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Resource specialization, customer orientation, and firm performance: an empirical investigation of valuable resources

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This study contributes to the strategic marketing research by empirically investigating the role of customer orientation in explaining how firms leverage their specialized but vulnerable resources. The aim is thus to explore a subset of the means by which resources become valuable to the firm – the first criterion for a strategic resource. Hypotheses are developed and tested using CEO questionnaire responses from a sample of manufacturing firms and census accounting data. The results show that there is a strong link between industry-specific resources and return on assets for firms with high levels of customer orientation. We also report that firm-specific resources are unrelated to firm performance and that a customer orientation – investigated in isolation, may be detrimental to firm performance. Research and managerial implications are discussed.

Keywords: resource specialization; firm-specific resources; industry level; customer orientation; firm performance; return on assets

By definition, there is nothing that a firm can do to alter its luck, but a firm may be able to use information acquisition to improve its expectations about how valuable resources will be to the firm in the future. (Makadok & Barney, 2001, p. 1622)

Introduction

The recent empirical literature investigating the performance implications of firms' strategic resources reports mixed results (Crook, Ketchen, Combs, & Todd, 2008; Newbert, 2007), which seems at odds with the corresponding theoretical literature that asserts a strong positive relation between strategic resources and firm sustained superior performance (Barney, 1991; Peteraf & Barney, 2003). These contradicting findings suggest that more nuanced empirical research is required investigating the means by which firms may develop and extract value from their strategic resources.

This research is anchored in the resources-based view of the firm (Wernerfelt, 1984). In this perspective, resources are defined as tangible assets – such as machinery and production lines, intangible assets – such as know-how, patents, and goodwill, and organizational capabilities – a subset of resources, usually characterized as information-based organizational processes such as a market orientation, that enable the firm to exploit its other resources (Amit & Schoemaker, 1993; Hult, Ketchen, & Slater, 2005). Strategically relevant resources are characterized by being valuable and rare, that strategies based on these resources are costly to imitate, and finally that procedures and policies are organized to

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exploit the resources (Barney, 1991). Given the scope of this research, we will to focus on and investigate the first criterion for the strategic relevance of resources: are the resources valuable?

A resource is argued to be valuable if it increases revenues, reduces costs, or a combination of the two. There seems to be consensus in the management literature that firms may increase performance by improving organizational efficiency and value creation through increasingly specialized resources. Following the work of, for example, Ghemawat and del Sol (1998) and Lippman and Rumelt (1992), this study differentiates between two broad classes of resource specialization – industry-level and firm-level resource specialization, to provide a more nuanced perspective on the subject.

However, as the specialization of resources increases so does the vulnerability of the firm to changes in the market. Market information that enables the firm to anticipate changes in the market therefore seems inextricably linked with resource specialization. We therefore propose to bridge marketing research and management research to further the investigation of this market information–resource specialization challenge.

Firms' capability to process and manage market information is captured by the notion of market orientation and multiple meta-studies confirm its positive relationship with firm performance (Ellis, 2006; Grinstein, 2008; Kirca, Jayachandran, & Bearden, 2005). This research is also prevalent in the strategic marketing literature (Langerak, Hultink, & Robben, 2007; Pelham, 2009; Wang, Hult, Ketchen, & Ahmed, 2009) and management literature (Greenley, Hooley, & Rudd, 2005; Ketchen, Hult, & Slater, 2007; Laforet, 2008; Morgan, Vorhies, & Mason, 2009; Morgan & Berthon, 2008).

Market orientation has evolved into a multidimensional construct comprising, for example and not exhaustively, customer-oriented, competitor-oriented, responsive, as well as proactive approaches to the market (Kohli & Jaworski, 1990; Narver & Slater, 1990; Narver, Slater, & McLachlan, 2004; Olson, Slater, & Hult, 2005). Our focus in this paper is on the customer orientation component. Drawing on classic work by Kohli and Jaworski (1990) and Narver and Slater (1990), we refer to customer orientation as the organization-wide generation and dissemination of market information, as well as the actions and responses taken based on this information.

In short, the increased specialization of resources is good for organizational efficiency and value creation but makes the firm inflexible and therefore particularly vulnerable to changes in the demand for their products. Critically, this may limit firms' ability to appropriate the value that they create. Monitoring changes in demand and processing this information throughout the organization lie at the core of firms' customer orientation. Accordingly, this paper develops a model which postulates that firms' level of customer orientation positively moderates the relationship between firms' specialized resources and their performance. The conceptual framework is presented in Figure 1.

The study's results suggest that there is a strong link between industry-specific resources and return on assets for firms with high levels of customer orientation. The findings also support parts of the empirical management research that reports no direct causal link between having highly specialized (and specific) resources and financial performance – highlighting the importance of customer orientation for effective resource picking and deployment of resources. This study thereby contributes to the marketing management research literature in empirically investigating the differential role of customer orientation in explaining how firms leverage their specialized resources for the firm-level and the industry-level.

The remainder of the paper's structure is the following. The next section develops the theoretical framework and a set of testable hypotheses. A section then presents the
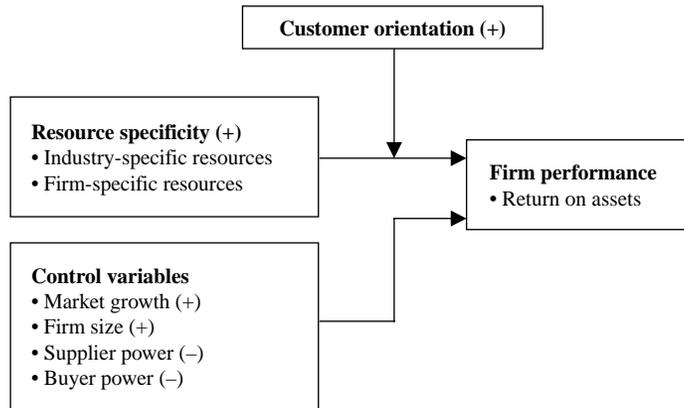
Figure 1.   Conceptual framework.

empirical research design followed by the analyses and results. Finally, a discussion of the results is offered in light of prior research and the study's limitations and concludes with avenues for further research.

Theory and hypotheses

There is a long tradition in the management literature for investigating industry-level (Ghemawat, 1991; Porter, 1980) and firm-level (Peteraf, 1993) sources of sustained competitive advantage (Hawawini, Subramanian, & Verdin, 2003; McGahan & Porter, 2003; Rumelt, 1991). This research points to the critical importance of firms' resources in explaining performance differentials – albeit at a very abstract level. In contrast to theoretical contributions, the empirical literature systematically investigating the performance effects of specialized resources on firm performance is less common, although the field is active (Armstrong & Shimizu, 2007; Barney & Arikan, 2001; Newbert, 2007; Short, Ketchen, Palmer, & Hult, 2007). Interestingly, the empirical literature reports mixed results (Crook et al., 2008), which suggests that more nuanced research on the subject is required.

One of the aspects that may explain these mixed results is what Makadok and Barney (2001) refer to as the 'information acquisition problem.' From the theoretical perspective of the resource-based view, market information allows a firm to better pick or acquire resources (Barney, 1986; Dierickx & Cool, 1989; Makadok, 2001; Makadok & Barney, 2001) and to deploy these resources (Amit & Schoemaker, 1993; Makadok, 2001; Teece, 2007) to achieve superior firm performance. Note that only competitor information and the general environment, but no explicit investigation of the role of customer information, is found in this literature. Another interesting aspect in the just mentioned literature is that valuable market information appears to be inane to the firms or readily available, rather than a continuous organizational challenge to acquire and transform into timely action, as for example the strategic marketing literature would suggest.

The investigation of resource specialization and market information relates to the classical investment problem of leveraging the possible gain from additional market information about the future value of a resource against taking action to preempt the opportunity (Dixit & Pindyck, 1994; Richardson, 1990). In other words, firms must weigh the gains from waiting for better (*ex ante*) information against the costs and risks of delaying an investment to particular specific resources.

Firms with better ability to access, process, and manage market information are therefore argued to have higher performance, since they may commit themselves to valuable resource specializations earlier than competitors. Thus, they may realize first-mover advantages (Ghemawat, 1991; Lieberman & Montgomery, 1998) and acquire the resources below their true market values (Barney, 1986; Peteraf, 1993). Market information that enables the firm to anticipate changes in the market therefore seems inextricably linked with resource specialization and superior firm performance.

Resource specialization and firm performance

In the literature on the resource-based view (Barney, 1991), industrial organization (Sutton, 1991; Tirole, 1988), transaction cost economics (Williamson, 1985), commitments (Ghemawat, 1991), and sunk costs (Baumol, 2002), specialized resources are generally preferred over more general, and less efficient, resources. The basic conjecture is: the increased level of specificity leads to improved organizational efficiency and better value creation that ultimately leads to increased firm performance.

However, highly specialized resources are also found to be a source of poor performance and even competitive disadvantages (e.g. Klein, Crawford, & Alchian, 1978; Siggelkow & Levinthal, 2005; Williamson, 1985). These two positions on the positive and negative aspects of specific resources correspond with the mixed results reported in the empirical literature investigating the performance effects of specialized resources (Crook et al., 2008). In addition, it may also suggest that the previous level of analysis either has been too coarse or that a third component may help explain the underlying drivers of firm performance. We will investigate the former issue first.

Drawing on Ghemawat and del Sol (1998) and Lippman and Rumelt (1992), this study distinguishes between resources that are specialized to an industry and firm-specific resources. Note the distinction between resources that are specialized and resources that are specific. Resources that are specialized to an industry are tied to a specific *use*, but may be traded among firms. For example, a machine may be highly specialized to an industry, but a competitor may still buy the resource. These resources are vulnerable to changes in the demand for the products or services at the industry level. For example, as the industry's production technology changes, investment in a resource may not be recouped since the resource is locked in to a specific industry (Ghemawat, 1991).

Resources may also be specialized to a particular *user* – or a firm (e.g. Lippman & Rumelt, 1992; Williamson, 1985). In this situation, the resource is both highly specialized but, critically, also specific to the activities of the particular firm. In other words, the resources have none or very little alternative value outside the firm. If a resource loses most of its value when sold – if possible at all, it is said to be firm-specific. An example of a firm-specific resource is a machine that, for example, has been developed by in-house engineers to solve an idiosyncratic problem to the firm.

The firm-specific resources are argued to be more vulnerable to market changes than resources specialized for the industry. This argument rests on the non-tradability of the former. While the non-tradability of resources is argued to be a necessary condition for the *sustainability* of superior performance (Dierickx & Cool, 1989; Teece, Pisano, & Shuen, 1997), we emphasize that it is not necessarily important if the resource is not contributing to increased revenues or cost reductions in the first place. While changes in demand in the industry may reduce overall market size and thus reduce one's revenues, at a stable market share, changes in the demand for the particular firm's products have direct consequences for revenue on top of the possible loss relating to idle or obsolete firm-specific resources.

As our exposition so far reveals; if we only look at resource specialization and the non-tradability of resources in isolation, we have only mixed results for the relationship between empirical evidence. Based on these insights, we therefore argue against the conventional perspectives that specialized (and specific) resources are preferred over generalized resources, when they are investigated in isolation. Lastly, we assert that firms' level of industry-level and firm-level resource specialization are unrelated. We therefore hypothesize that:

H1:   The level of resources specialized for the industry is unrelated to the level of firm-specific resources.

H2:   The level of resources specialized for the industry is unrelated to firm performance.

H3:   The level of firm-specific investments is unrelated to firm performance.

Resource specialization and customer orientation

Firms may improve their investments into specific resources by increasing the amount of information available about the resources' current and future value and thereby reducing uncertainty (Ghemawat, 1991; Richardson, 1990; Zott, 2003). According to Dierckx and Cool (1989), firms accumulate resources by directing investment flows into building stocks of resources. The critical challenge is that the value of resource stocks is often uncertain (Lippman & Rumelt, 2003). Likewise, acquiring a new resource on strategic factor markets often involves substantial uncertainty about the true resource value (Barney, 1986; Makadok, 2001). How do firms reduce this uncertainty?

A key strategy for firms to reduce uncertainty and to be better able to pick and develop valuable resources is to increase information about relevant strategic variables (Luce & Raiffa, 1957; Makadok & Barney, 2001). In other words, firms' key challenge is to have sufficient, but costly, market information to ensure that the firm's strategic resources do not become prematurely obsolete because of unforeseen changes in the market, that is, before the resource has generated profits or established a competitive advantage.

As customers are the ones who pay firms' invoices, we argue that customers represent one of the critical parameters that directly influence the demand in the market and firms' products or services. Firms' aiming at specializing resources, for the purpose of increasing organizational efficiency and creating superior customer value for a particular market, are therefore required to continuously monitor the changing preference of current and future customer preferences in that market. This argument goes for resources specialized at the industry level as well as resources specific to the firm. As the level of specialized resources goes up so does the relative need for adequate and timely customer information because of the increased need for earlier anticipation of market changes.

Monitoring and acquiring information about key strategic variables is the cornerstone of market orientation research. As outlined in the introduction, the market orientation construct is multidimensional, and our focus is on the dominant customer orientation component (Deshpandé & Farley, 1998; Deshpandé, Farley, & Webster, 1993; Narver & Slater, 1990). A firm's customer orientation provides the understanding of a firm's target markets, that guides overall firm behavior toward continuously creating superior value for the customers (Olson et al., 2005). Customer-oriented firms demonstrate higher levels of activities pertaining to the gathering, evaluation and dissemination of customer information, and the actions and responses taken based on these information flows.

Empirical findings suggest that customer orientation is particularly valuable for, for example, prospector, analyzer, and differentiated defender strategies (Olson et al., 2005), new-to-the-world products (Lukas & Ferrell, 2000), and new product and marketing program creativity (Im & Workman, 2004). On the other hand, research has also warned that a too narrow focus on customers may have negative consequences for firms' sustained success (Christensen & Bower, 1996). In the absence of prior research empirically investigating the role of customer information in leveraging firms' specialized resources, we nonetheless argue that the existing empirical results indicate that customer-oriented firms appear better capable at picking and deploying specific resources for superior performance – and ultimately competitive advantage. In other words, that customer orientation may moderate the positive relationship between firms' stocks of specialized and resources and their performance.

The conjecture in this paper is that customer intelligence is beneficial to investment decisions about both firm-level and industry-level resources specialization, but through different mechanisms. Essentially, we distinguish between customer intelligence that informs decision-makers about the particular demand for a product produced using a firm's specific resources, and other types of customer intelligence that informs about the demand for the products offered by the industry.

Taking the latter first, this relates to customer-oriented activities revolving around the detection of more general changes in the market structure, customer demand and preferences, and so on that may render the offerings of the industry obsolete. Examples of such activities are general market research on trends, broad customer or segment analyses, as well as composites of sales force opinions. This form of general customer intelligence may be developed in-house or acquired from, for example, market research agencies.

While much of this general customer intelligence is indeed applicable for decisions on firm-specific resources as well, we must acknowledge that some customer-oriented activities must be directed at detecting opportunities and threats that directly influence the demand for products based on firm-specific resource stocks. Given the nature of non-tradable firm-specific resources, the corresponding customer intelligence should tap into the aspects and consequences relating to the idiosyncrasies of the specific resource. For example, if a manufacturer has developed a specific tool, implement, or mold for a machine that only serves one or very few customers, the required customer intelligence should tap into the preferences of those particular customers. General information about the customers and market trends will not inform the decision-makers about the nature of these particular customer relations. This gives rise to the following hypotheses:

H4a: Higher level of customer orientation has a positive effect on the relation between resources specialized to the industry and firm performance.
H4b: Higher level of customer orientation has a positive effect on the relation between firm-specific resources and firm performance.

Method

This study selected manufacturing firms from multiple industries as the empirical research setting. Although focused on manufacturing industries, NACE rev.1: 15–37, the multiple industries allow the results to be applied for broader applicability. Given the non-English research context, translation and, particularly, back-translation of the original measures was performed to assure that the underlying theoretical meaning of each of the questions was not lost during the translation (Douglas & Craig, 1983). The key informants were CEOs (Huber & Power, 1985), because they should be knowledgeable

about the firm's strategic resources and general activities and processes pertaining to customer information.

A sample of 2527 Danish manufacturing firms was extracted from the company database *CD-direct* that contains company information on all VAT registered Danish companies. An introductory letter was sent to the respective CEOs of which 791 firms agreed to participate in the survey. The letter provided a brief overview of the purpose of the study and offered to inform respondents about the main results of the study if they would participate. To increase the response rate the questionnaires were designed as web-based or postal for the respondents' preferred choice. The web-based questionnaires were emailed to the respondents and the postal questionnaires were mailed with a postage-paid return envelope. After two follow-up contacts, useful responses were obtained from 314 CEOs. The primary reason given for non-participation in the survey was 'lack of time.' Of the other motives for non-participation 'not wanting to answer' and 'being tired of answering questionnaires' accounted for the majority.

Measurement

For establishing a priori validity the questionnaires were pretested on a group of academicians as well as business practitioners from the target sample. They were informed to comment on the clarity of the framing and the indicators and their relevance. Minor corrections of wording were performed to improve clarity of the indicators. The questionnaire's measures and indicators are available in Appendix 1.

Firm performance

The measure of firm performance is operationalized by return on assets (cf. Venkatraman & Ramanujam, 1986). Firms' return on assets is based on census data extracted from the before mentioned company database *CD-direct*. Using census data rather than using a questionnaire-based performance indicator removes possible problems with common method bias relating to the key performance indicator (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, this choice also tends to lower the explained variance in the regression models as well as lower the positive relationship between market orientation and firm performance (Kirca et al., 2005).

Resource specificity

Measures tapping the domain of firms' resources specialized for the industry- and firm-level were adapted from relating research and specialized for this study. The existing measures in management and marketing research relate to resource specialization and specificity in exchange relationships (e.g. Bensau & Anderson, 1999; Heide, 2003; Kang, Mahoney, & Tan, 2009; Parkhe, 1993). These measures are, however, applicable for this study since they essentially tap into the *specialization* of resources as the specificity aspect is inherent in the nature of dyadic exchange relationships. When firms specialize resources to several exchange partners in the industry (or product markets), the firm-level specificity must be assessed explicitly as in Parkhe (1993).

Customer orientation

Measures of customer orientation assess firms' behavior with respect to the gathering, dissemination, and action taken of market information pertaining to customers. This study applies a refined measure of the multi-indicator measures of customer orientation provided by Sørensen and Slater (2008).

Control variables

The following standard control variables were used to validate the firm performance indicator: market growth, firm size, supplier power, and buyer power (Porter, 1980; Scherer, 1980). The measure of firm size is based on census data and the other control variables are measured on a seven-point Likert scale (see Appendix 1). Market growth is the average growth of demand in firms' principal served market and firms facing higher levels of market growth will have higher firms performance. Larger firms may have scale advantages in, for example, production and distribution that explain some of the performance differentials. Firm size was measured as the logarithm of the number of employees. The logarithm was used to reduce heteroscedasticity (Kerlinger, 1973). Supplier power is the degree to which a supplier can negotiate lower prices or higher value from a buyer. Higher levels of supplier power have a negative influence on firms' performance. Lastly, buyer power is the degree to which a buyer can negotiate lower prices and/or higher value from a seller and higher levels of buyer power have a negative influence on firms' performance.

Measurement purification

The assessment of the measurement models' construct validity was based on unidimensionality, reliability, discriminant validity (Nunnally & Bernstein, 1994), and *a posteriori* content validity, that is, that content validity should persist after respecifying one's measures (Sørensen & Slater, 2008). The measurement model was respecified in AMOS 18 and composite reliability and average variance extracted were calculated separately using Fornell and Larcker's (1981) procedure. Unidimensionality was established by means of the measures' composite reliability ($> .70$) and average variance extracted ($> .50$) (Bagozzi & Yi, 1988; Fornell & Larcker, 1981). Discriminant validity was tested using a pairwise χ^2 difference test (Anderson & Gerbing, 1988) and Fornell and Larcker's (1981) pairwise comparison of the constructs' respective average variance extracted and the square root of their correlation.

The full measurement model consists of the latent constructs presented above; industry-specific resources and customer orientation as well as the set of single-indicator measures. The industry-specific resources measure achieved an adequate level of composite reliability (.86) and average variance extracted (.55) after the initial specification and estimation, and all five indicators were subsequently included. The indicators' regression weights were all significant ($t \geq 11.63$). The re-specifications and estimations of customer orientation led to the elimination of three indicators not violating *a posteriori* content validity. The indicators' regression weights were all significant ($t \geq 8.17$). Composite reliability (.88) and average variance extracted (.51) were above the required thresholds. Note that if Cronbach's alpha had been applied for reliability check, all initial 10 indicators would have been included in the measures of customer orientation (Cronbach's alpha $= .86$), but the average variance extracted would only have been .33. In other words, the measures would essentially have measured noise (Fornell & Larcker, 1981). The measurement model was assessed using Baumgartner and Homburg's (1996) recommended incremental fit indices, Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI), as well as the stand-alone index, Root Mean Square Error of Approximation (RMSEA). The measurement model (χ^2 (d.f.) 272(123); CFI .92; TLI .87; RMSEA .06) met the required thresholds for CFI, TLI, and RMSEA (Baumgartner & Homburg, 1996; Browne & Cudeck, 1993).

The pair-wise χ^2 difference test and Fornell and Larcker's (1981) test for discrimination revealed good discriminant validity among the constructs, see AVE $> r > r^2$ in Table 1 and the results of the pair-wise χ^2 difference test in Table 2. Podsakoff and Organ's (1986)

Table 1. Correlation matrix and descriptive statistics.

Measures	Mean	SD	CR	AVE	1	2	3	4	5	6	7
1. Return on assets	7.4	13.55									
2. Industry-specific investments	4.8	1.38	.86	.55	−.05						
3. Firm-specific investments	4.1	1.79	.88	.51	.05	−.05					
4. Customer orientation	5.5	1.00			−.09	**.23	.03				
5. Market growth	3.7	1.23			**.18	*.13	−.01	.08			
6. Firm size	1.7	0.55			** −.16	.11	−.09	−.05	−.04		
7. Supplier power	4.7	1.72			−.09	.07	.04	.07	−.06	* −.13	
8. Buyer power	3.7	1.91			−.07	−.01	−.10	.01	.10	.07	** −.18

Notes: ** = $p < .001$ and * = $p < .01$ (two-tailed). CR is composite reliability and AVE is average variance extracted.

Table 2. Pair-wise χ^2 difference test.

Covariance Measures	1		Free		χ^2 difference		
	χ^2	d.f.	χ^2	d.f.	χ^2	d.f.	*p*-value
Industry-specific investments – Customer orientation	202	54	162	53	40	1	***.000

*** = $p < .001$.

recommended Harman's one-factor test for common method variance was used. The analysis produced four factors with Eigenvalues greater than 1, accounting for 58% of the variance. Neither a single factor nor a general factor accounted for the majority of the covariance. This result suggests that common method variance is not a problem among the questionnaire-based measures in the sample. The correlation matrix and descriptive statistics are presented in Table 1.

Analysis

The hypothesized direct effects were tested using multiple regression in PASW Statistics 18. The moderating effects are tested using multiple hierarchical regression (Cohen, Cohen, West, & Aiken, 2003). The hierarchical regression analysis enables us to partition out the total variance explained by each of the entering variables. The measures of resource specificity and customer orientation were (mean) centered before calculating the interaction terms (Aiken & West, 1991; Mason & Perreault, 1991). In the hierarchical analysis, the independent variable (e.g. industry-specific resources) and moderator variable (e.g. customer orientation) were entered in regression Model 1 and the interaction variable (e.g. industry-specific resources × customer orientation) in regression Model 2. The contribution of the interaction variable, in terms of the possible significant increase in variance explained, ΔR^2, between the two models, was assessed by calculating the partial F-statistics. A significant partial F-statistics concludes that the theorized moderating variable is, in fact, a moderator. The partial F-statistics is not provided in PASW Statistics 18 and was calculated separately in a spreadsheet using the procedure in Malhotra (1996).

Results

From the descriptive statistics in the correlation matrix in Table 1, the resources specialized to the industry do not relate to the degree to which they are firm-specific. This result supports our hypothesis H1 and provides empirical validation for Ghemawat and del Sol's (1998) decomposition of resource specialization into an industry-level and a firm-level. For the direct effects, hypotheses H2 and H3 claim that a firm's resources specialized to the industry and the firm-specific resources are unrelated to the firm's performance and were confirmed for the data in this research context (see Table 3).

The results of the hierarchical regression analyses reveal that a customer orientation moderates ($p = .015$) the relationship between resources specialized to the industry and return on assets as hypothesized in H4a. The increment in the explained variation, ΔR^2, on the accounting data's return on assets is significant at $p = .000$. No moderating effects of customer orientation on the firm-specific resources and performance relationship were found in this study. Hypothesis H4b is therefore not confirmed.

The study's control variables capture variance in the performance measure and consequently validate the applied financial performance measures. As expected, firms in

Table 3. Results of the direct effects on return on assets.

	Direct effects
Independent variable	
Industry-specific resources	− .05
	(− .813)
Firm-specific resources	.03
	(.594)
Control variables	
Market growth	***.19
	(3.322)
Firm size	** − .15
	(− 2.707)
Supplier power	* − .12
	(− 2.040)
Buyer power	*.10
	(1.738)
R^2	.079
Adj. R^2	.061
F-value	***4.390

Note: $*** = p < .001$, $** = p < .01$, and $* = p < .05$ (one-tailed). $N = 314$.

industries characterized with high market growth experience higher performance ($p = .000$) relative to those in markets with less growth. Supplier power ($p = .021$) also reveals the expected negative impact on firm performance. Interestingly and against expectation, in this dataset firm size has a negative effect ($p = .004$) on return on assets which suggests that scales advantages are not present for the firms in the present sample (cf. Porter, 1980). Moreover, the firms in this dataset appear not to be influenced by buyer power ($p = .042$) in relation to their return on assets (Porter, 1980).

Note that the control variables are stable and comparable across the regressions and hierarchical regressions' models, which adds to the validity of the measures and dataset. Although customer orientation is treated as a moderator in the context of this study, we observe in Table 4 that contrary to much published empirical literature, customer orientation is negatively related to return on assets in the empirical context of this study. This latter finding is elaborated upon below.

Discussion

Market strategy is not only about assessing particular points in time and devising the 'right' strategy, but critically about shaping and directing the momentum the firm already has developed (Teece et al., 1997). Firms' investments in specialized resources fuel the momentum that is shaped and directed by firms' customer information. By investigating this nexus, this study aims at providing insights to a research gap in empirical marketing and management research – the 'information acquisition problem,' called for by for example Makadok and Barney (2001). Rather than exploring the general traits of resources specialization in relation to overall market information, our research takes a more fine-grained approach and, firstly, differentiates between resources specialized to the industry and firm-specific resources. Secondly, we look at how firms' capability to process and manage customer information influence the two types of specialized resources' ability to create value.

This study provides empirical support for Ghemawat and del Sol's (1998) decomposition of resources into firm-level and industry level resources. The results also

Table 4. Results of the moderating effects on return on assets.

Model	Moderating effects			
	1	2	3	4
Control variables				
Market growth	***.19	***.18	***.19	***.19
	(3.412)	(3.378)	(3.394)	(3.380)
Firm size	** − .16	** − .15	** − .16	** − .16
	(− 2.897)	(− 2.729)	(− 2.921)	(− 2.895)
Supplier power	* − .11	* − .12	* − .11	* − .11
	(− 1.951)	(− 2.116)	(− 1.997)	(− 2.006)
Buyer power	*.10	*.10	*.09	*.10
	(1.755)	(1.959)	(1.681)	(1.689)
Independent variable				
Industry-specific resources	− .02	− .06	− .04	− .04
Firm-specific resources	(− .406)	(− .935)	(− .688)	(− .732)
Moderator variable				
Customer orientation	* − .10	* − .10	* − .11	* − .11
	(− 1.806)	(− 1.833)	(− 1.927)	(− 1.919)
Interaction term				
Industry specific × Customer orientation		*.12		
		(2.185)		
Firm specific × Customer orientation				− .025
				(− .446)
R^2	.088	.102	.089	.089
Adj. R^2	.070	.0801	.071	.068
F-value	4.196	4.948	4.972	4.279
ΔR^2		.014		.000
Partial F-value		***4.775		.986

Note: *** = $p < .001$, ** = $p < .01$, and * = $p < .05$ (one-tailed). $N = 314$.

indicate that there are limits to the value of a firm's specialized resources per se in terms of increasing its financial performance. As hypothesized, there is no direct effect between firms' firm-specific resources and resources specialized to the industry and their financial performance in the context of the present study.

This finding supports the assertion that resource specificity is argued to be a necessary, *but not sufficient*, condition for (temporary) competitive advantages (Foss & Knudsen, 2003). Moreover, researchers have claimed that resource specificity may create competitive disadvantages (e.g. Klein et al., 1978; Siggelkow & Levinthal, 2005) that correspond with the mixed results reported by, for example, Crook et al. (2008) and Newbert (2007). For these reasons, we emphasize that resource specialization at the industry-level and firm-level is not necessarily important if the resource is not contributing to increased revenues or cost reductions in the first place.

How do specialized resources become valuable then? The results in the context of this study suggest that *one additional condition* is needed for resources specialized at the industry-level to generate value and superior financial performance – namely customer orientation. We show that firm's customer orientation is critical in relation to the positive effect of its industry-specific resources on return on assets. Based on the conjectures of the paper, it seems critical for firms to maintain a steady focus on the changes in the general trends of customer demand and preferences to leverage their industry-specific resources.

The results indicate that high levels of firm-specific resources may be over-rated as a direct antecedent to superior performance. In the case of firm-specific resources, not even

high levels of customer orientation can offset the seemingly random relationship between firm-specific resources and return on assets. Nonetheless, this may reflect the particular vulnerability that firm-specific resources possess as opposed to, for example, the resources specialized for the industry level.

The study also reveals that a customer orientation per se may be detrimental to firm performance. A first explanation draws on Christensen and Bower (1996) warning about staying too close to the customers. That is, customers' current preferences are too 'old' to meet the challenges of the current competition. After all, it usually takes time to develop and market new products. Another explanation may be found in the nature of the current sample of Danish manufacturers with small domestic markets (Ellis, 2007). In these contexts, the costs of developing and maintaining an effective customer orientation is found often to exceed the benefits (Murray, Gao, Kotabe, & Zhou, 2007).

Managerial implications

On a managerial note, it seems that there is a need to reconsider the general advice to 'blindly' specialize resources to particular activities for efficiency gains or value creation. The implication of these results is that mere specialization of resources is not enough to raise return on assets and to appropriate sufficient value (Brandenburger & Stuart, 1996; Collis & Montgomery, 1995). Fortunately, this issue is resolved if, for example, the investment in industry-level resources is accompanied with organization-wide customer-oriented activities. The increased customer orientation seems to ensure a more effective development deployment of the specialized resources as well as providing timely detection of changes in the environment relating to the particular specialized resources.

Lastly, the results of this study warrant the continuous evaluation of the gain in efficiency from the increased specialization and the improved ability to create and appropriate value from the specialized resources. In other words, managers should take care that the increased benefits from specialization offset the cost of acquiring additional information about their customers and vice versa.

Limitations

Although this study uses a standard research design, it is subject to the limitations created by cross-sectional research; one should make causal inferences about causality among variables. Also the use of particular single informants and subjective measures may limit the study's validity. An additional limitation is the low variance explained in the regressions. The study's sample consisting of manufacturing firms across firm size and from various industries also limits this study's ability to generalize the results to service firms, specific manufacturing industries, and firm sizes.

Research implications

The study's results provide an avenue for future research refining the understanding of the market information acquisition problem in relation to strategy formulation and accumulation of valuable resources to be invested into firm-specific and industry-specific activities. We have focused on firms' customer orientation as the 'third' variable explaining how specialized resources become valuable in a context of manufacturing firms. This leaves the investigation of the additional components of the market orientation construct – competitor orientation as well as responsive and proactive approaches to the market, as natural extensions of this study.

Further research replicating the current research design, including competitor orientation, on manufacturing and service firms, different industry and organizational conditions, strategy type, and so on, testing possible context-specific effects holds a valuable contribution. Moreover, the notion of market information could be conceptualized into the *ex ante* information needed for the purpose of qualifying the future financial performance of specific resources on product markets and the *ex post* information containing feedback on the realized financial performance in a market. Finally, this study has focused on the first criterion for strategic resources: is the resource valuable? The role of the different components of market orientation on the other requirements for resources to be strategic is also left to be investigated. Crook et al. (2008) provide a good foundation for exploiting this opportunity.

Conclusion

This paper contributes to the strategic marketing research literature in empirically investigating the role of customer orientation in explaining how firms leverage their specialized but vulnerable resources. The study's results shows that firms' customer information and industry-specific resources jointly increase firms' financial performance. We also report that firm-specific resources are unrelated to firm performance and that a customer orientation – investigated in isolation, may be detrimental to firm performance.

While we cannot manage luck, we are indeed able to influence the precision by which we make decisions about effective resource picking and deployment of resources for superior performance. On the basis of our findings, we assert that customer information is inextricably linked with superior resource specialization and value appropriation.

Acknowledgements

References

Aiken, L.S., & West, S.G. (1991). *Multiple regression: Testing and interpreting interactions*. Los Angeles, CA: Sage.

Amit, R.S., & Schoemaker, P.J.H. (1993). Strategic assets and organizational rent. *Strategic Management Journal*, *14*, 33–46.

Anderson, J.C., & Gerbing, D.W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*, 411–423.

Armstrong, C.E., & Shimizu, K. (2007). A review of empirical approaches to research on the resource based view. *Journal of Management*, *33*, 959–986.

Bagozzi, R.P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, *16*, 74–94.

Barney, J.B. (1986). Strategic factor markets: Expectations, luck, and business strategy. *Management Science*, *32*, 1231–1241.

Barney, J.B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*, 99–120.

Barney, J.B., & Arikan, A.M. (2001). The resource-based view: Origins and implications. In M.A. Hitt, E.R. Freeman, & J.S. Harrison (Eds.), *Handbook of strategic management* (pp. 124–188). Oxford: Blackwell.

Baumgartner, H., & Homburg, C. (1996). Applications of structural equation modeling in marketing and consumer research: A review. *International Journal of Research in Marketing*, *13*, 139–161.

Baumol, W.J. (2002). *The free-market innovation machine: Analyzing the growth miracle of capitalism*. Princeton, NJ: Princeton University Press.

Bensau, B.M., & Anderson, E. (1999). Buyer–supplier relations in industrial markets: When do buyers risk making idiosyncratic investments? *Organization Science*, *10*, 460–481.

Brandenburger, A.M., & Stuart, H.W. (1996). Value-based business strategy. *Journal of Economics and Management Strategy*, *5*, 5–24.

Browne, M.W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K.A. Bollen & S.J. Long (Eds.), *Testing structural equation models* (pp. 138–162). Newbury Park, CA: Sage.

Christensen, C.M., & Bower, J.L. (1996). Customer power, strategic investment, and the failure of leading firms. *Strategic Management Journal*, *17*, 197–218.

Cohen, J., Cohen, P., West, S., & Aiken, L. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Collis, D.J., & Montgomery, C.A. (1995). Competing on resources: Strategy in the 1990s. *Harvard Business Review*, *73*, 118–128.

Crook, R.T., Ketchen, D.J., Combs, J.G., & Todd, S.Y. (2008). Strategic resources and performance: A meta-analysis. *Strategic Management Journal*, *29*, 1141–1154.

Deshpandé, R., & Farley, J.U. (1998). Measuring market orientation: Generalization and synthesis. *Journal of Market-focused Management*, *2*, 213–232.

Deshpandé, R., Farley, J.U., & Webster, F. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms: A quadrad analysis. *Journal of Marketing*, *57*(January), 23–37.

Dierickx, I., & Cool, K. (1989). Asset stock accumulation and sustainability of competitive advantage. *Management Science*, *35*, 1504–1511.

Dixit, A.K., & Pindyck, R.S. (1994). *Investment under uncertainty*. Princeton, NJ: Princeton University Press.

Douglas, S., & Craig, C.S. (1983). *International marketing research*. Englewood Cliffs, NJ: Prentice-Hall.

Ellis, P.D. (2006). Market orientation and performance: A meta-analysis and cross-national comparisons. *Journal of Management Studies*, *43*, 1089–1107.

Ellis, P.D. (2007). Distance, dependence and diversity of markets: Effects on market orientation. *Journal of International Business Studies*, *38*, 374–386.

Fornell, C., & Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*, 39–50.

Foss, N.J., & Knudsen, T. (2003). The resource-based tangle: Towards a sustainable explanation of competitive advantage. *Managerial and Decision Economics*, *24*, 291–307.

Ghemawat, P. (1991). *Commitment: The dynamic of strategy*. New York: Free Press.

Ghemawat, P., & del Sol, P. (1998). Commitment vs. flexibility. *California Management Review*, *40*, 26–42.

Greenley, G.E., Hooley, G.J., & Rudd, J.M. (2005). Market orientation in a multiple stakeholder orientation context: Implications for marketing capabilities and assets. *Journal of Business Research*, *58*, 1483–1494.

Grinstein, A. (2008). The effect of market orientation and its components on innovation consequences: A meta-analysis. *Journal of the Academy of Marketing Science*, *36*, 166–173.

Hawawini, G., Subramanian, V., & Verdin, P. (2003). Is performance driven by industry- or firm-specific factors? A new look at the evidence. *Strategic Management Journal*, *24*, 1–16.

Heide, J.B. (2003). Plural governance in industrial purchasing. *Journal of Marketing*, *67*(4), 18–29.

Huber, G.P., & Power, D.J. (1985). Retrospective reports of strategic-level managers: Guidelines for increasing their accuracy. *Strategic Management Journal*, *6*, 171–180.

Hult, G.T.M., Ketchen, D.J., & Slater, S.F. (2005). Market orientation and performance: An integration of disparate approaches. *Strategic Management Journal*, *26*, 1173–1181.

Im, S., & Workman, J.P. (2004). Market orientation, creativity, and new product performance in high-technology firms. *Journal of Marketing*, *68*(2), 114–132.

Kang, M.-P., Mahoney, J.T., & Tan, D. (2009). Why firms make unilateral investments specific to other firms: The case of OEM suppliers. *Strategic Management Journal*, *30*, 117–135.

Kerlinger, F.N. (1973). *Foundations of behavior research*. New York: Holt, Rinehart & Winston.

Ketchen, D.J. Jr, Hult, T.G.M., & Slater, S.F. (2007). Toward greater understanding of market orientation and the resource-based view. *Strategic Management Journal*, *28*, 961–964.

Kirca, A.H., Jayachandran, S., & Bearden, W.O. (2005). Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance. *Journal of Marketing*, *69*(April), 24–41.

Klein, B., Crawford, R.G., & Alchian, A.A. (1978). Vertical integration, appropriable rents, and the competitive contracting process. *Journal of Law and Economics*, *2*, 297–326.

Kohli, A.K., & Jaworski, B.J. (1990). Market orientation: The construct, research propositions, and managerial implications. *Journal of Marketing*, *54*(2), 1–18.

Laforet, S. (2008). Size, strategic, and market orientation affects on innovation. *Journal of Business Research*, *61*, 753–764.

Langerak, F., Hultink, E.J., & Robben, H.S.J. (2007). The mediating role of new product development in the link between market orientation and organizational performance. *Journal of Strategic Marketing*, *15*, 281–305.

Lieberman, M.B., & Montgomery, D.B. (1998). First-mover (dis)advantages: Retrospective and link with the resource-based view. *Strategic Management Journal*, *19*, 1111–1125.

Lippman, S.A., & Rumelt, R.P. (1992). Demand uncertainty and investment in industry-specific capital. *Journal of Industrial and Corporate Change*, *1*, 235–262.

Lippman, S.A., & Rumelt, R.P. (2003). The payments perspective: Micro-foundations of resource analysis. *Strategic Management Journal*, *24*, 903–927.

Luce, R.D., & Raiffa, H. (1957). *Games and decisions: Introduction and critical survey*. New York: Wiley.

Lukas, B.A., & Ferrell, O.C. (2000). The effect of market orientation on product innovation. *Journal of the Academy of Marketing Science*, *28*, 239–247.

Makadok, R. (2001). Toward a synthesis of the resource-based and dynamic-capability views of rent creation. *Strategic Management Journal*, *22*, 387–401.

Makadok, R., & Barney, J. (2001). Strategic factor market intelligence: An application of information economics to strategy formulation and competitor intelligence. *Management Science*, *47*, 1621–1638.

Malhotra, N.K. (1996). *Marketing research* (4th ed.). Upper Saddle River, NJ: Prentice Hall.

Mason, C.H., & Perreault, W.D., Jr. (1991). Collinearity, power, and interpretation of multiple regression analysis. *Journal of Marketing Research*, *28*, 268–280.

McGahan, A.M., & Porter, M.E. (2003). The emergence and sustainability of abnormal profits. *Strategic Organization*, *1*, 79–108.

Morgan, N.A., Vorhies, D.W., & Mason, C.H. (2009). Market orientation, marketing capabilities, and firm performance. *Strategic Management Journal*, *30*, 909–920.

Morgan, R.E., & Berthon, P. (2008). Market orientation, generative learning, innovation strategy and business performance inter-relationships in bioscience firms. *Journal of Management Studies*, *45*, 1329–1353.

Murray, J.Y., Gao, G.Y., Kotabe, M., & Zhou, N. (2007). Assessing measurement invariance of export market orientation: A study of Chinese and non-Chinese firms in China. *Journal of International Marketing*, *15*(4), 41–62.

Narver, J.C., & Slater, S.F. (1990). The effect of a market orientation on business profitability. *Journal of Marketing*, *54*(4), 20–35.

Narver, J.C., Slater, S.F., & MacLachlan, D.L. (2004). Responsive and proactive market orientation and new-product success. *Journal of Product Innovation Management*, *21*, 334–347.

Newbert, S.L. (2007). Empirical research on the resource-based view of the firm: An assessment and suggestions for future research. *Strategic Management Journal*, *28*, 121–146.

Nunnally, J.C., & Bernstein, I.H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw Hill.

Olson, E.M., Slater, S.F., & Hult, T.G.M. (2005). The performance implications of fit among business strategy, marketing organization structure, and strategic behavior. *Journal of Marketing*, *69*(3), 49–65.

Parkhe, A. (1993). Strategic alliance structuring: A game theoretic and transaction cost examination of interfirm cooperation. *Academy of Management Journal*, *36*, 794–829.

Pelham, A.M. (2009). An exploratory study of the influence of firm market orientation on salesperson adaptive selling, customer orientation, interpersonal listening in personal selling and salesperson consulting behaviors. *Journal of Strategic Marketing*, *17*, 21–39.

Peteraf, M.A. (1993). The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal*, *14*, 179–191.

Peteraf, M.A., & Barney, J.B. (2003). Unraveling the resource-based tangle. *Managerial & Decision Economics*, *24*, 309–323.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y., & Podsakoff, N.P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*, 879–903.

Podsakoff, P.M., & Organ, D.W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, *12*, 531–544.

Porter, M.E. (1980). *Competitive strategy: Techniques for analyzing industries and competitors*. New York: Free Press.

Richardson, G.B. (1990). *Information and investment: A study in the working of the competitive economy* (2nd ed.). New York: Oxford University Press.

Rumelt, R.P. (1991). How much does industry matter? *Strategic Management Journal*, *12*, 167–185.

Scherer, F.M. (1980). *Industrial market structure and economic performance* (2nd ed.). Reading: Rand McNally.

Short, J.C., Ketchen, D.J., Jr, Palmer, T.B., & Hult, T.G.M. (2007). Firm, strategic group, and industry influences on performance. *Strategic Management Journal*, *28*, 147–167.

Siggelkow, N., & Levinthal, D.A. (2005). Escaping real (non-benign) competency traps: Linking the dynamics of organizational structure to the dynamics of search. *Strategic Organization*, *3*, 85–115.

Sørensen, H.E., & Slater, S.F. (2008). Development and empirical validation of symmetric component measures of multi-dimensional constructs: Customer and competitor orientation. *Psychological Reports*, *103*, 199–213.

Sutton, J. (1991). *Sunk costs and market structure*. Cambridge, MA: MIT Press.

Teece, D.J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, *28*, 1319–1350.

Teece, D.J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*, 509–533.

Tirole, J. (1988). *The theory of industrial organization*. Cambridge, MA: MIT Press.

Venkatraman, N., & Ramanujam, V. (1986). Measurement of business performance in strategy research: A comparison of approaches. *Academy of Management Review*, *11*, 801–814.

Wang, C.L., Hult, G.T.M., Ketchen, D.J., & Ahmed, P.K. (2009). Knowledge management orientation, market orientation, and firm performance: An integration and empirical examination. *Journal of Strategic Marketing*, *17*, 99–122.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, *5*, 171–180.

Williamson, O.E. (1985). *The economic institutions of capitalism: Firms, markets, relational contracting*. Reading: Free Press.

Zott, C. (2003). Dynamic capabilities and the emergence of intraindustry differential firm performance: Insights from a simulation study. *Strategic Management Journal*, *24*, 97–125.

Appendix 1. Measures and indicators

Indicators assessing industry-specific resources

Framing

Production and sales of a product/process/service can require more or less specialized investments. To which extent have your firm incurred investments in time and money concerning the above mentioned product/process/service?

Indicator-wording

- We have made significant investments in tooling and equipment dedicated to this product/process/service.
- Our production system has been tailored to meet the requirements of the market for this product/process/service.
- Gearing up to deal with the requirements of the market requires highly specialized tools and equipment.
- This market has some unusual technological norms and standards, which have required adaptation on our part.
- Our firm has incurred substantial commitments of time and money in training and qualifying employees and business partners to be competitive in this market.

Operationalized on a seven-point Likert scale bounded by 1 'An insignificant share' to 7 'A very large share.'

Indicator assessing firm-specific resources

Framing

The firm's market conditions may change over time. Customer preferences may change and new technologies may render existing technologies obsolete. Assume that your firm's activities for this product/process/service where to end.

Indicator-wording

- How large a share of the above mentioned specialized investments could then be sold off to, for example, competitors, suppliers, customers, or the like?*

*Scale reversed. Operationalized on a seven-point Likert scale bounded by 1 'An insignificant share' to 7 'A very large share.'

Indicators assessing customer orientation

- We constantly monitor our level of commitment to serving customers' needs.
- We measure customer satisfaction systematically.*
- Our top managers from every function regularly visit current and prospective customers.*
- We give close attention to after-sales service.
- We freely communicate information about our successful and unsuccessful customer experiences across all business functions.*
- All of our business functions (e.g. marketing/sales, operations, R&D, finance/accounting, etc.) are integrated in serving the needs of our target markets.
- All of our managers understand how everyone in our business can contribute to creating customer value.
- Our business objectives are driven primarily by customer satisfaction.
- Our strategy for competitive advantage is based on our understanding of customer needs.
- Our business strategies are driven by our beliefs about how we can create greater value for our customers.

*Excluded in the respecified measure. Operationalized on a seven-point Likert scale bounded by 1 'Strongly disagree' to 7 'Strongly agree.'

Control variables

Indicator	Indicator wording
Market growth[a]	The accumulated demand in our industry the last three years
Supplier power[b]	A large share of our total procurements is placed at few suppliers
Buyer power[b]	A large share of our total sales is placed at few buyers

Notes: [a] The indicator was operationalized on a seven point Likert scale bounded by 1 'Strong decline' to 7 'Strong growth.'
[b] The indicators were operationalized on a seven point Likert scale bounded by 1 'Strongly disagree' to 7 'Strongly agree.'