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NOT ONLY A MATTER OF DYNAMIC MANAGERIAL CAPABILITIES: MAKING MORE OF CORPORATE RESOURCES IN DYNAMIC ENVIRONMENTS

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INTRODUCTION

Resources are assumed to help managers leverage their capabilities and tap into new market opportunities (Barney et al., 2011). Scholars argue that the attributes of resources are decisive for their potential to create value when they are deployed by managers (Sirmon et al., 2007). Following the Dynamic Capabilities View (DCV), we echo Barreto (2010) and Wilden et al. (2016) in suggesting that the frequently-claimed positive effect of Dynamic Capabilities (DCs)/Dynamic Managerial Capabilities (DMCs) on firm performance is contingent on relationships between a firm's resources, its bundles of resources, and the external environment (Helfat et al., 2007).

The foundations of the Resource-based View (RBV) as laid out by Penrose (1959) set the ground for the DCV. Penrose (1959) distinguishes between administrative (i.e., management) and productive resources. She further argues that growth is derived from the dynamic interaction process of administrative and productive resources. In this regard, resource fungibility, i.e., the range of services that resources can be converted into by management, is of key concern; and productive resources shape the services that management is able to generate from them (Penrose, 1959). Building on these foundations and following Wilden et al. (2016), we take a step forward by taking a configurational approach, looking at combinations of administrative and productive resources and their interaction with the environment.

In our study, we attribute the variation in the value-creation potential of dynamic managerial capabilities (DMCs) to the varying abundance of fungible resources and varying level of dynamism in the environment. While highly fungible financial resources help managers to pursue a broader set of strategic actions (Kim and Bettis, 2014), we argue that non-fungible human resources lead to strategic lock-in due to their path dependency and thereby constrain managers with respect to their value-creation potential. Additionally, we propose that fungible financial resources are helpful to managers in coping with a dynamic environment as they are tools to flexibly tackle arising challenges, while human resources hinder DMCs in this regard given their inflexible nature.

As proposed, our findings show that financial resources positively moderate the relationship between DMCs and performance, while human resources exhibit the opposite effect. Further, we find that constraints in low-fungible resources combined with abundance in highly

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fungible resources assist DMCs to trigger higher firm performance. Lastly, we identify environmental dynamism as an amplifier of DMCs and of the interplay between DMCs and highly fungible resources.

This study contributes in at least three important ways: First, we assess the interplay of dynamic managerial capabilities and resources in an encompassing corporate setting based on a large sample of public firms. Second, we add to the literature on DMCs by acknowledging resource fungibility as a facilitator for managers seeking to enhance firm performance, particularly in a dynamic firm environment. Third, we identify the synergistic effect between DMCs, highly fungible resources, and market dynamics.

THEORY AND HYPOTHESES

DCV studies increasingly examine the role of the management in the interplay with resources to generate firm performance (e.g., Witt, 2007), and thus point towards DCs of key groups such as top management (Schilke et al., 2017). Managerial capabilities and resources are considered complements that have a mutual, yet not necessarily synergistic (Huesch, 2013), influence on firm performance. We thereby refer to the Penrosean conceptualization of firms as bundles of more or less versatile resources, comprising administrative (i.e., firm management) and productive resources (e.g., financial assets), whose dynamic interaction drives firm performance. Penrose (1959) emphasizes that resources' versatility is important for firm growth. Versatile resources are more "manageable" (Sirmon et al., 2008: 924) than non-versatile resources.

We take a configurational approach embedded within the DCV. Analyzing the configurations of DMCs, productive resources, and external dynamics, we account for the idea that DCs/DMCs are context sensitive, with respect to both internal and external factors (Kor and Mesko, 2013). We propose that a firm's resources and environment are contingency factors rather than antecedents or mediating channels with respect to firm performance. In sum, this study examines how the management, as a dynamic exchange system, integrates productive resources and ultimately achieves a fit to a changing firm environment.

In this study, we focus on DCs on the managerial level, i.e., DMCs. DMCs are analogous to DCs, as DMCs account for the idea that managerial involvement is crucial for DCs in responding to change (Adner and Helfat, 2003). Sirmon and Hitt (2009) stress that DMCs revolve around managers' decisions on how to orchestrate assets and resources in general, especially regarding resource investment and resource deployment. Teece (2012) argues that DCs are based on the skills of executives, rather than on given firm routines. In this vein, we argue that the performance implications of DMCs are manifested through resource deployment, and ultimately managerial deployment capabilities, which represent DMCs and denote the capabilities of converting resources into revenues.

Dynamic managerial capabilities and financial resources

Prior findings suggest that the managerial capability to deploy resources is affected by the fungibility of the resources (Sirmon et al., 2008). Conceptually, the inclusion of both ends of the continuum within this study ensures coverage of the full spectrum of fungibility (Singh, 1986). Financial resources are located at the upper boundary on the fungibility continuum. They yield high potential for firm growth and offer the management highest discretion in putting them

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to alternative uses (George, 2005). Flexibility (i.e., fungibility) of their resources ensures that they can be applied to multiple uses. Thereby, managers have more options in pursuing firm adaptation to internal and external pressures (Sharfman et al., 1988). Relatedly, flexibility in coordination, such as the orchestration of resources, as provided by DMCs, enables a firm to effectively reconfigure and (re-)deploy its corporate resources. Likewise, generic resources such as fungible finance must be effectively deployed to create competitive advantage (Hansen et al., 2004). Hence, the positive effect of DMCs on firm value is likely enhanced by financial resources. Thus, we conjecture that:

Hypothesis 1: Financial resources increase the positive relationship between dynamic managerial capabilities and firm performance.

Dynamic managerial capabilities and human resources

Human resources are assumed to be located at the lower end of the fungibility continuum (Paeleman and Vanacker, 2015). Human resources are largely path-dependent, non-liquid, context-dependent, and idiosyncratic (e.g., Penrose 1959). As such, human resources are more closely tied to given finite firm contexts than are financial resources (Mishina et al., 2004). Empirical evidence shows that managers indeed have less leeway in deploying human resources, because human resources lock firms and their management into a limited set of strategic options (Ghemawat, 1991). With sticky human resources at hand, it is harder for managers to draw on their capabilities to (re-)deploy resources (Mannor et al., 2016). Ultimately, the management's choices, and thereby the value-creation potentials of DMCs, are limited. We hypothesize that:

Hypothesis 2: Human resources decrease the positive relationship between dynamic managerial capabilities and firm performance.

Dynamic managerial capabilities and bundles of resources

A fully configurational approach has to account for resource bundles. The theoretical motivation is that only the use of bundles of resources creates competitive advantage (Hansen et al., 2004), and that the value of a resource is highly dependent on its combination with other resources (Black and Boal, 1994). As both value-suppressing and value-enhancing relationships may exist among productive resources (Black and Boal, 1994), an integrated analysis of the performance implications of resource bundles is indispensable. Different firm resources are regarded as complementary (Sirmon et al., 2007), which may mutually facilitate the value-creation potential of firm management (Huesch, 2013). Literature on resource constraints (e.g., Baker and Nelson 2005) suggests that firms, and thus their managers, leverage productive resources more efficiently when there are fewer resources at hand. Accordingly, we argue that the combination of a selective abundance of financial resources and a selective constraint in human resources is beneficial, as it may induce management to act more effectively while not hurting strategic flexibility. We therefore conjecture that:

Hypothesis 3: Bundles of selectively abundant financial resources and selectively constrained human resources positively moderate the relationship between dynamic managerial capabilities and firm performance.

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Dynamic environments

The term "dynamic" of dynamic capabilities refers to coping with the dynamism of the firm's environment rather than the capabilities themselves (Ambrosini and Bowman, 2009). Wilden et al. (2016) further argue that dynamism is a contingency rather than an antecedent of DCs. We conjecture that the performance implications of DMCs are dependent on the level of dynamism in a firm's environment (Arend and Bromiley, 2009) and focus on a dynamic environment's power to expose a firm's need to adapt (e.g., Drnevich and Kriauciunas, 2011). The ability to continuously adapt that DCs/DMCs facilitate is considered an important factor for success in turbulent industries (Ambrosini and Bowman, 2009), because it prevents firms from developing rigidities and reduces inertia (Rindova and Kotha, 2001; Leonard-Barton, 1992). Thus, we propose that:

> *Hypothesis 4: Environmental dynamism increases the positive relationship between dynamic managerial capabilities and firm performance.*

Although evidence on the moderating role of environmental dynamism exists (e.g., Schilke, 2014), the link to the interplay of DCs/DMCs and resources has been disregarded. We argue that fungible financial resources help and that non-fungible human resources hinder the value-creation potential of DMCs, and that these interaction effects are intensified by the firm's environmental dynamism. The underlying premise is that corporate resources bring greater benefits when they are deployed as part of a positive configuration with external dynamics (Wernerfelt, 1984). As financial resources enable dynamically capable managers to pursue almost instant adjustments in response to a firm's misalignment or arising opportunities, the joint presence of DMCs, fungible resources, and a dynamic firm environment increases the firm´s synergistic value-creation potential. Path-dependent and low-fungible human resources, however, may particularly impede the value-creating potential of DMCs if environmental dynamism is high. Thus, we hypothesize that:

> *Hypothesis 5a/b: Environmental dynamism increases the positive (negative) interaction effect of dynamic managerial capabilities and financial (human) resources on firm performance.*

METHODS

Data and sample

We created a unique panel dataset that includes over 28 years of data by merging the CRSP-COMPUSTAT database with additional data. Our final baseline sample contains 9,530 firms and 74,595 firm-year observations over a period from 1987 to 2014.

Dependent variable, explanatory variables & controls

Dependent variable. Our dependent variable Total Q is computed as a ratio with the sum of the market value of outstanding equity and the book value of outstanding debt less the current

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assets of a firm in the numerator, and the sum of replacement costs of tangible and intangible capital in the denominator.

Managerial deployment capabilities. For an empirical approximation, we follow Demerjian et al. (2012) and measure managerial deployment capabilities as managers' effectiveness, relative to their industry peers, in leveraging corporate productive resources to create revenues (for details see Demerjian et al., 2012).

Financial resources. Financial resources, represented by cash holdings, are measured as the ratio of cash and short-term investments to total assets (Bates et al., 2009).

Human resources. We approximate human resources as the ratio of firm employees divided by firm sales minus the ratio of industry employees and industry sales, with industry averages determined based on a firm's four digit SIC code.

Resource bundles. We construct dummy variables in order to identify whether firms experience parallel abundance, parallel constraints, selective financial resource constraints, or selective human resource constraints. These dummies are coded as "abundant" or "constrained" relative to the industry median with "parallel constraints" serving as our reference category.

Environmental dynamism. We first regressed industry sales over five years against time and extracted the standard error of the rate of change of annual industry sales before dividing those by the mean industry sales, and calculating the logarithm to account for skewness.

Controls. We control for various alternate explanations of firm performance: Total *Q* (lag), industry Total *Q*, firm size, absorbed slack, leverage, cash flow, firm growth, R&D intensity and advertising intensity, and capital expenditures. We control for time-constant firm heterogeneity by estimating firm-fixed effects models.

RESULTS

All models show a significant positive marginal effect of managerial deployment capabilities as DMCs on firm performance. In line with Hypothesis 1, the interaction of managerial deployment capabilities and financial resources is significantly positive, indicating that managerial deployment capabilities are more valuable if combined with high financial resources, ceteris paribus. Moreover, the interaction term of managerial deployment capabilities and human resources is significantly negative, supporting Hypothesis 2. Further analyses uncover that the coefficient of the interaction term of managerial deployment capabilities and bundles of selectively abundant financial resources is significant and positively related to firm performance, supporting Hypothesis 3. Two-way interactions indicate that in addition to the discovered positive interaction of managerial deployment capabilities and financial resources, DMCs increase firm performance more in a dynamic environment, supporting Hypothesis 4. We find that the three-way interaction of managerial deployment capabilities, financial resources, and environmental dynamism on firm performance is significantly positive, supporting Hypothesis 5a. These synergistic effects do not apply for human resources as both the interaction of human resources and environmental dynamism and the three-way interaction of human resource, managerial deployment capabilities and environmental dynamism are negative, although not statistically significant.

DISCUSSION

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Building on the foundations of the RBV and the DCV, we take a configurational approach to examine the holistic effects of DMCs, corporate productive resources, and the dynamics of the firm environment. We find that DMCs benefit from financial resources that are fungible, thus providing flexibility; while human resources hinder DMCs from increasing firm performance. We additionally find that abundant financial resources and selective constraints in human resources enhance the DMCs-performance relationship. Lastly, our analyses uncover a synergistic interplay of dynamic firm environment, DMCs, and financial resources, while no such effects are identified for human resources. This underlines the importance of resource fungibility in general for enabling management to cope with a dynamic environment. In sum, our analyses suggest switching the conceptual focus from the direct performance effects of DCs/DMCs towards moderating and synergistic contingencies originating from corporate resources and the firm environment.

Contributions

This article enriches the research strand on DCV in at least three important ways. First, prior research merely examined the interplay of management and resources in contexts different from that of the firm. We follow the DCV and pursue our analyses in a broad corporate setting. Second, building on the idea that managerial capabilities to deploy resources are more important than the mere possession of resources, our study highlights the central role of managers for value-creation. Third, we achieve a holistic picture by examining the joint performance implications of DMCs, internal abundance of productive resources, and external environmental dynamism.

Practical implications

We find that the level of fungibility is crucial for determining whether resources assist or hinder the management in increasing firm performance. A company may hire a highly capable manager, but a lack of suitable fungible resources may impede their capabilities from fully materializing. Further, being exposed to a dynamic market brings up opportunities for their deployment capabilities to create value. For managerial capabilities to materialize, it is thus not the mere abundance of resources, but rather the abundance of “right” (i.e., fungible) resources in the “right” (i.e., dynamic) setting that is decisive.

CONCLUSION

This study shows when and why the positive performance effects of DMCs are altered by a firm’s productive resources and environment. Taking a configurational approach based on the DCV and its foundations in the RBV, we show that DMCs are assisted by fungible financial resources in creating value, while low-fungible human resources hinder DMCs from enhancing firm performance. Further, we show that DMCs have the highest impact on firm performance if cash resources are abundant and human resources are constrained. Further, managerial deployment capabilities, financial resources, and a dynamic firm environment exhibit strong positive synergistic performance implications.

REFERENCES AVAILABLE FROM THE AUTHOR(S)