests are used to assess significance of corporate level variance.

Analyses chapter 3: Estimates of models with random intercepts and fixed slopes (data from 22 corporations)

	Autonomy	Integration mechanisms	Network-based incentives	Strategic control
<u>Regression coefficients</u>				
Intercept (γ_{00})	5.404 (0.108) ***	3.219 (0.090) ***	18.462 (2.044) ***	4.680 (0.118) ***
Resource sharing (γ_{10})	-0.260 (0.079) **	0.514 (0.063) ***	5.949 (1.491) ***	0.404 (0.086) ***
Business unit size (γ_{20})	0.118 (0.139)	-0.036 (0.167)	-0.060 (2.621)	-0.020 (0.151)
Uncertainty (γ_{30})	0.085 (0.090)	-0.206 (0.067) **	-0.875 (1.709)	-0.030 (0.098)
Activities (γ_{40})	0.171 (0.222)	-0.041 (0.179)	0.907 (4.202)	0.030 (0.242)
Product diversification (γ_{01})		-0.007 (0.048)		
Geographic diversification (γ_{02})		-0.003 (0.007)		
Corporate size (γ_{03})		0.279 (0.231)		
<u>Variance components</u>				
Corporate level (u_{0j})	Variance 0.000	Variance 0.036	Variance 0.164	Variance 0.000
Business unit level (τ_{ij})	χ^2 (df) 15.170 (21)	χ^2 (df) 26.526 (18) †	χ^2 (df) 14.965 (21)	χ^2 (df) 13.891 (21)
	1.038	0.554	371.288	1.233

†: $p < 0.1$; **: $p < 0.01$; ***: $p < 0.001$

Regression coefficients are shown with standard errors in parentheses.

Sample sizes are $n = 89$ for the business unit level and $n = 22$ for the corporate level.

Tests of significance: t-tests (two-tailed) are used to assess significance of regression coefficients; χ^2 tests are used to assess significance of corporate level variance.

Analyses chapter 3: Additional analyses with average resource sharing as corporate level variable (data from 22 corporations)

	Integration mechanisms	Network-based incentives
<u>Regression coefficients</u>		
Intercept (γ_{00})	3.230 (0.098) ***	18.494 (1.982) ***
Resource sharing (centered around group mean) (γ_{10})	0.528 (0.080) ***	2.852 (1.909)
Corporate average resource sharing (γ_{01})	0.592 (0.105) ***	9.857 (2.129) ***
<u>Variance components</u>		
Corporate level (u_{0j})	Variance 0.054	Variance 0.104
Business unit level (r_{ij})	Variance 0.620	Variance 349.259
	χ^2 (df)	χ^2 (df)
	28.867 (20) †	12.717 (20)

†: $p < 0.1$; ***: $p < 0.001$

Regression coefficients are shown with standard errors in parentheses.

Sample sizes are $n = 89$ for the business unit level and $n = 22$ for the corporate level.

Tests of significance: Two-tailed t-tests are used to assess significance of regression coefficients; χ^2 tests are used to assess significance of corporate level variance.

Appendix to chapter 4

Additional analyses chapter 4: Regressions with ROE as dependent variable

	Model 1	Model 2	Model 3	Model 4	Model 5
(Constant)	(...)	(...)	(...)	(...)	(...)
Total assets (log)	-0.205	-0.154	-0.218	-0.137	-0.138
Control differentiation	-0.425 **	-0.519 ***	-0.495 ***	-1.333 ***	-1.266 ***
TMT size	0.176	0.147	0.139	0.148	0.120
TMT heterogeneity	-0.262 *	-0.216 †	-0.277 *	-0.321 **	-0.305 **
TMT role differentiation	0.116	0.192	0.222 †	0.267 †	0.336 **
Control differentiation X TMT size		0.328 **			0.113
Control differentiation X TMT heterogeneity			-0.345 **		-0.216 *
Control differentiation X TMT role differentiation				.986 ***	0.830 ***
R ²	0.288	0.385	0.395	0.471	0.542
F-ratio	3.972 **	5.001 ***	5.227 ***	7.123 ***	6.809 ***
Change in R ²		0.096	0.107	0.183	0.254
F-ratio change in R ²		7.508 **	8.471 **	16.567 ***	8.498 ***

n=54

Dependent variable is Return on Equity (mean 2001 and 2002).

Standardized coefficients are shown.

†: $p < 0.1$; *: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.001$ (one-tailed if hypothesized; two-tailed otherwise).

Additional analyses chapter 4: Regressions with EPS as dependent variable

	Model 1	Model 2	Model 3	Model 4	Model 5
(Constant)	(...)	(...)	(...)	(...)	(...)
Total assets (log)	-0.136	-0.084	-0.146	-0.106	-0.116
Control differentiation	0.084	-0.003	-0.008	-0.324	-0.238
TMT size	0.218	0.193	0.175	0.207	0.169
TMT heterogeneity	-0.388 *	-0.348 *	-0.406 **	-0.413 **	-0.409 **
TMT role differentiation	-0.190	-0.119	-0.052	-0.124	-0.017
Control differentiation X TMT size		0.305 *			0.078
Control differentiation X TMT heterogeneity			-0.445 ***		-0.384 **
Control differentiation X TMT role differentiation				0.444 †	0.240
R ²	0.158	0.241	0.335	0.195	0.352
F-ratio	1.725	2.380 *	3.782 **	1.816	2.924 *
Change in R ²		0.083	0.177	0.037	0.194
F-ratio change in R ²		4.920 *	12.003 **	2.073	4.304 *

n=54

Dependent variable is Earnings per Share (mean 2001 and 2002).

Standardized coefficients are shown.

†: $p < 0.1$; *: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.001$ (one-tailed if hypothesized; two-tailed otherwise).

Additional analyses chapter 4: Regressions with Market to Book as dependent variable

	Model 1	Model 2	Model 3	Model 4	Model 5
(Constant)	(....) *	(....) *	(....) *	(....) *	(....) *
Total assets (log)	-0.157	-0.168	-0.153	-0.141	-0.139
Control differentiation	-0.024	-0.004	0.001	-0.229	-0.262
TMT size	0.436 *	0.441 *	0.448 *	0.430 *	0.444 *
TMT heterogeneity	-0.230	-0.239 †	-0.224	-0.243 †	-0.248 †
TMT role differentiation	-0.272 †	-0.288 †	-0.310 *	-0.238	-0.276 †
Control differentiation X TMT size		-0.072			-0.044
Control differentiation X TMT heterogeneity			0.124		0.127
Control differentiation X TMT role differentiation				0.223	0.300
R ²	0.195	0.200	0.209	0.204	0.225
F-ratio	2.279 †	1.914 †	2.026 †	1.971 †	1.594
Change in R ²		0.005	0.014	0.009	0.030
F-ratio change in R ²		0.267	0.804	0.538	0.559

n=54

Dependent variable is Market to Book (mean 2001 and 2002).

Standardized coefficients are shown.

†: $p < 0.1$; *: $p < 0.05$ (one-tailed if hypothesized; two-tailed otherwise).

Additional analyses chapter 4: Regressions with surrogate variables

	Model 1	Model 2	Model 3	Model 4	Model 5
(Constant)	(...) *	(...) *	(...) *	(...) *	(...) *
Total assets (log)	-0.448 *	-0.451 *	0.421 *	-0.445 *	-0.416 *
Autonomy differentiation	-0.275 *	-0.268 *	-0.303 *	-0.780 **	-0.833 **
TMT size	0.229	0.224	0.219	0.265	0.251
TMT tenure heterogeneity	-0.398 **	-0.401 **	-0.378 **	-0.353 **	-0.329 *
TMT role differentiation	0.048	0.058	0.027	0.047	0.030
Autonomy differentiation X TMT size		0.068			0.051
Autonomy differentiation X TMT tenure heterogeneity			-0.128		-0.155
Autonomy differentiation X TMT role differentiation				0.574 *	0.603 *
R ²	0.241	0.246	0.256	0.302	0.326
F-ratio	3.113 *	2.604 *	2.749 *	3.461 **	2.781 *
Change in R ²		0.004	0.015	0.061	0.085
F-ratio change in R ²		0.284	0.944	4.187 *	1.932

n=54

Dependent variable is Return on Assets (mean 2001 and 2002).

Standardized coefficients are shown.

*: $p < 0.05$; **: $p < 0.01$ (one-tailed if hypothesized; two-tailed otherwise).

Appendix to chapter 6

Regression models chapter 6: Moderating effects on Return on Assets and Return on Equity

	ROA as dependent variable		ROE as dependent variable	
(Constant)	(....) **	(....) *	(....)	(....)
Total assets (log)	-0.493 **	-0.406 *	-0.304 †	-0.169
Control differentiation	-0.403 **	-0.521 ***	-0.504 ***	-0.696 ***
TMT size	0.250	0.165	0.240	0.106
TMT heterogeneity	-0.473 **	-0.449 **	-0.346 *	-0.309 *
TMT role differentiation	-0.081	-0.073	0.037	0.050
Strategic variety	0.292 *	0.267 †	0.325 *	0.285 *
Relatedness in portfolio	-0.039	0.012	-0.074	0.008
Control differentiation X strategic variety		0.196 †		0.308 **
Control differentiation X relatedness		-0.150		-0.248 *
R ²	0.398	0.443	0.361	0.478
F-ratio	4.438 **	3.984 **	3.793 **	4.574 ***
Change in R ²		0.046		0.117
F-ratio change in R ²		1.840		5.030 *

n=54

Standardized coefficients are shown.

†: $p < 0.1$; *: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.001$ (one-tailed for proposed relations; two-tailed otherwise).

Regression models chapter 6: Moderating effects on Earnings per Share and Market to Book

	EPS as dependent variable		Market to Book as dependent variable	
(Constant)	(...)	(...)	(...) [†]	(...)
Total assets (log)	-0.187	-0.134	-0.117	-0.107
Control differentiation	0.034	0.096	0.013	-0.123
TMT size	0.247	0.227	0.408 *	0.366 †
TMT heterogeneity	-0.444 **	-0.426 *	-0.190	-0.188
TMT role differentiation	-0.251	-0.252	-0.230	-0.224
Strategic variety	0.211	0.220	-0.153	-0.179
Relatedness in portfolio	0.000	-0.009	0.012	0.056
Control differentiation X strategic variety		0.043		0.100
Control differentiation X relatedness		0.158		-0.240 †
R ²	0.191	0.210	0.212	0.260
F-ratio	1.486	1.253	1.730	1.678
Change in R ²		0.019		0.048
F-ratio change in R ²		0.508		1.391

n=54

Standardized coefficients are shown.

†: $p < 0.1$; *: $p < 0.05$; **: $p < 0.01$ (one-tailed for proposed relations; two-tailed otherwise).

Summary

The dissertation reports the results of four studies on the control of business units in multidivisional firms. Over the last decades the multidivisional structure became the dominant way of organizing large companies that exploit activities in multiple industries and countries. Typically, a multidivisional firm consists of a number of semi-autonomous subsidiaries, divisions or business units and a company headquarters. A crucial task of the latter consists of the management of the company as a whole, including steering, coordinating, monitoring and managing the actions of business unit management. To perform this task, a wide array of instruments is available to corporate executives and their supporting staff, including, for example, performance evaluation, incentive systems, and centralization of authority.

The dissertation departs from the recognition that two views dominate research on control of business units in multidivisional firms. The first view would recommend firms to choose the control mechanisms in a manner that matches the strategy of the corporation as a whole, and therefore in a manner that would be appropriate for all the business units that are part of it. The second view emphasizes the internal differentiation of control to match the circumstances of individual business units. Both views received support but are not free from criticism either. The criticism centers on differences in the level on which the two views focus: the focus is either on the corporate or the business unit-specific level but very seldom on both. The first view may therefore be considered overly simplistic, as it does not recognize intra-firm differences in business unit circumstances. The second one neglects the complexities of control differentiation for corporate center executives and overlooks that different treatments may cause jealousies and feelings of unfairness at the business unit level. The aim of this dissertation is to provide a more comprehensive understanding of the management of diversified firms by integrating the insights and implications from the two views and by studying, as one of the first, the complexities associated with the internal differentiation of control mechanisms.

After an introductory chapter, chapter 2 provides a review of the existing literature and a conceptual framework. The framework is based on the notion that control of business units

is very much a multilevel issue but has not been recognized as such by previous researchers. As argued earlier, prior studies treated control either as a corporate-wide or a business unit-specific issue. These studies are based on the simplifying assumptions of homogeneity and independence, respectively. Homogeneity indicates that differences between business units are refrained from as the focus is on finding a corporate standard for control. Independence implies that individual business units are studied outside, or independent from, the context of the corporation to which they belong. As multilevel researchers point out, erroneous conclusions can be drawn when findings from a single level study are translated to a higher or lower level. Hence, the corporate standard may fit some but not all business unit contexts given that these contexts may differ considerably. Alternatively, developing business unit-specific controls may impose enormous demands on the capacity of corporate center management, causing the potential benefits for individual business units to be off set by the associated costs at the corporate level. Given this last observation, the plea for internal differentiation of corporate control styles on the basis of business level studies seems premature at best. The framework makes explicit the antecedents and consequences of control at both levels and shows that control may be both corporate and business unit specific at the same time. For example, centralization, which is an important dimension of a control relation, can differ between business units in a firm but that does not exclude the possibility that the average of, or variance in the degree of centralization is also a corporate-specific attribute. It is recommended that future studies incorporate both means and variances to accurately characterize a corporation's control approach.

An implication from chapter 2 is that control can be business unit specific and corporate specific at the same time. In chapter 3 we test this assertion with data of 136 headquarters-subsidary relations in 45 Dutch multidivisional firms. The results show that it is important to distinguish between the different control mechanisms that can be used by corporate executives. In this study the focus is on centralization, evaluation criteria, compensation, and integration devices. We found that all these mechanisms were tuned to business unit-specific circumstances. A corporate effect was only found for two of the four control mechanisms. A striking result is that centralization and evaluation criteria did not differ significantly between the corporations in our sample.

Chapter 4 deals with the complexities of control differentiation for the corporate center management team. We draw upon research on top management teams and argue that

control differentiation places severe cognitive demands on corporate executives that can only be adequately dealt with by corporate center management teams that are composed and structured in a way that sufficient cognitive capacity is available. This assertion is tested on a sample of 54 Dutch corporations. We find that control differentiation is negatively related to the performance of these firms. We also find that this negative relationship is moderated by certain attributes of a top management team's structure. Notably, we find that the negative effects become less severe for larger teams and for teams that assign responsibilities over different units to different members of the team. We also studied the moderator effect of top management team heterogeneity, which is an important indicator for cognitive capacity as evidenced by the widely available research on top management teams. However, team heterogeneity in terms of tenure, functional background, and industry background was found to make the negative effects of control differentiation stronger rather than serve as a moderator.

The final study (chapter 5) uses insights from procedural justice literature to investigate the effects of control differentiation on the performance of individual business units. Procedural justice has received much attention in judicial settings but is increasingly being studied in organizational settings as well. In organizations, perceptions of unfair treatment by superiors may give rise to negative attitudes and behaviors, including lower commitment, lack of cooperation, distrust, unwillingness to share information, or even sabotage of decision-making processes. Procedural justice literature recognizes that inconsistent procedures may contribute to feelings of unfairness due to associations of discrimination and a possible lack of structure in procedures to protect people's interests. We draw upon this and argue that the use of different control treatments for different business units in a corporation can lead to feelings of unfairness and cause unwillingness to cooperate in corporate-business unit decision-making processes, which may, under certain circumstances, lead to a negative effect on business unit performance. Notably, we assert that perceived control differentiation may be problematic especially when the success of business units depends on resource sharing with other units in a corporation. This assertion is supported by the data we collected from 136 business units. We also hypothesize that business unit managers may be less sensitive to differences in the controls when they are able to exert influence in their relations with superiors at corporate headquarters. We suspect the size of a business unit and communication with superiors to be good indicators for the potential influence business unit managers have and hypothesize that the negative

implications of control differentiation will become more pronounced for small business units and when business unit managers do not frequently communicate with their superiors. Results show support for the moderating effect of size but not for communication frequency.

The final chapter includes a discussion of five topics that cut through the preceding chapters. It is concluded that control of business units in multidivisional firms is an important topic given the internal control problems some large firms recently ran into. We argue that recent literature emphasizes the role of new organizational forms that firms can adopt to cope with highly complex environments they face and observe that most large firms are still organized as multidivisional firms. We conclude that multilevel issues, procedural justice arguments, cognitive capacities of executives, and the ability to differentiate while preventing fragmentation, are all relevant topics to be elaborated upon in future studies.

Samenvatting (summary in Dutch)

Deze dissertatie rapporteert de bevindingen van vier studies naar de besturing van business units in multidivisionele ondernemingen. Gedurende de afgelopen decennia is de multidivisionele structuur uitgegroeid tot de dominante ondernemingsvorm voor grote ondernemingen die activiteiten ontplooiën in een groot aantal bedrijfstakken en landen. Een multidivisionele onderneming bestaat in de regel uit een aantal semi-autonome werkmaatschappijen, divisies, of business units, ressorterend onder een concernhoofdkantoor. Belangrijke taken van de managers op het hoofdkantoor, meestal ondersteund door stafmedewerkers, zijn het aansturen, coördineren, en controleren van de acties van de managers die verantwoordelijk zijn voor de dagelijkse leiding van de diverse business units. Om deze taken uit te voeren hebben ze de beschikking over een groot aantal besturingsinstrumenten, waaronder bijvoorbeeld beloningssystemen, prestatiemeting en centralisatie van beslissingsbevoegdheid.

De dissertatie vertrekt vanuit de constatering dat twee zienswijzen het onderzoek naar besturing van business units domineren. De eerste zienswijze stelt dat concernbestuurders de besturingsstijl moeten kiezen die past bij de strategie van het totale concern, en dus geschikt zou moeten zijn voor iedere business unit die daar onderdeel van uitmaakt. De andere zienswijze gaat uit van intern gedifferentieerde besturing. Een dergelijke besturing heeft als voordeel dat verschillen tussen business units kunnen worden opgevangen door voor iedere business unit de meest geschikte besturingswijze te bepalen; de besturingswijze die past bij de strategie of de omgeving van de betreffende business unit. Beide zienswijzen worden gestaafd door empirisch onderzoek maar zijn niet van kritiek gevrijwaard. De kritiepunten zijn veelal terug te voeren tot verschillen in het niveau waarop de benaderingen zich concentreren: de nadruk ligt op het concern als geheel òf op de individuele units maar zelden op beide. De eerste zienswijze kan daardoor als te simplistisch worden beschouwd aangezien verschillen tussen de business units binnen een en hetzelfde concern niet worden erkend terwijl deze toch vaak aanwezig kunnen zijn. De tweede benadering lijkt de complexiteit van gedifferentieerde besturing te negeren en gaat voorbij aan de problemen die verschillende behandelingen teweeg kunnen brengen. Het doel van deze dissertatie is een meer compleet beeld te krijgen

van de besturing van multidivisionele ondernemingen. Daartoe worden de inzichten van beide zienswijzen gecombineerd en wordt de complexiteit van gedifferentieerde besturing bestudeerd.

Na een inleidend hoofdstuk, waarin het doel van het onderzoek uiteengezet wordt, geeft hoofdstuk 2 een overzicht van de bestaande literatuur en wordt een conceptueel raamwerk gepresenteerd. Het raamwerk is gebaseerd op de constatering dat concernbesturing op meerdere niveaus bestudeerd dient te worden maar dat dit tot op heden nauwelijks is gedaan. Zoals eerder is benadrukt, werd concernbesturing voorheen met name behandeld als bepaald door overkoepelende concernkenmerken of door de unieke eigenschappen van individuele business units. Dit duidt erop dat de twee traditionele visies op concernbesturing vertrekken vanuit beperkte veronderstellingen: respectievelijk die van homogeniteit en onafhankelijkheid. Homogeniteit geeft aan dat geabstraheerd wordt van verschillen tussen business units aangezien de nadruk ligt op het vinden van de besturingsstandaard die het beste past bij het concern als geheel. Onafhankelijkheid impliceert dat individuele business units worden bestudeerd zonder rekening te houden met, en dus onafhankelijk van, de context van het concern waartoe ze behoren. De veronderstellingen die ten grondslag liggen aan de twee zienswijzen kunnen tot verkeerde conclusies leiden indien de bevindingen uit een bepaalde studie vertaald worden naar een hoger of lager niveau dan het niveau waarop de bevindingen gegenereerd en gebaseerd zijn. Bijvoorbeeld, de standaard besturingswijze die gebaseerd is op de karakteristieken van het gehele concern is wellicht niet geschikt voor enkele business units binnen het concern wanneer deze qua omstandigheden afwijken van de rest. Anderzijds kan een unit-specifieke-besturingswijze de prestaties van de individuele business units verbeteren maar kunnen de concernprestaties negatief beïnvloed worden door de kosten die een dergelijke manier van besturing met zich meebrengt. Gegeven deze laatste observatie is een pleidooi voor gedifferentieerde besturing op basis van onderzoek op louter het niveau van business units op zijn minst voorbarig. Het raamwerk dat in dit hoofdstuk wordt gepresenteerd maakt de antecedenten en gevolgen van besturing op beide niveaus expliciet en concludeert dat besturing tegelijkertijd zowel specifiek voor het concern als de individuele business units kan zijn. Zo kan de mate van centralisatie, een belangrijke factor die de besturingsrelaties tussen concernbestuurders en business unit management kan typeren, verschillen tussen de business units van een concern terwijl het gemiddelde van en de variatie in de mate van centralisatie tevens het concern als geheel kan onderscheiden van andere.

Aanbevolen wordt dan ook zowel gemiddelde als variatie te gebruiken om de besturingswijze van een concern te duiden.

Een implicatie van hoofdstuk 2 is dat besturing tegelijkertijd specifiek voor het concern en de business units kan zijn. In hoofdstuk 3 wordt dit getoetst met behulp van data over 136 hoofdkantoor-business unit relaties in 45 Nederlandse concerns. De resultaten laten zien dat het belangrijk is om onderscheid te maken tussen de verschillende besturingsinstrumenten die ingezet kunnen worden door concernbestuurders. In dit onderzoek worden vier van dergelijke instrumenten bestudeerd, te weten centralisatie, beoordelingscriteria, beloning en integratiemechanismen. Al deze besturingsinstrumenten vertonen een sterke relatie met de specifieke eigenschappen van individuele business units. Een concerneffect is slechts zichtbaar voor twee besturingsinstrumenten. Opvallend is dat de mate van centralisatie en het belang van strategische beoordelingscriteria niet significant verschillen tussen concerns. Een concerneffect werd wel gevonden voor de twee overige besturingsinstrumenten.

In hoofdstuk 4 wordt de complexiteit van gedifferentieerde besturing voor concernbestuurders onderzocht. Gebaseerd op onderzoek naar top management teams, wordt in dit onderzoek beredeneerd dat gedifferentieerde besturing zware eisen stelt aan de cognitieve capaciteiten van concernbestuurders en derhalve slechts adequaat geïmplementeerd kan worden indien het team van concernbestuurders dusdanig samengesteld en gestructureerd wordt dat voldoende cognitieve capaciteit aanwezig is. Deze redenering wordt getoetst onder 54 Nederlandse concerns. De resultaten laten zien dat er een negatief verband is tussen gedifferentieerde besturing en concernprestaties en dat de sterkte van het verband afhankelijk is van de structuur en samenstelling van het team van concernbestuurders. Zo blijkt het verband minder sterk aanwezig te zijn naarmate het aantal teamleden groter is en naarmate de verantwoordelijkheid voor het besturen van verschillende units verdeeld wordt over verschillende teamleden. Daarnaast blijkt dat een heterogeen team, in termen van dienstverband, functionele achtergrond en bedrijfstakachtergrond, het negatieve verband juist sterker maakt. Dit is in contrast met de ruim voorhanden zijnde top management team literatuur waarin heterogeniteit onder concernbestuurder bij uitstek als middel wordt gezien om complexe bedrijfssituaties het hoofd te kunnen bieden.

De laatste studie (hoofdstuk 5) gebruikt inzichten vanuit ‘procedural justice’ literatuur om de relatie tussen gedifferentieerde besturing en de prestaties van individuele business units te onderzoeken. ‘Procedural justice’ (‘procedurele rechtvaardigheid’) is oorspronkelijk met name in juridische contexten onderzocht maar is recent ook in toenemende mate een rol gaan spelen in studies op het terrein van organisatie en management. Binnen organisaties kunnen percepties van oneerlijke behandeling door leidinggevendenden negatieve gevoelens en gedrag veroorzaken zoals lage toewijding aan de organisatie, niet-coöperatief gedrag, wantrouwen, achterwege houden van informatie, en zelfs sabotage van besluitvorming. De ‘procedural justice’ literatuur beschouwt inconsistentie in procedures als een van de belangrijke determinanten van oneerlijkheid door de associaties die het oproept met discriminatie en het ontbreken van een duidelijke structuur ter bescherming van de belangen van ondergeschikten. Gebaseerd op deze inzichten wordt in dit onderzoek beredeneerd dat het gebruik van verschillende besturingswijzen voor business units binnen een concern kan leiden tot gevoelens van oneerlijkheid. De verstoorde verhoudingen tussen concernbestuurders en business unit managers kunnen vervolgens onder sommige omstandigheden de resultaten van de business units onder neerwaartse druk zetten. Meer in het bijzonder wordt beredeneerd dat gedifferentieerde besturing met name een negatief effect heeft indien business units in sterke mate gebruik maken van gedeelde middelen zodat succes afhangt van samenwerking, zowel met andere business units als met een coördinerend hoofdkantoor. Deze redenering wordt gestaafd door het empirisch onderzoek onder 136 business units. Daarnaast wordt beargumenteerd dat business unit managers minder gevoelig worden voor verschillen in besturing indien ze in staat zijn invloed uit te oefenen in hun relatie met het concernbestuur, waarbij de grootte van de business unit en de frequentie van verticale communicatie als indicatoren voor de mate van invloed dienen. De resultaten van het empirisch onderzoek ondersteunen deze argumenten slechts voor wat betreft de grootte van business units. De conclusie is dat de relatie tussen gedifferentieerde besturing en business unit prestaties sterk afhangt van de specifieke omstandigheden van de business unit.

Het laatste hoofdstuk bestaat uit een discussie van vijf onderwerpen die de verschillende hoofdstukken doorkruisen. Er wordt benadrukt dat besturing van business units een belangrijk onderwerp is gegeven de interne besturingsproblemen waar enkele grote ondernemingen recentelijk mee werden geconfronteerd. Tevens wordt de literatuur over nieuwe organisatievormen aangekaart en gerelateerd aan bevindingen uit de dissertatie en wordt geconstateerd dat de meeste grote concerns in hoofdlijnen nog steeds georganiseerd

zijn als een multidivisionele onderneming. De besturing van dergelijke ondernemingen is een complexe zaak. In de dissertatie zijn inzichten naar voren gekomen die tot meer onderzoek nopen. Meer in het bijzonder wordt aangegeven dat meer onderzoek nodig is naar het 'multilevel' karakter van besturing, de 'procedural justice' argumenten, de cognitieve capaciteiten van concernbestuurders, en tenslotte naar de uitdaging van het gelijktijdig differentiëren van besturing en verhinderen van het ontstaan van fragmentatie.

