

DOES HEADQUARTER STRUCTURE FOLLOW CORPORATE STRATEGY? AN EMPIRICAL STUDY OF ANTECEDENTS AND CONSEQUENCES OF CHANGES IN THE SIZE OF CORPORATE HEADQUARTERS

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Abstract. Despite the importance that scholars and practicing managers attribute to the organizational design of the corporate headquarters (CHQ), research on changes in CHQ size is lacking. In an attempt to empirically explore the antecedents and potential consequences of such changes, I draw on the contingency and organizational-adaptation perspectives to develop a set of hypotheses for the relationships between corporate-level strategic change (CSC) – defined as changes in the firm’s business portfolio –, changes in the size of the CHQ and firm performance. To test the hypotheses, I analyse data from a comprehensive survey of large public firms in Europe and the US, and data from public sources pertaining to the surveyed firms. While the empirical results lend support to the hypothesized role of CSC, they also reveal differences between *related CSC* and *unrelated CSC*. However, I find no support for the expected performance implications. The study contributes to research on the CHQ, corporate-level strategic change, and the relationship between strategy and structure in the contemporary corporation. The findings also inform corporate managers and those involved in advising firms, such as strategy consultants.

Keywords: corporate headquarters, corporate headquarters change, corporate strategy, strategic change, organizational contingency theory, organizational adaptation.

JEL Classification: D23, L21, L22, L25, M10.

Introduction

The corporate headquarters (CHQ) is crucial for the success of today’s corporations (Chandler 1991; Menz *et al.* 2015). Since Chandler (1962) turned the spotlight on the CHQ, a vast body of knowledge has accumulated on this entity’s roles, functions, size, structure, location, and its internal and external relationships (for a comprehensive review, see Menz *et al.* 2015). Although most of this research is static, scholars have recently become more interested in studying changes at the CHQ (Kunisch *et al.* 2015). This research has shed light on several dynamic phenomena, such as CHQ relocations

(Birkinshaw *et al.* 2006; Laamanen *et al.* 2012; Baaij *et al.* 2015) and the lifecycle of CHQ units (Kunisch *et al.* 2014). Yet, changes in the structure of the CHQ have not received much scholarly attention.

The lack of research in this area stands in sharp contrast to the importance scholars attach to the size and structure of the CHQ. Prior studies stress that the CHQ's size and structure are fundamental concerns for large firms (Porter 1987; Young 1993; Buehner 2000; Stalk Jr. 2005; Collis *et al.* 2007, 2012). Although these studies provide important insights into the organizational design of the CHQ, they offer little information about when firms change the size and structure of their CHQ, and whether or not they benefit from such endeavours.

The lack of knowledge is also problematic because academics are unable to provide advice to managers, who view changes at the CHQ as highly important (Young *et al.* 2000; Kontes 2004; Economist 2008, 2014). For example, according to a recent survey of the largest firms in North America and Europe two thirds of firms engaged in major changes at their CHQ over a four-year period and 85% did so over a ten-year period (Kunisch *et al.* 2012). Incidentally, the business press also frequently calls for CHQ staff downsizing (Economist 2008, 2014). Yet, we lack empirical evidence demonstrating that reductions in CHQ staff are beneficial. In fact, the limited research on the CHQ size-performance relationship suggests that firms with larger CHQ often outperform those with smaller CHQ (Goold, Young 2005; Collis *et al.* 2007). Hence, theoretically informed research on the antecedents and consequences of changes at the CHQ as well as testing in the field are urgently needed to provide managers with scholarly advice, especially because such changes are often major undertakings that consume significant organizational resources (Kunisch *et al.* 2015).

Because the CHQ is responsible for managing the firm's portfolio of businesses and for creating a corporate advantage (Chandler 1991; Campbell *et al.* 1995; Collis, Montgomery 1998), the relationships between changes in the business portfolio and changes in the design of the CHQ are particularly interesting. For the purpose of this study, I follow others (Ginsberg 1988; Goodstein, Boeker 1991; Wiersema, Bantel 1992) in conceptualizing changes in the business portfolio as corporate strategic change (CSC)¹. On this basis, this study attempts to answer two interrelated questions: (1) What are the relationships between CSC and changes in CHQ size? (2) What are the performance implications of changes in CHQ size?

To tackle the research questions, I draw on the contingency and organizational-adaptation perspectives, and argue that changes in the size of the CHQ are contingent upon CSC, and that firms benefit from adapting their CHQ to changes in the business portfolios. Specifically, I argue that changes in the related elements of the business portfolio – *related CSC* – rather than changes in its unrelated elements – *unrelated CSC* – are

¹ I thank one of the anonymous reviewers for pointing out that change at the CHQ can also be a kind of corporate strategic change (see Kunisch *et al.* 2015). Moreover, although the delineation between “strategic change” and other “organizational change” is controversial (Mintzberg, Westely 1992), I treat changes in CHQ size as organizational change rather than strategic change.

associated with changes in CHQ size and with performance benefits, as related CSC is likely to affect the potential for economic benefits and corporate-level synergies. I test the hypotheses using data from a comprehensive CHQ survey, and data from public sources pertaining to a sample of large, public firms in the US and Europe.

1. Background

The contemporary corporation is characterized by a set of product and/or geographical business activities and a distinct organizational unit at the top of the corporate hierarchy, which is often referred to as the CHQ (Chandler 1962, 1991, 1992; Menz *et al.* 2015). Competition among these firms occurs not only on the business level but also on the corporate level (Porter 1987; Campbell *et al.* 1995; Collis, Montgomery 1998).

1.1. Corporate strategy and the CHQ

Although a comprehensive review of the CHQ literature is beyond the scope of this study, two lines of research are noteworthy. The first centres on the roles and activities of the CHQ – its general *raison d'être*. According to Chandler (1962, 1991), the CHQ plays at least two distinct roles: an administrative role in which it monitors and controls the activities of the business units (Williamson 1975), and an entrepreneurial role in which it serves as an additional source of value. While the former is mostly concerned with “avoiding the negative”, the latter is more concerned with “creating the positive” (Foss 1997). The entrepreneurial role is more discretionary, and the extent to which it is executed can vary substantively among firms (Goold *et al.* 2001). Chandler (1991) recognizes a third role in a footnote – handling external relations with shareholders (Birkinshaw *et al.* 2006), government agencies, or non-government organizations.

The second line of research centres on the CHQ design. This research is closely related to the roles of the CHQ that are viewed as a key determinant of the entity's organizational design. For example, Goold and Campbell (1987) described three different corporate management styles – strategic planning, strategic control and financial control – each of which influence CHQ size and structure. In a similar vein, Porter (1987) described organizational prerequisites at the CHQ for each of his four concepts of corporate strategy. A few studies empirically tested determinants of CHQ structure and size (Collis *et al.* 2007, 2012). Although these works provide initial insights into the relationships between a firm's business portfolio and the CHQ's design, the relationships between changes in the firm's business portfolio and structural change at the CHQ (which manages the business portfolio) are still unexplored.

1.2. Theoretical perspectives

While the CHQ plays a role in many theories of the firm (Kleinbaum, Stuart 2014; Menz *et al.* 2015), especially contingency theory has helped explain various CHQ phenomena (Young *et al.* 2000; Collis *et al.* 2007, 2012). Contingency theory, which originated with the works of Burns and Stalker (1961) and Lawrence and Lorsch (1967), postulates that there is no “one best way”. Instead, the suitability of managerial decisions is contingent upon the firm's internal and external environments (Donaldson 1995, 2001).

Relevant situational factors include technical and market changes (Burns, Stalker 1961), the organization's size (Blau 1970), and the firm's strategy (Chandler 1962; Miles, Snow 1978). Organizational contingency theory has been used in studies of various organizational-design phenomena, such as the adoption of the M-form, structural differentiation, formalization and decentralization (cf. Donaldson 2001)². It has also been used in studies of topics closely related to the CHQ, such as structural alignment in the top management team (TMT) (Hambrick, Cannella 2004; Marcel 2009; Menz, Scheef 2014) and in studies of organizational change (Battilana, Casciaro 2012).

Organizational adaptation theory, which is closely related to contingency theory, explicitly emphasizes organizational change, and posits that firms adapt their structures to cope with changes in their internal and external environments (Mueller, Kunisch 2017). For example, low firm performance fosters CSC (Kimberly, Quinn 1984). This lens has been applied in studies pertaining to various elements of the CHQ, such as leadership structures at the corporate level (Zhang 2006).

The common premise of these perspectives is that decision makers rationally strive to align their firms with the situation in the internal and external environments, and that the firm's performance depends on the extent to which *fit* has been achieved (Lawrence, Lorsch 1967; Donaldson 2001). Hence, these two lenses deviate from other prominent views on organizational choice, such as institutional theory's claim that decision makers imitate others (DiMaggio, Powell 1983), the upper echelons' logic that managers act on the basis of their values and prior experiences (Hambrick, Mason 1984), and agency theory's premise that managers strive to optimize their own benefits rather than those of shareholders (Jensen, Meckling 1976)³. Moreover, these two lenses differ from other well-known theories of change that allow for much less managerial choice, such as population ecology's (Hannan, Freeman 1977, 1989) proposition that "structural inertia" inhibits organizational change (Hannan, Freeman 1984).

To maintain a coherent theoretical framework, in this study I focus on the premises of the contingency and adaptation lenses. In what follows, I propose that structural change at the CHQ is contingent upon CSC. In addition, I propose that depending on the extent to which CSC occurs structural change at the CHQ has positive performance effects, as such change is needed to regain internal fit between the two corporate-strategy aspects.

2. Hypotheses

2.1. Antecedents: corporate strategic change

Prior research suggests that the business portfolio serves as an important determinant of CHQ size (Porter 1987; Collis *et al.* 2007). Different business portfolios need to be managed in different ways simply because the potential for economic benefit varies (Rumelt

² Please note that this theory has also been used in other areas of management. See, for example, Chiarini and Vagnoni (2015) and Chiarini (2016).

³ In this regard, I follow Hambrick and Cannella (2004), who make a similar argument in their study of the existence of COOs in which they rely on the contingency view.

1982; Palepu 1985; Hill, Hoskisson 1987). The identification and, ultimately, the exploitation of synergies among business units require effort from the CHQ. For example, the creation of synergies requires an ability to transfer skills or share activities among separate business units, which needs to be coordinated and organized (Porter 1987).

Given this logic, changes in the business portfolio alter the potential for certain economic benefits. This, in turn, should foster a need to adapt organizational arrangements – especially the CHQ’s design – to realize those economic benefits. In fact, the limited available empirical evidence suggests that changes in the corporate portfolio are related to changes in CHQ functions and roles. For example, Cibin and Grant (1996) link changes in the corporate strategy (i.e. a narrowing of scope) to various changes at the CHQ, including decentralization, less formality, less specialization, a quest for non-hierarchical systems of coordination and control, and a redefinition of the roles of TMT members and CHQ staff.

Based on this line of argumentation, I expect changes in the business portfolio to foster change at the CHQ:

H1: CSC is positively related to the likelihood of change in CHQ size.

A key premise of diversification research is that substantial differences can be found in similarly diversified firms, especially in the related and unrelated elements of the business portfolio (Palepu 1985). As change can occur in the related and/or unrelated elements of the business portfolio, CSC can also differ widely. My second hypothesis is therefore more specific with respect to CSC, i.e. the potential changes in firms’ portfolio of businesses.

Related diversification and unrelated diversification are managed in different ways because distinct economic benefits are associated with each diversification strategy (Hill, Hoskisson 1987; Porter 1987; Hoskisson, Hitt 1988; Jones, Hill 1988; Hill *et al.* 1992). While related diversification relies on synergistic economies (i.e. economies of scope, economies of integration and internal capital markets), unrelated diversification mainly benefits from financial economies (i.e. internal capital markets) and efficient internal governance mechanisms. Consequently, the two diversification strategies require certain organizational arrangements (e.g. controls) to ensure the realization of their respective economic benefits. Even though scholars often do not explicitly refer to the CHQ, these organizational arrangements relate to the CHQ.

Extant research on the CHQ suggests that relatedness of firms’ portfolio of businesses is positively associated with CHQ size (Collis *et al.* 2007). Firms pursuing related diversification typically have larger CHQs, while firms pursuing unrelated diversification usually require fewer corporate-level staff and, thus, have smaller CHQs (Dundas, Richardson 1982). In this regard, Collis and Montgomery (1998: 73) state: “the more general the resources and the less the need for sharing, the smaller the corporate office should be”. Thus, CHQ sizes should differ greatly between firms engaging in related diversification and those engaging in unrelated diversification.

On this basis, I suggest that changes in the related and unrelated elements of the business portfolio are likely to affect the CHQ in different ways. Related CSC means moving from

a lower level of related diversification to a higher level or vice versa. Synergies associated with the related elements in the business portfolio play a less important role given lower levels of related diversification, but they are more important given higher levels of related diversification. In both cases, synergies play more important roles at certain points in time. When the potential for creating synergies is high, additional functions are usually required at the corporate level to realize economic benefits. Similarly, when the potential for creating synergies is low, fewer staff members and functions are required. In other words, as certain organizational arrangements are required at the CHQ to realize synergies, related CSC can be expected to lead to structural changes at the CHQ.

Conversely, unrelated CSC means that firms switch from a lower to a higher level of unrelated diversification or vice versa. In either case, the change only affects the economic benefits associated with the unrelated diversification (e.g. financial economies [internal capital markets] and the efficiency of internal-governance mechanisms), which should have a limited influence on CHQ size. Hence, structural change at the CHQ should be less likely.

In sum, I expect changes in the related elements in the business portfolio – *related CSC* – to be more likely to foster change in CHQ size than changes in the unrelated elements – *unrelated CSC*. To reflect these potential differences, I state two hypotheses:

H2: a) Related CSC and b) unrelated CSC are positively related to the likelihood of change in CHQ size.

2.2. Consequences: firm performance

The lenses applied in this study lead me to suggest contingency effects. Although there is no systematic evidence that structural changes at the CHQ have performance implications, an essential tenet of organizational contingency theory is that organizations need to be internally aligned and that internal fit leads to superior performance (Lorsch, Allen 1973; Donaldson 1987, 2001). Common themes in (static) CHQ research are that the design of the CHQ entity is a key factor for performance, and that the fit between the portfolio strategy and the organizational design (structure) on the firm and CHQ levels is crucial for superior performance (Menz *et al.* 2015).

Changes in the business portfolio alter the fit between the business portfolio and the CHQ's organizational arrangements suited to effectively manage that portfolio. This suggests that CSC in conjunction with a change in CHQ size results in superior performance – the CHQ's design must be adjusted to re-establish internal fit between the two corporate-strategy aspects. The achievement of fit between the business portfolio and the organizational arrangements at the CHQ allows the benefits described above to outweigh the costs. As fit is associated with superior performance (Donaldson 1987), firms that succeed in establishing fit between the two aspects of corporate strategy should enjoy superior performance.

Based on this logic and bearing in mind the arguments pertaining to the antecedents of change in CHQ size, CSC accompanied by structural change at the CHQ should lead to superior performance. I therefore submit the following general hypothesis:

H3: Firms benefit from changes in CHQ size to the extent that CSC occurs.

In addition, building on the differences between changes in the business portfolio discussed above, I submit two specific hypotheses:

H4: Firms benefit from changes in CHQ size to the extent that a) related CSC occurs, and b) unrelated CSC occurs.

3. Methodology

3.1. Sample and data collection

To test the hypotheses, I compiled a data set from two sources. First, in line with prior CHQ research (Buehner 2000; Young *et al.* 2000; Collis *et al.* 2007, 2012), I used survey data to capture information about structural changes at the CHQ in four countries: Germany (DE), the Netherlands (NL), the United Kingdom (UK) and the United States (US). The surveys were conducted by an international research consortium (for detailed information, please see Collis *et al.* (2007: 384–385)). While the original surveys covered six countries, I could only gain access to four of them, which cover the North American and Continental European corporate governance systems. This data set covered 170 publicly listed firms.

Second, for the firms included in the survey sample, I collected publically available data on CSC, firm performance and environmental characteristics. Data on the firms' business activities and financial data were obtained from the Thomson Reuters OneBanker database. As the analysis spans several years, several firms disappeared from the data set at some point and/or had missing data. These factors reduced the final samples to 116 and 104 firms, respectively.

3.2. Variables

In order to explore causal relationships, I relied on time lags between the dependent variables and the independent variables. Data capturing the anticipated changes at the CHQ lagged the data capturing CSC, while the performance data lagged the data capturing previous changes at the CHQ and CSC.

3.2.1. Changes in CHQ size

Two survey questions captured *changes in CHQ size*. One question asked about prior changes ("How has the number of CHQ staff changed over the previous five years?"), while the other asked about likely future changes ("What changes do you anticipate in the number of CHQ staff over the next five years?"). The informants were asked to indicate whether the number of CHQ staff was (would be) lower, the same ($\pm 10\%$) or higher (see Young *et al.* 2000). Based on the data from these two questions, I created two dummy variables to capture changes in CHQ size – one to capture anticipated changes and another to capture previous changes. Each of the two binary variables was coded 1 for change and 0 for no change.

3.2.2. Corporate-level strategic change (CSC)

Corporate strategy concerns the mix and weight of businesses within the corporate portfolio (Ansoff 1965; Rumelt 1974; Porter 1987). In line with this definition and the study's purpose of linking the two concerns of corporate strategy, I measured CSC as the

change in the firm's diversification strategy. As in previous studies (Wiersema, Bantel 1992), I based the measure of diversification strategy on the entropy measure of total diversification (DT) (Jacquemin, Berry 1979) which captures both the diversity of the business portfolio and the related versus unrelated elements of diversity (Palepu 1985). The DT index has been widely used in prior corporate strategy studies (Hill *et al.* 1992; Bigley, Wiersema 2002). While related diversification (DR) captures the "distribution of the output among related products within the industry group" (Palepu 1985: 244), unrelated diversification (DU) measures "the extent to which a firm's output is distributed in products across unrelated industry groups" (Palepu 1985: 244). I used the DR and DU indexes to capture the related and unrelated diversification.

On the basis of this logic, CSC was measured as the absolute difference between the entropy measures of diversification in two years: t and $t-3$ (Wiersema, Bantel 1992; Bigley, Wiersema 2002; Kunisch *et al.* 2017). More specifically, I used the 1998 (t) and 1995 ($t-3$) entropy measures of diversification to calculate CSC. To better understand the relationships between CSC and changes in the size of the CHQ, I calculated three measures for CSC, one for each of the three entropy measures of diversification: *total CSC (CSCT)*, *related CSC (CSCR)* and *unrelated CSC (CSCU)*.

3.2.3. Firm performance

I measured firm performance as the efficiency of resource use within the firm as a whole, as my arguments largely centre on the efficiency effects of establishing fit between corporate strategy and structure. I used the *return on assets (RoA)* to measure profitability. This performance indicator is used in other studies investigating the fit between strategy and structure (Hill *et al.* 1992). Similar to previous studies (Bigley, Wiersema 2002), I used a three-year average RoA to even out annual fluctuations in the financial data.

3.2.4. Controls

To account for potentially confounding effects and alternative explanations, I considered control variables at the CHQ, firm and environmental levels.

Relative CHQ size. I calculated *CHQ size* as the natural logarithm of the number of CHQ staff per 1,000 employees in the organization as a whole (Collis *et al.* 2007, 2012).

CHQ and firm performance. I controlled for prior performance. I followed the approach taken by Collis *et al.* (2007) in using two types of performance measures, each of which has unique advantages and disadvantages. I controlled for *CHQ performance* using two self-reported measures: (1) the ability to support corporate strategy and (2) the cost effectiveness of the CHQ. Although these measures are rather subjective, they directly evaluate CHQ performance (Collis *et al.* 2007). In addition, I used financial performance measures, which can be influenced by many factors other than CHQ performance but are rather objective. In line with the logic for firm performance explained above, I used a three-year average *RoA*.

Degree of diversification. I used the three entropy measures to account for the firm's degree of *total*, *related* and *unrelated diversification* (see details above).

Firm size. I followed previous studies (Boeker 1997; Carpenter 2000) in controlling for

firm size, as it has been argued that firm size may be related to change (Mintzberg 1978; Hannan, Freeman 1989; Haveman 1993). I used the firm's *market capitalization* to measure firm size. As in prior studies (Kelly, Amburgey 1991; Carpenter 2000; Collis *et al.* 2007), I calculated the natural logarithm, as the distribution of the values was skewed.

Industry. I used the Thomson Reuters OneBanker general industry classification to create six industry dummies (01 = "Industrial", 02 = "Utility", 03 = "Transportation", 04 = "Banks/Savings and Loans", 05 = "Insurance" and 06 = "Other Financial"). I created an additional industry dummy to distinguish between industrial and non-industrial firms.

Country. I created four dummies for the countries in the sample (DE, NL, US, UK), and used three of them in the analyses, with NL as the omitted country. I also created a region dummy to distinguish between US and non-US firms.

3.3. Analytical procedures, validity and reliability

To test the hypothesized antecedents and consequences, I applied two types of regression analyses (Sanders, Carpenter 1998) to account for the nature of the respective dependent variables. Given the binary nature of *change in CHQ size*, I applied binominal logit regression analyses (Menard 1995; Hoetker 2007; Wiersema, Bowen 2009) to estimate the likelihood of *change in CHQ size*. I relied on OLS regressions to analyse the hypothesized performance consequences of *changes in CHQ size* (Baron, Kenny 1986; Aiken, West 1991).

To capture the moderation effects with regard to *CSC*, *related CSC* and *unrelated CSC*, I created three sets of dummy variables. Each set contained two binary variables. The first variable was coded 1 if *CSC* (*CSCR* and *CSCU*, respectively) was high and the CHQ's size changed, and 0 otherwise. The second variable was coded 1 if *CSC* (*CSCR* and *CSCU*, respectively) was high and the CHQ's size remained unchanged. A high level of *CSC* (*CSCR* and *CSCU*, respectively) was defined as the mean value plus 0.5 of the standard deviation.

I addressed validity and reliability issues in several ways. First, I used two different sources of data (survey or secondary data) for the dependent and independent variables to address a potential single-source bias (Cardinal 2001). Second, all of the measures used in this study have been validated in prior studies. Third, I conducted several robustness checks.

4. Results

A first key insight is that there is considerable variance among the firms with respect to changes in CHQ size. As shown in Tables 1 and 2, while approximately 44% of the firms did not anticipate changes in the size of their CHQs in the next five years, 56% did expect such changes. The numbers for past changes are slightly different – approximately one third had not changed the size of their CHQs in the previous five years, while two thirds had changed their CHQ' size.

In the following, I describe the analyses of factors that influence the likelihood of such changes and their potential consequences.

Table 1. Magnitude and directionality of change in CHQ size

Δ CHQ size (number of staff)	Past change (previous 5 years)		Anticipated change (next 5 years)	
<i>Magnitude of change</i>				
0 No change	35	(33.65%)	51	(43.97%)
1 Change	69	(66.35%)	65	(56.03%)
Total	104	(100%)	116	(100%)
<i>Directionality of change</i>				
-1 Decrease	37	(35.58%)	50	(43.10%)
0 No change	35	(33.65%)	51	(43.97%)
1 Increase	32	(30.77%)	15	(12.93%)
Total	104	(100%)	116	(100%)

4.1. Corporate-level strategic change as antecedents of change in CHQ size

Table 2 provides descriptive statistics for all of the variables in this study that are related to the anticipated structural change at the CHQ, as well as their correlations. The correlations between firm size and the anticipated decrease in CHQ size (0.64) and between CHQ size and the anticipated increase in CHQ size (-0.44) are comparably high. With the exception of these two cases, all of the correlations between the independent and dependent variables are lower than 0.30, which suggests that multicollinearity is not a problem in the analyses.

The baseline hypothesis refers to overall changes in the business portfolio – corporate-level strategic change (CSC) – as an antecedent of change in CHQ size. Table 3 shows the binomial logistic regression models for the likelihood of change in CHQ size compared to the likelihood of no change. Model 1a, which includes the controls, indicates that prior changes in CHQ size and in the CHQ’s cost effectiveness are positively related to the likelihood of change in CHQ size ($p < 0.05$), and that industry and country effects play a role. Model 1b includes the main effect and shows that CSC is positively related to the likelihood of change in CHQ size ($p < 0.05$). Both models are significant ($p < 0.01$). Model 1b is superior to Model 1a, as both the statistical significance (Chi-squared) and the practical significance (pseudo R-squared) are higher. Therefore, there is empirical support for H1.

In an extension of the baseline argument, H2a and H2b hypothesize positive relationships between unrelated and related CSC, and changes in CHQ size. These hypotheses aim to explore whether differences exist between these two types of CSC. As these models are fairly similar to the previous models, I only point out the most noteworthy results (see Table 3). Model 2a contains only the controls. Model 2b shows that unrelated CSC is not significantly related to changes in CHQ size, while related CSC is positively related to the likelihood of such changes ($p < 0.01$).

Table 2. Descriptive statistics and correlations – anticipated change in CHQ size

	Obs	Mean	SD	Min	Max	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Anticipated change in the CHQ size (yes/no)	116	0.56	0.50	0.00	1.00	1.00								
(2) Anticipated decrease in the CHQ size (yes/no)	116	0.43	0.50	0.00	1.00	0.77***	1.00							
(3) Anticipated increase in the CHQ size (yes/no)	116	0.13	0.34	0.00	1.00	0.34***	-0.34***	1.00						
(4) CSCU: abs. change in total diversif. (1995–1998)	116	0.27	0.30	0.00	1.32	0.15†	0.09	0.10	1.00					
(5) CSCR: abs. change in rel. diversif. (1995–1998)	116	0.21	0.30	0.00	1.34	0.26**	0.18†	0.12	0.70***	1.00				
(6) CSCU: abs. change in unrel. diversif. (1995–1998)	116	0.15	0.26	0.00	1.35	0.10	0.12	-0.03	0.43***	0.18*	1.00			
(7) Prior firm performance: avg. RoA (1996–1998)	116	1.77	0.81	-0.70	3.34	0.02	-0.12	0.20*	0.06	0.07	0.09	1.00		
(8) Degree of total diversification (1998)	116	0.76	0.48	0.00	1.69	0.13	0.23*	-0.15	0.19*	0.32***	0.15	0.00	1.00	
(9) Degree of related diversification (1998)	116	0.41	0.41	0.00	1.50	0.05	0.10	-0.08	0.30***	0.52***	0.04	-0.03	0.55***	1.00
(10) Degree of unrelated diversification (1998)	116	0.35	0.43	0.00	1.63	0.11	0.17†	-0.09	-0.07	-0.14	0.14	0.03	0.60***	-0.33***
(11) Firms size: ln market capitalization (1998)	116	8.33	1.94	3.39	12.09	0.12	0.12	0.01	-0.16†	0.01	-0.13	-0.04	0.26**	0.27**
(12) Firms size: ln number of total employees (1998)	116	9.95	1.43	2.64	12.49	0.25**	0.30**	-0.07	-0.11	-0.09	0.02	-0.07	0.24*	0.05
(13) CHQ size: ln (CHQ staff / 1,000 empl) (1998)	116	2.26	1.42	-0.45	10.26	0.07	0.10	-0.04	0.04	0.19*	-0.18†	0.04	-0.05	0.25**
(14) Prior CHQ change: abs. change in CHQ staff (1994–1998)	116	0.67	0.47	0.00	1.00	0.23*	0.13	0.16†	-0.13	0.04	0.01	-0.12	0.07	0.08
(15) CHQ perf.: CHQ ability to supp. corporate strategy (1998)	116	1.59	0.60	1.00	3.00	0.07	0.12	-0.08	0.07	0.03	0.08	-0.05	0.13	0.06
(16) CHQ perf.: CHQ cost effectiveness (1998)	116	1.68	0.64	1.00	3.00	0.21*	0.33***	-0.17†	-0.04	0.02	-0.09	-0.16†	-0.05	0.03
(17) Region dummy: U.S. vs. non-US (Europe) (1/0)	116	0.39	0.49	0.00	1.00	0.21*	0.13	0.11	0.08	0.21*	-0.10	0.14	-0.11	0.07
(18) Industry dummy: manufacturing vs. non-manufacturing (1/0)	116	0.78	0.42	0.00	1.00	0.15	0.09	0.08	0.11	0.11	0.07	0.45***	0.03	-0.09

End of Table 2

	Obs	Mean	SD	Min	Max	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) Anticipated change in the CHQ size (yes/no)	116	0.56	0.50	0.00	1.00									
(2) Anticipated decrease in the CHQ size (yes/no)	116	0.43	0.50	0.00	1.00									
(3) Anticipated increase in the CHQ size (yes/no)	116	0.13	0.34	0.00	1.00									
(4) CSCT: abs. change in total diversif. (1995–1998)	116	0.27	0.30	0.00	1.32									
(5) CSCR: abs. change in rel. diversif. (1995–1998)	116	0.21	0.30	0.00	1.34									
(6) CSCU: abs. change in unrel. diversif. (1995–1998)	116	0.15	0.26	0.00	1.35									
(7) Prior firm performance: avg. RoA (1996–1998)	116	1.77	0.81	-0.70	3.34									
(8) Degree of total diversification (1998)	116	0.76	0.48	0.00	1.69									
(9) Degree of related diversification (1998)	116	0.41	0.41	0.00	1.50									
(10) Degree of unrelated diversification (1998)	116	0.35	0.43	0.00	1.63	1.00								
(11) Firms size: ln market capitalization (1998)	116	8.33	1.94	3.39	12.09	0.04	1.00							
(12) Firms size: ln number of total employess (1998)	116	9.95	1.43	2.64	12.49	0.22*	0.64***	1.00						
(13) CHQ size: ln (CHQ staff / 1,000 empl) (1998)	116	2.26	1.42	-0.45	10.26	-0.29**	-0.06	-0.44***	1.00					
(14) Prior CHQ change: abs. change in CHQ staff (1994–1998)	116	0.67	0.47	0.00	1.00	0.01	0.12	-0.07	0.20*	1.00				
(15) CHQ perf.: CHQ ability to supp. corporate strategy (1998)	116	1.59	0.60	1.00	3.00	0.09	-0.05	0.08	-0.06	-0.13	1.00			
(16) CHQ perf.: CHQ cost effectiveness (1998)	116	1.68	0.64	1.00	3.00	-0.08	0.09	0.20*	0.11	0.08	0.36***	1.00		
(17) Region dummy: U.S. vs. non-US (Europe) (1/0)	116	0.39	0.49	0.00	1.00	-0.19*	0.00	0.01	0.31***	0.07	-0.26**	-0.13	1.00	
(18) Industry dummy: manufacturing vs. non-manufacturing (1/0)	116	0.78	0.42	0.00	1.00	0.12	-0.22*	0.03	-0.12	-0.24**	0.05	-0.04	0.13	1.00

Notes: N = 116; †p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001; CHQ performance is reverse coded, i.e. higher values refer to lower CHQ performance.

Table 3. Logistic regression models for the anticipated change in CHQ size

Constant	-4.873*** (1.653)	-6.029*** (1.809)	-4.904*** (1.644)	-6.097*** (1.883)
Controls^{a)}				
<i>CHQ characteristics</i>				
Relative CHQ size: ln (CHQ staff/1,000 total employees) (1998)	-0.062 (0.163)	-0.109 (0.167)	-0.005 (0.175)	0.007 (0.187)
Prior CHQ change: abs. change in CHQ size (1994–1998)	1.223** (0.478)	1.449*** (0.511)	1.216** (0.479)	1.303** (0.514)
CHQ performance: CHQ ability to support corporate strategy (1998) ^{b)}	0.272 (0.401)	0.225 (0.407)	0.287 (0.400)	0.282 (0.422)
CHQ performance: CHQ cost effectiveness (1998) ^{a)}	0.787** (0.386)	0.854** (0.393)	0.797** (0.389)	0.929** (0.411)
<i>Firm characteristics</i>				
Prior firm performance: average RoA (1996–1998)	-0.054 (0.313)	0.010 (0.316)	-0.105 (0.319)	-0.140 (0.331)
Degree of total diversification (1998)	0.520 (0.475)	0.264 (0.493)		
Degree of related diversification (1998)			0.142 (0.632)	-1.053 (0.790)
Degree of unrelated diversification (1998)			0.812 (0.580)	0.551 (0.611)
Firms size: ln market capitalization (1998)	0.119 (0.123)	0.180 (0.129)	0.140 (0.127)	0.240* (0.138)
<i>Environmental characteristics: Industry dummies and country dummies^{c)}</i>				
Predictors				
CSCT: abs. change in total diversification (1995–1998)		1.870** (0.896)		
CSCR: abs. change in related diversification (1995–1998)				3.082*** (1.180)
CSCU: abs. change in unrelated diversification (1995–1998)				1.542 (1.123)
Log likelihood	-66.43	-63.97	-66.02	-60.25
Likelihood ratio Chi-squared	26.25	31.17	27.07	38.62

End of Table 3

Δ CHQ size: Anticipated change (next 5 years)	Model 1a	Model 1b	Model 2a	Model 2b
Prob > Chi-squared	0.0059	0.0019	0.0075	0.0004
Prob > Δ Chi-squared		0.0369		0.0106
Pseudo R-squared	0.1650	0.1959	0.1702	0.2427
Δ Pseudo R-squared		0.0309		0.0725
Observations	116	116	116	116

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, standard errors in parentheses.

a) I ran several robustness checks with other controls. These analyses led to similar results;

b) CHQ performance is reverse coded, i.e. higher values refer to lower CHQ performance;

c) Industry and country dummies are not reported for parsimony's sake.

Abs: absolute;

CHQ: Corporate headquarters;

CST: Total strategic change;

CSCR: Related corporate-level strategic change;

CSCU: Unrelated corporate-level strategic change.

I used the predicted probabilities to calculate the changes at 95% confidence intervals while holding all other variables at their mean values. A one standard deviation increase in related CSC (about 0.2952), centered on the mean, increases the probability of changes in CHQ size by 0.2148, while holding all other variables at their mean values. This difference is significant (95% confidence interval: 0.0616, 0.3680). A one standard deviation increase in unrelated CSC (about 0.2614), centered on the mean, increases the probability of changes in CHQ size by 0.0967, while holding all other variables at their mean values. This difference is not significant (95% confidence interval: -0.2370, 0.4304). The difference in the increases in the probability of changes in CHQ size (0.2148 versus 0.0967) indicates that the influence of related CSC is greater than the influence of unrelated CSC.

4.2. Performance consequences of changes in CHQ size

With respect to the potential performance consequences, I proposed that firms benefit from changes in CHQ size to the extent that CSC (H3), unrelated CSC (H4a) and related CSC (H4b) occur. The analyses do not yield empirical support for any of these contingency effects or for the direct effects of changes in CHQ size on firm performance (to conserve space, the results of these analyses are not presented). Although the results do not support H4a, they do provide some support for the opposite relationship. There is a negative moderation effect of a high level of related CSC and changes in CHQ size on firm performance ($p < 0.05$). I offer possible interpretations of this finding in the discussion section. Nevertheless, altogether the results provide no empirical support for the hypothesized contingency relationships which is similar to the non-findings in comparable contingency studies (Hambrick, Cannella 2004; Menz, Scheef 2014).

5. Discussion

In this study, I explored the relationships between CSC, changes in CHQ size and firm performance. The analyses reveal that various factors at the firm and CHQ levels appear to influence changes in CHQ size. Specifically, the empirical findings suggest that CSC – especially related CSC – is positively related to the likelihood of changes in CHQ size. While the results provide support for the contingency and organizational-adaptation views of the relationships between CSC and CHQ change, I did not find empirical support for the expected performance implications.

5.1. Contributions and practical implications

The study makes at least three contributions. First, the study adds to research about the CHQ (Menz *et al.* 2015). While a vast majority of previous research on the CHQ adopts a static treatment of time, this study adds to the emerging body of research on the dynamic nature of the CHQ (Kunisch *et al.* 2015). The study reveals internal factors that can impede or foster changes at the CHQ. Specifically, while previous corporate-level studies (Pettigrew 1985; Goold, Campbell 1987), and organizational change and inertia theories (Hannan, Freeman 1977, 1984, 1989) have nurtured concepts of CHQ inertia, the results of this study yield little empirical support for this viewpoint with respect to changes in CHQ size. In fact, this study suggests that CSC and lower CHQ performance foster the need for structural change at CHQs and, thereby, challenges the notion of CHQ inertia.

Second, this study adds to CSC research (Kunisch *et al.* 2017; Mueller, Kunisch 2017) by exposing differences between related and unrelated CSC. The notion of relatedness, and the distinction between related and unrelated diversification have become crucial in “static” diversification research (see Palepu 1985). Although scholars often rely on the firm’s diversification strategy to study CSC in large firms and public companies (Kunisch *et al.* 2017; Mueller, Kunisch 2017), these “dynamic” studies utilize the total diversification index to calculate CSC. By exposing the differences in related and unrelated CSC, this study highlights the need for a more fine-grained examination of CSC. In addition, the only finding concerning the performance implications – a high level of related CSC together with change in CHQ size – is negatively associated with firm performance – hints at the potential disruptive effects of simultaneous changes in both corporate strategy concerns.

Third, the study adds to the classic strategy/structure literature (Chandler 1962). While previous studies empirically tested the dynamic contingency relationship between strategy and structure at the firm level, as proposed by Chandler (Amburgey, Dacin 1994; Galan, Sanchez-Bueno 2009), this study focuses on the specific relationships between changes in the corporate portfolio and structural change at the CHQ. In line with other empirical studies (Amburgey, Dacin 1994; Galan, Sanchez-Bueno 2009), my empirical findings support Chandler’s (1962) observation that structure follows strategy.

The findings of this study have several practical implications pertaining to CHQ redesigns. First, the study reveals potential triggers of CHQ change, such as CHQ perfor-

mance and changes in the business portfolio. Certain changes in the business portfolio appear to affect CHQ size, probably because these changes require adjustments in the way the business portfolio is managed. Thus, while the focus is often only on changes in the business portfolio, changes in how the business portfolio is managed and in the CHQ's design are equally important.

Second, I find no empirical evidence that changes at the CHQ directly influence firm performance. Related research suggests that “simply reducing the size of the headquarters is no guarantee of improved performance” (Collis *et al.* 2007: 402), and that a strong CHQ is particularly important in times of uncertainty (Raynor, Bower 2001). This, together with my findings, suggests that managers should be careful when implementing CHQ changes, adopt a considered approach and keep the disruptive effects in mind.

5.2. Limitations and future research

This study has several limitations that provide opportunities for future research. First, the sample of the study is constraint by: (a) four countries in the US and Europe, (b) public firms, and (c) large, diversified firms. Future research may therefore test whether the study's findings apply to other countries, different ownership conditions, and smaller or single-business firms.

Second, this study focuses on structural changes at the CHQ. While analysing the structures of an organizational entity is a practical approach for identifying the underlying activities and capabilities that have previously been applied (Grant 2003), structural change may be merely superficial, such that the personnel, behaviours or cultures remain the same (Ferlie, Pettigrew 1996). Future studies may thus investigate the degree to which structural change at the CHQ is not merely relabelling or symbolic activity, but reflects genuine CHQ change.

Third, there are a few limitations related to the CSC measure. While I focused on product-market diversification to capture CSC, future research could use geographical diversification (Geringer *et al.* 2000), and re-examine the relationship between CSC and structural change at the CHQ. In addition, as product-market and geographical diversification focus on firm output rather than the firm's capabilities or core competences (Markides, Williamson 1996), future studies could investigate other measures of CSC.

Fourth, I acknowledge that I cannot entirely rule out the possibility of reverse causality and alternative explanations. Even though my theoretical arguments suggest that changes in the firm's portfolio should affect the decision to alter the size of the CHQ, the direction of this relationship may be the opposite. To mitigate endogeneity concerns, I relied on multiple data sources and applied a lagged empirical design to test the hypothesized relationships. Nevertheless, I cannot completely exclude the possibility that the CHQ's design may affect decisions regarding CSC. Future research could address this limitation, and focus on developing a deeper understanding of the causal mechanisms and processes that affect decisions concerning changes in CHQ size. In addition, scholars should further explore the potential relationships between firm growth (organic growth as well as mergers & acquisitions) and changes at CHQ.

Finally, the focus on internal contingencies and internal fit constitutes a theoretical limitation. Prior research stresses the importance of the CHQ as “a ‘middleman’ or broker between the business units on the one hand, and the external stakeholders on the other” (Birkinshaw *et al.* 2006: 686). Future research may thus examine the impact of external contingencies on structural change at the CHQ.

Conclusions

While the roles, functions and the designs of the CHQ have long attracted scholarly inquiries, scholars have become increasingly interested in the dynamic nature of the CHQ. In this study, I explored the relationships between changes in portfolio strategy (corporate-level strategic change, CSC) and changes in the size of the CHQ. The empirical findings suggest that although CSC generally fosters changes at the CHQ, there are differences between related and unrelated CSC. While the performance effects remain unclear, the findings advance our knowledge about potential triggers to changes at the CHQ. The study’s findings also yield ample opportunities for future research. While this study build on a “rational adaption” approach to explain changes at the CHQ, fellow scholars may explore political, symbolic and other factors that may foster and impede changes at the CHQ and shed light on the underlying processual dynamics that influence the relationships revealed in this study.

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