



Driving a resource orientation: reviewing the role of resource and capability characteristics

Danielle A. Chmielewski and Angela Paladino
*Department of Management, The University of Melbourne,
Melbourne, Australia*

Abstract

Purpose – This study seeks to introduce the role of resource and capability characteristics as drivers of a resource orientation (RO) and to examine empirically these relationships in different market conditions.

Design/methodology/approach – This study was conducted using a nation-wide survey distributed to key informants of multiple business units. Multiple regression was used to assess the relationships. RO is used as a proxy for the implementation of the resource-based view (RBV). The RO is also tested against performance outcomes to examine the robustness of the model that has been examined.

Findings – Findings showed significant relationships between resource and capability characteristics and RO. These relationships were shown to be robust across various market conditions. RO also depicted significant, positive relationships with all four performance indicators that were assessed. Industry conditions were found to strengthen some of these relationships.

Research limitations/implications – The results are limited to cross-sectional data that prevent the determination of causality. In addition, it is a nation-specific study that may not be generalisable to alternative settings. This presents an opportunity for further research to replicate this study in other nations and/or industries. The research presents implications for further theory development and suggests that management can focus on developing unique resource bundles to improve company performance; however, they will need to be attentive to the competitive environment in which they compete.

Originality/value – This is the first study that empirically evaluates drivers of an RO and further tests the scale that was applied by Paladino. Additionally, this study illustrates that the RBV can be empirically tested through the use of an RO to have a demonstrable impact on financial and non-financial elements of performance.

Keywords Resources, Organizational performance

Paper type Research paper



Introduction

The resource-based view (RBV) has dominated economic and management thinking for the past two decades (Foss and Knudsen, 2003). Only recently have researchers recognised that it may also be classified as a strategic orientation that managers may apply to their firms to achieve superior performance. Referred to as the resource-based theory of strategy, resource-based strategic management or the RBV of strategy (e.g., Grant, 1991), we have only just recognised the theory's "considerable potential" for extension into strategic and management (Mowery *et al.*, 1998).

Note: Both authors contributed equally to this manuscript.

The RBV satisfies all components of “strategy”. It enables a company to identify and develop its valuable resources by assisting it to identify pertinent business interrelationships and forming the basis for strategy formulation (Collis, 1991; Grant, 1991; Hitt *et al.*, 1995, Barney and Zajac, 1994; Paladino, 2006). Moreover, the RBV satisfies key characteristics of strategy such that it is a long-term view, and it requires an understanding of the external environment to be applied and leveraged.

As research has evolved, the RBV has come to encompass not only a firm’s resources, but also its capabilities (Helfat and Peteraf, 2003; Henderson and Cockburn, 1994). As Makadok (2001) argues, firms are likely to use a combination of resources and capabilities in the pursuit of a sustainable competitive advantage. Capabilities are a special type of resource, in that they are firm-specific and enhance the productivity of a firm’s other resources (Makadok, 2001).

While there has been much research that examines the premises and consequences of the RBV, there is not a comparable emphasis on understanding its drivers. Consequently, assessing whether company behaviours are consistent with the tenets of the RBV has been difficult. Possession of certain resources does not automatically confer a competitive advantage (Wernerfelt, 1984). Rather, resources and capabilities need to possess certain characteristics before they can contribute to a competitive advantage (Barney, 1991; Mahoney, 2001; Teece *et al.*, 1997; Vicente-Lorente, 2001). What this suggests is that it is not the resources and capabilities per se that drive a firm’s practice of a RBV, but rather it is the unique characteristics that resources and capabilities possess that are the key drivers. While there has been a flood of research that measures specific types of capabilities (see, for example, Dutta *et al.*, 2005; Hansen and Lovas, 2004; Henderson and Cockburn, 1994; Nerkar and Roberts, 2004), no such research has focused on quantifying the drivers of a resource-based strategy. As the RBV is a wide-reaching theory of the firm, it cannot be assessed in its current form. This has also been acknowledged by Foss and Knudsen (2003), who claim that the RBV is lacking analytical precision. Hence, a resource orientation (RO) was applied as it uses the precepts of the RBV to assess empirically whether a firm applies the RBV (Paladino, 2006).

RO describes the degree to which a firm practices a RBV and is used to assess the extent to which a firm is oriented towards the development of valuable and unique resource bundles (Paladino, 2006). It is these resource bundles that create superior value for the firm and, thus, continuous superior performance for business. To facilitate the study of the drivers of RO, this paper introduces two key characteristics of a firm’s resources and capabilities. The empirical evaluation of these characteristics addresses a criticism of the RBV literature that there is a lack of empirical research conducted on the RBV (Priem and Butler, 2001a, b).

Another key criticism of the RBV is concerned with the lack of research regarding the interaction between a firm’s resources and its competitive environment (Barney, 2001). An additional purpose of this study is to examine the relationships between resource and capability characteristics and RO under different market conditions. Both firm- and market-based factors impact on a firm’s strategic decision making and profitability (McGahan and Porter, 1997). Recently, Cockburn *et al.* (2000) and Priem and Butler (2001a) have all called for strategy research to incorporate firm- and market-based factors. This study addresses this call by examining whether market conditions affect the interplay between resource and capability characteristics and RO.

The RBV assumes that a better understanding of a firm's idiosyncratic resources and capabilities leads to an improved understanding of the relationship between a firm's strategy and performance. This allows it to achieve a competitive advantage (Barney, 1991; Vicente-Lorente, 2001). The RBV focuses on the heterogeneity of firms. It addresses and looks at how these differences determine not only a firm's choice of a particular strategy, but also how successfully the firm is able to implement and execute the strategy (Barney, 1991). While a considerable number of studies have examined the unique characteristics of resources and capabilities (see, for example, Amit and Schoemaker, 1993; Barney, 1991; Brush and Artz, 1999; Capron and Hulland, 1999; Eisenhardt and Martin, 2000; Makadok, 2001; Rouse and Daellenbach, 1999; Verona, 1999; Vicente-Lorente, 2001), only one has measured resource and capability characteristics and assessed their impact on the RBV (Chmielewski and Paladino, 2006). This is important, because as Spanos and Lioukas (2001, p. 910) state, the "resource-based perspective posits that the essence of strategy is or should be defined by a firm's unique resources and capabilities". This paper aims to address this by identifying and defining these resource and capability characteristics, based on an extensive review of the literature, and then assessing their relationship to RO, a proxy measure for the RBV applied in this study.

Hence, this study seeks to:

- examine the role of resource and capability characteristics as drivers of a RO;
- examine the relationships between resource and capability characteristics and RO under two different industry conditions;
- assess the relationship between RO and performance; and
- assess the relationship between RO and performance in different industry conditions.

Research and hypotheses

The RBV identifies those resources that provide firms with the opportunity to develop an advantage over their competitors (Barney, 1991; Rao and Stekel, 1998). The RBV requires firms to leverage their resources in order to develop a sustainable competitive advantage. Firm resources will only provide this advantage if they are capable of yielding revenue (Barney, 1991; Dierickx and Cool, 1989). The RBV is now recognised as a strategic tool in that it allows management to exercise "their ability to work creatively with the raw material presented by the firm and their environment; to respond appropriately when their firm's organisational structure finds 'good' strategies; and to create decision structures and procedures that allow a firm to respond to its environment adaptively" (Cockburn *et al.*, 2000, p. 1128).

There has been considerable debate concerning the role of resources and capabilities in the formation of marketing strategies (Hart, 1995). According to Rao and Stekel (1998, p. 270), the RBV "sees companies as a unique collection of assets and capabilities (or skills and resources in our language) that allow them to outperform their competitors over a sustained period of time". Its foundation rests on the premise that competitive advantage originates at the firm (rather than the industry) level (Capron and Hulland, 1999). It also assumes that resources are imperfectly mobile and heterogeneous (Barney, 1991; Mata *et al.*, 1995).

As the RBV is a theory of the firm, it cannot be tested in its current form. Thus, a construct that applies the tenets of the RBV was used. The RO scale assesses the extent to which a firm is oriented towards the development of valuable and unique resource bundles (Paladino, 2006). RO is defined as the organisational orientation that creates the necessary behaviours to identify, apply and accumulate unique and valuable resource bundles that create superior organisational value and a sustainable competitive edge (Paladino, 2006). A RO focuses on how firms create and deploy firm-specific resources when making strategic decisions and is intent on leveraging existing resources to enhance performance. A RO therefore describes the degree to which a firm practices a RBV. Thus, it is assessed at the same level of alternate strategic orientations that are applied in the strategy and market literatures such as market orientation. The Paladino (2006) study assessed RO relative to market orientation, an alternate strategic orientation used in the marketing literature. This study demonstrated similar findings with respect to the effects of RO on financial outcomes, thereby proving the viability of RO as a legitimate strategy.

Firm resources and capabilities must have distinct characteristics to enable a firm to implement a RO and respond to changes in market conditions. The adoption of a RO is dependent on whether resources and capabilities possess essential qualities. These qualities act as determinants or essential prerequisites for the adoption of a RO. Using the extant RBV literature as a basis of investigation, we now turn to reviewing these key characteristics.

The RBV is built around the internal attributes of a firm that incorporate its competencies and assets (Russo and Fouts, 1997). Not only is it important to own such resources, but it is also imperative that the “stocks” of assets and capabilities that a firm owns are recognised by the firm (Dierickx and Cool, 1989). The RBV emphasises firm-specific resources as a means of explaining one firm’s position in the market relative to others (Cockburn *et al.*, 2000). Many terms have been used to describe the attributes that resources are required to possess in order to enable a firm to achieve superior performance. These terms are all variations of Barney’s (1991) original four resource characteristics, and include scarcity, appropriability, durability, uniqueness, non-transferability, firm-specificity, opacity, idiosyncratic, specialised, and rent-generating (see Amit and Schoemaker, 1993; Capron and Hulland, 1999; Mahoney, 1995; Priem and Butler, 2001a; Rouse and Daellenbach, 1999; Vicente-Lorente, 2001). These have been incorporated into the resource sustainability measure. Resource sustainability involves an accumulation of unique resources which will impede present and potential competitors from quickly replicating the firm’s resource base.

Barney (1991) summarises the four key characteristics that resources need to possess to confer a competitive advantage: value, rarity, inimitability, and non-substitutability. These four characteristics arguably refer to the sustainability of a firm’s resources, because they determine the extent to which a firm’s resources confer a sustainable competitive advantage. As Barney (1991, p. 102) argues, a firm has a sustained competitive advantage “when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy”. Hence, we posit that the greater the resource sustainability, the more a firm will be able to defend its resource base and effectively implement a RO:

H1. The greater the resource sustainability, the greater the RO.

When examining resource characteristics, it is also necessary to look at a firm's capability characteristics, because capabilities determine the way in which resources are reconfigured and redeployed to work together to add value to the firm (Prahalad and Hamel, 1990; Vicente-Lorente, 2001). In fact, some contend that resource and capability characteristics are in fact one in the same (e.g., Amit and Schoemaker, 1993; Barney, 1991; Peteraf, 1993).

Capabilities are firm-specific, embedded in the organisation and enhance the productivity of a firm's other resources (Makadok, 2001). Capabilities "enhance the firm's capacity to deploy resources to effect a desired end" (Brush *et al.*, 2001, p. 68). Capabilities enable firms to respond and adapt to industry challenges (Day and Wensley, 1988). Capabilities possess a number of distinct characteristics, such as being firm-specific, idiosyncratic, tacit, causally ambiguous, dynamic, adaptable, path dependent, and invisible assets (see Eisenhardt and Martin, 2000; Hart, 1995; Helfat, 2000; Karim and Mitchell, 2000; Makadok, 2001; Schilling, 1998; Verona, 1999). These attributes have been incorporated into the capability dynamism measure.

This literature shows that some capabilities are deemed to be ordinary while others are in fact dynamic (see Winter, 2003). This allows firms to exploit and redeploy resources to respond to changing environments and markets (Teece *et al.*, 1997). Specifically, dynamic capabilities have been defined as:

[...] the organisational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve and die (Eisenhardt and Martin, 2000, p. 1107).

This definition captures an essential component of the RBV, this being the ability to generate new sets of resources or new applications for resource bundles, in the face of changing or turbulent environments. Research has recognised that dynamic capabilities themselves are not direct sources of long-term competitive advantage (Eisenhardt and Martin, 2000). Rather, they tend to assist a firm to implement a RBV. Similarly, Sharma and Vredenburg (1998, p. 735) state that a firm's capabilities:

[...] are the coordinating mechanisms that enable the most efficient and competitive use of the firm's assets, whether tangible or intangible.

Hence, capability dynamism allows a firm to be flexible and adapt its resources to changing conditions, thereby assisting in the effective implementation of RO. Therefore, if capability dynamism is high, this suggests that capabilities are more flexible and adaptable throughout the firm. This may also be contingent on the nature of the environment in that dynamism may be present more in turbulent or virulent environments as compared to stagnant or stable ones. We assess this through the moderating effects in the discussion that follows:

H2. The greater the capability dynamism, the greater the RO.

Performance is often assessed from a purely financial perspective. However, as recognised by Combs and Ketchen (1999), performance is a multi-dimensional construct that is reflected in a number of outcomes and daily operations. As a result, multiple measures should be examined to capture a number of dimensions of firm performance (Venkatraman and Ramanujam, 1986; Combs and Ketchen, 1999). Most research has used an array of financial measures to represent performance, ranging

from return on capital (ROC), return on sales (ROS), to market share growth. While there is conflicting evidence, the majority of work that applies specific capabilities and resources to outcomes provide evidence of a positive relationship between RO and performance outcomes (e.g., Henderson and Cockburn, 1994; Makija, 2003). Consistent with the extant literature, a number of financial indicators are applied here. While there is no empirical support for such a relationship for RO, RBV theory suggests that a positive relationship between RO and overall performance should ensue (e.g., Barney, 1991; Henderson and Cockburn, 1994; Sharma and Vredenburg, 1998).

Customer satisfaction has been defined as:

[...] the favourableness of the individual's subjective evaluation of the various outcomes and experiences associated with buying [a product] or using it (Babin and Griffin, 1998, p. 128).

Companies must have systems in place that allow them to monitor the marketplace and disseminate this information across all functions to develop and maintain a strong market position. This enables the company to use its internal resources to be responsive to consumer needs. Customer value and thus satisfaction will only be created when a firm is able to exploit and leverage its critical resources fully. In this sense, value will be achieved when it is created for the firm and its customers (Slater and Olson, 1996). This has implications for RO. Firms need to establish and develop resources that are required to understand these customer requirements and deliver the promised value (Slater, 1997).

Few have analysed the impact of unique firm resources on customer-related variables such as customer satisfaction. It is critical that a company understands where its key resources lay and where further developments need to occur (Webster, 1994). Distinctive resource bundles will allow a company to define where it is "uniquely capable" among all of its competitors. The value of such a strategy increases if competitors find it difficult to emulate these distinct offerings (Heskett *et al.*, 1990; Webster, 1994). Thus, if a company continually invests in its resource base, we expect it to be able to achieve customer satisfaction. Therefore:

H3. The greater the RO, the greater the (a) ROC, (b) ROS, (c) Market share growth, and (d) Customer satisfaction.

Moderating market conditions

Changes in customer requirements and competitor actions invariably impact a firm's strategy (Walley and Thwaites, 1996). As the competitive environment evolves, companies must continue to monitor their unique bundle of resources to ensure they continue to be relevant (Webster, 1994). Research demonstrates that environmental characteristics constitute the foremost contingency that firms must confront and have a considerable impact on strategy and performance (Goll and Rasheed, 1997; Morgan and Piercy, 1998).

While McGahan and Porter (1997) acknowledged the importance of the RBV, they did advise that ignoring the effects of the competitive environment would prove detrimental to the firm. According to Doyle (2000, p. 157), a firm's "success or failure can be explained by (i) external factors – the attractiveness or otherwise of the market in which the firm is operating and (ii) internal factors – the specific capabilities the business has inherited or developed, which allow it to develop a competitive

advantage". Furthermore, according to Priem and Butler (2001a) a firm's market environment (i.e. opportunities and threats) ultimately determines the value of a firm's resources and capabilities (i.e. strengths and weaknesses). A number of factors influence the attractiveness of the market, including market turbulence and competitive intensity (Gatignon and Xuereb, 1997; Glazer, 1991; Jaworski and Kohli, 1993; Narver and Slater, 1990; Porter, 1980). This paper thus also reviews the relationship between market turbulence and RO, as well as between competitive intensity and RO.

The RBV is appropriate to apply in a dynamic and turbulent environment characterised by diverse customers, workforces and environmental conditions. In these environments, managers' cognitive frameworks place emphasis on the development of new competencies and resources (Collis and Montgomery, 1995; Chakravarthy, 1997; Grant, 1996; Higgins, 1996; Grant, 1998):

A definition of a business in terms of what it is capable of doing may offer a more durable basis for strategy than a definition based upon the needs which the business seeks to satisfy (Grant, 1991, p. 116).

Hence, resources and capabilities provide a stable basis on which a firm may define itself (Grant, 1991).

Grant (1998) argues that the more turbulent the environment, the greater the number of changes that take place within the market place and the greater the number of differences in firm resources. He contends that this will enable a company to be responsive to change and anticipate change over time.

Market turbulence "represents the changes in composition of customers and their preferences ... [and] implies changing strategies in the face of changing customer needs" (Slater and Narver, 1994, p. 51). As Slater and Narver (1998, p. 1003) argue, in a turbulent environment:

[...] the more enduring advantage is an ability to anticipate evolving customer needs and to generate new value-creating capabilities based on that knowledge.

A turbulent, dynamic market requires a firm to be responsive and adapt to changes in its environment (Rajagopalan and Spreitzer, 1997). This suggests that market turbulence influences both strategic decision making and the selection of a firm's strategy.

Competitive intensity is defined as "the behaviors, resources and ability of competitors to differentiate" (Jaworski and Kohli, 1993, p. 60). In essence, it refers to the extent to which the composition of the market and competitive actions change over time (Gatignon and Xuereb, 1997; Kohli and Jaworski, 1990; Slater and Narver, 1994). We argue that RO should be robust across different market conditions as long as the firm possesses both capability dynamism and resource sustainability. There is an absence of past research that examines the effects of industry moderators on RO. Consequently, we are unable to compare these relationships between market conditions, RO, capability dynamism and resource sustainability to past research. Given this, we contend:

H4. The relationship between RO and (a) resource sustainability and (b) capability dynamism will remain unchanged under conditions of market turbulence and competitive intensity.

- H5. The higher the rate of market turbulence, the stronger the relationship between RO and performance.
- H6. The higher the rate of competitive intensity, the stronger the relationship between RO and performance.

Figure 1 illustrates our conceptual premise and the relationships under investigation. It shows that we expect capability dynamism and resource sustainability to have a positive and direct relationship with RO. We recognise that individual firms may have either characteristics and still be able to attain superior performance. These underlying factors are posited to drive the implementation of RO, regardless of market conditions. The RBV posits that unique and sustainable resources should provide a firm with value and a sustainable competitive edge in most of the market conditions (e.g., Barney, 1991). Hence, our model incorporates performance outcomes and the role of the environment. It examines the two market conditions of competitive intensity and market turbulence to assess their influence over the relationships between resource sustainability and RO, capability dynamism and RO, as well as RO and performance.

Methodology

Data collection

The unit of analysis is the business unit. The sampling frame consisted of 2,894 consumer goods firms. The study employed an online survey. While the response rate for online surveys is typically lower than for mail surveys (see Tse, 1998; McDonald and Adam, 2003; Schuldt and Totten, 1994), an online survey generally “produces an acceptable response rate at a lower cost per returned questionnaire than mail” (Tse, 1998, p. 353).

This research adopted a key informant strategy: the online survey was e-mailed to one key informant within a business unit. This allowed researchers to target those informants who possess knowledge of tacit organisational processes that are difficult to observe and document (Chen *et al.* 1993). The key informant approach is particularly

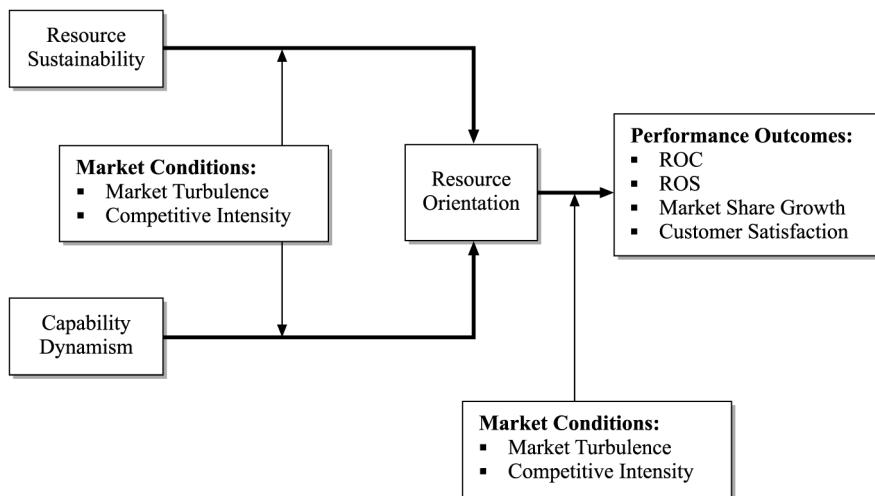


Figure 1.
Conceptual model

useful when there exists a lack of archival data on organisational level constructs (Kumar *et al.*, 1993). It is used regularly in research that examines organisational processes and strategies (e.g., Fredrickson, 1984; Heide and John, 1995; Phillips, 1991).

The key informant within the business unit was someone who held a position equivalent of divisional general managers. As Heide and John (1995) point out; middle-to-senior level managers possess the ability to answer the range of questions being asked of them due to their specific knowledge about their business unit's operations, functions, and strategies.

According to Kumar *et al.* (1993), the key informant method is restricted by informant bias and random error. To overcome the problem of informant bias, respondents were selected who held similar or comparable organisational roles across the sample. To overcome the problem of random error, respondents were assured of the confidential nature of the research. This ensured that respondents were more likely to give unbiased, accurate answers (Heneman, 1974).

E-mail invitations containing a hyperlink to a web site with the online survey were sent to senior executives in our sample firms. The initial e-mail was followed by two subsequent follow-up e-mails. After taking into account ineligible and/or unreachable respondents, 149 usable surveys were received. While the response rate is low, it is not unusual. Alreck and Settle (1995) note that it is not uncommon for direct mail data collection response rates to fall within the range of 5 to 10 per cent. Indeed, our response rate (6 per cent) was consistent with the 7 per cent response rate obtained by Tse (1998) in his study comparing response rates when using e-mail versus mail data collection methods.

For the purposes of this study, a high internal validity is more important than external validity, which is consistent with the view put forth by Wittink (2004) in his editorial statement of the *Journal of Marketing Research*. We nonetheless controlled for a possible non-response bias in three ways by testing whether any differences of various independent, dependent and control variables existed between responses of the first-wave and second-wave, first-wave and third-wave, and second-wave and third-wave. First, we evaluated non-response bias using Armstrong and Overton's (1977) method whereby the data were divided into thirds using the three response waves as the grouping variable. The *t*-tests between mean responses of first-wave and second-wave, first-wave and third-wave, and second-wave and third-wave responses indicated no statistically significant differences ($p < 0.05$) across two independent variables (resource sustainability and capability dynamism), the dependent variable (resource orientation), and a control variable (business unit size). Second, we conducted one-way between-groups analysis of variance to explore the impact of response wave on resource sustainability, capability dynamism, resources orientation and business unit size. Respondents were divided into three groups according to the response wave. There were no statistically significant differences ($p < 0.05$) in the means scores of first-wave, second-wave and third-wave responses. Third, we used the Mann-Whitney U Test to compare the median responses between first-wave and second-wave, first-wave and third-wave, and second-wave and third-wave responses across resource sustainability, capability dynamism, resource orientation and business unit size. No statistically significant differences ($p < 0.05$) were found. These findings indicate that non-response bias was not a problem with these data.

The measures

The study used existing scales to measure resource sustainability, capability dynamism market turbulence, competitive intensity, resource orientation, the control variables and the performance outcomes. Capability dynamism refers to a firm's ability to rapidly respond to changing environments by reconfiguring, integrating, and redeploying resources. Resource sustainability is defined as the extent to which a resource's attributes confer a sustainable competitive advantage to a firm (Chmielewski and Paladino, 2006). These two scales contained five items each. They were assessed on a seven-point Likert-type scale ranging from 1 = strongly disagree to 7 = strongly agree. Market turbulence refers to the extent to which the composition of a business unit's customers and their preferences change over time, while competitive intensity refers to the extent to which the composition of a business unit's market and competitive actions change over time (Jaworski and Kohli, 1993). These two scales contained six items each. They were assessed on a seven-point Likert-type scale ranging from 1 = strongly disagree to 7 = strongly agree. Resource orientation refers to the extent to which a firm creates behaviours that are required to identify, apply and accumulate unique and valuable resources that create sustainable and superior value for the firm. The scale was applied from Paladino (2006).

As a result of its relative novelty, more details are provided regarding this scale than the alternate measures that were applied in this study. The RO scale was developed from a behavioural perspective to assess the extent to which a firm pursues a RBV. It assesses what organisations do with regard to developing and deploying resources. Drawing on the literature and following extensive pretests, 21 items were used to measure RO. Three factors emerged from the tests as significant and consistent with the literature. These were:

- (1) uniqueness;
- (2) synergy; and
- (3) dynamism.

The scale was assessed on a seven-point Likert-type scale ranging from 1 = strongly disagree to 7 = strongly agree. The scale satisfied all exploratory factor, confirmatory factor analysis (CFA) and reliabilities analyses, with results complementing those of the pilot testing that was used. These lend support to the contention that RO is well measured by the three factors. Examples of the scale items that were used for the dimensions of uniqueness, synergy, and dynamism, respectively, include: "We constantly strive to ensure that our resources cannot be easily identified by competitors," "We work to ensure our resources span (provide benefits) to several departments," and "We work to ensure our resources act as triggers for collaborative problem solving with stakeholders".

Four performance outcomes were evaluated. Three objective and frequently-used measures of performance were employed in this study: ROC, ROS, and market-share growth. These single-item scales were adapted from McDougall *et al.* (1994), and were assessed on a seven-point Likert-type scale ranging from 1 = much worse than competitors to 7 = much better than competitors. Customer outcomes are often neglected in such studies. As a result, customer satisfaction was incorporated in the study using a scale adapted from Jap and Ganesan (2000). This scale comprised three

items, and was assessed on a seven-point Likert-type scale ranging from 1 = much worse than competitors to 7 = much better than competitors.

Consistent with past research, control variables were used to examine their effects on firms across a cross section of industries (e.g., Narver and Slater, 1990; Jaworski and Kohli, 1993). Doing so also responds to Foss and Knudsen (2003) who attest that control variables are necessary to include in empirical research. They claim that “a regression that omits a control for additional conditions will typically show biased and weaker effects” (Foss and Knudsen, 2003, p. 299). Hence, the inclusion of control variables “provides a more precise specification of the causal chain through which a sustainable competitive advantage is expressed” (Foss and Knudsen, 2003, p. 299). Two control variables were used in this study. The first was quality, which is defined as the extent to which the business units’ products meet the needs and wants of customers relative to its competitors (Ittner and Larcker, 1997). This single-item scale was adapted from Keller and Aaker (1992), and was assessed on a seven-point Likert-type scale where 1 = lower quality, and 7 = higher quality. The second control variable used was business unit size. This refers to the number of employees in the business unit, and was adapted from Schoenecker and Cooper (1998). It was measured using a ratio response format. This variable was log transformed.

A pretest was first conducted to determine face validity. We then assessed measure reliability and validity using exploratory factor analysis (EFA) and CFA using LISREL. The results supported both discriminant and convergent validity for all constructs. We subjected resource orientation, capability dynamism and resource sustainability, competitive intensity and market turbulence, and customer satisfaction to CFA to test the underlying structure identified (Gerbing and Anderson, 1988). Briefly, the following results were attained:

- for RO, the goodness-of-fit (GFI) = 0.95, root mean square error of approximation (RMSEA) = 0.07, comparative fit index (CFI) = 0.97;
- for capability dynamism and resource sustainability, GFI = 0.91, RMSEA = 0.10, CFI = 0.94;
- for market turbulence and competitive intensity, GFI = 0.91, RMSEA = 0.09, CFI = 0.90; and
- for customer satisfaction, GFI = 0.91, RMSEA = 0.00, CFI = 1.00.

The fit indices indicate a good fit and meet the benchmarks suggested by the literature (Baumgartner and Homburg, 1996).

Table I reports the correlations, Cronbach’s alpha, composite reliability and average variance extracted of all variables. The Cronbach alpha’s for the six constructs ranged from 0.70 to 0.94, with composite reliability ranging from 0.69 to 0.94, and average variance extracted from 32 per cent to 65 per cent.

Discriminant validity was assessed using two different techniques. First, following the recommendations put forth by Bagozzi and Yi (1988), we constrained and then freed the phi coefficients for all possible pairs of constructs under study. Then, the difference between the χ^2 of the constrained model and the χ^2 of the unconstrained model (with one degree of freedom) was calculated. For instance, a significant χ^2 difference (10.74) was obtained for the pair of constructs resource sustainability and capability dynamism. For all pairs of constructs, the χ^2 difference was significant,

Descriptive statistics	Mean	SD	α	CR	AVE	1	2	3	4	5	6	7	8	9
1. Resource orientation	4.57	1.04	0.84	0.94	0.65	1								
2. Competitive intensity	3.15	1.21	0.82	0.82	0.49	0.04	1							
3. Market turbulence	3.49	1.07	0.70	0.69	0.32	-0.28**	0.24**	1						
4. Resource sustainability	3.86	1.33	0.85	0.86	0.60	0.46**	0.19**	0.02	1					
5. Capability dynamism	4.73	1.09	0.90	0.90	0.64	0.47**	0.10	0.01	0.26**	1				
6. ROC	4.84	1.32				0.33*	-0.33*	-0.10	0.24	0.32*	1			
7. ROS	4.94	1.22				0.17	-0.06	-0.04	0.18	0.14	0.68**	1		
8. Market share growth	4.84	1.62				0.26*	-0.04*	0.15	0.29*	0.23	0.50**	0.75**	1	
9. Customer satisfaction	4.94	1.23	0.83	0.80	0.58	0.41**	0.01	-0.09	0.38**	0.42**	0.042**	0.58**	0.60**	1

Notes: * Correlation is significant at the 0.05 level (one-tailed); ** Correlation is significant at the 0.01 level (one-tailed); α = Cronbach's Alpha; CR = composite reliability; AVE = average variance extracted

Table I.
Descriptive statistics

falling above the critical value of 3.84, despite the loss of one degree of freedom. The constructs with the free (unconstrained) phi coefficient were all found to fit the data far better than those with a fixed coefficient. This supports the presence of discriminant validity.

Discriminant validity was also assessed by comparing the squared correlations for all pairs of constructs under study with the AVE for each construct (Fornell and Larcker, 1981). In all cases, the AVE for each construct exceeded the squared correlation between construct pairs, thus indicating discriminant validity.

Results

Moderated regression analysis was conducted on the hypothesised relationships. Table II provides a summary of the moderated regression results for the antecedents of RO. *H1* predicted that the greater the resource sustainability, the greater the RO. Resource sustainability is significantly and positively related to RO ($\beta = 0.383$, $p < 0.01$). *H1* is supported.

H2 predicted that the greater the capability dynamism, the greater the RO. Capability dynamism is significantly and positively related to RO ($\beta = 0.384$, $p < 0.01$). *H2* is supported.

H4 predicted that the relationships between resource sustainability and RO and between capability dynamism and RO would remain robust across different market conditions (namely competitive intensity and market turbulence). None of the four moderated relationships were significant, so *H4* is supported. Also, neither of the control variables were significant.

Table III provides a summary of the moderated regression results for the consequences of RO. *H3* predicted that RO will have a positive effect on performance.

Independent variables	β	Resource orientation	<i>t</i>
<i>Control variables</i>			
Quality	-0.03		-0.35
Business unit size	0.07		1.011
<i>Direct effects</i>			
Resource sustainability (A)	0.383		5.305*
Capability dynamism (B)	0.384		5.225*
Market turbulence (C)	0.299		4.080*
Competitive intensity (D)	-0.018		-0.248
<i>Interaction effects</i>			
A × C	0.046		0.666
B × C	-0.019		-0.262
A × D	-0.005		-0.073
B × D	0.062		0.892
R^2	0.442		
Adjusted R^2	0.398		
<i>F</i>	10.122**		

Table II.
Moderated regression
analysis: standardised
regression coefficients

Notes: * $p \leq 0.01$; ** $p \leq 0.05$ (one-tailed test)

Independent variables	ROC		ROS		Market share growth		Customer satisfaction	
	β	t	β	t	β	t	β	t
<i>Control variables</i>								
Quality	0.22	1.31***	0.42	2.64*	0.35	2.08**	0.46	3.34*
Business unit size	-0.10	-0.57	-0.17	-1.07	-0.16	-0.93	0.06	0.43
<i>Direct effects</i>								
Resource orientation (A)	0.38	2.42**	0.20	1.38***	0.26	1.69**	0.47	3.61*
Market turbulence (B)	-0.13	-0.66	-0.27	-1.43***	0.01	0.04	0.11	0.66
Competitive intensity (C)	0.13	0.69	0.19	1.09	0.07	0.36	-0.10	-0.67
<i>Interaction effects</i>								
A × B	0.30	1.29	0.48	2.13**	0.17	0.71	-0.03	-0.14
A × C	-0.15	-0.78	-0.05	-0.26	0.13	0.66	0.24	1.49***
R^2	0.216		0.309		0.226		0.429	
Adjusted R^2	0.054		0.163		0.067		0.315	
F	1.34		2.110**		1.419		3.761*	

Notes: * $p \leq 0.01$; ** $p \leq 0.05$; *** $p \leq 0.10$ (one-tailed test)

Table III.
Moderated regression
analysis (performance
outcomes): standardised
regression coefficients

The results across a range of performance outcomes indicate that RO is significantly and positively related to performance (ROC: $\beta = 0.38$, $p < 0.05$; ROS: $\beta = 0.20$, $p < 0.10$; market share growth: $\beta = 0.26$, $p < 0.05$; and customer satisfaction: $\beta = 0.47$, $p < 0.01$). *H3* is thus supported.

H5 and *H6* predicted that market turbulence and competitive intensity would strengthen the relationship between RO and performance. The results show that market turbulence strengthened the relationship between RO and only one indicator of performance, ROS ($\beta = 0.48$, $p < 0.05$). *H5* is thus partially supported. The results also show that competitive intensity had a marginally significant positive moderating effect on the relationship between RO and customer satisfaction ($\beta = .24$, $p < 0.10$). Therefore, *H6* is only partially supported. Of the two control variables, only quality was significant across the range of performance outcomes (ROC: $\beta = 0.22$, $p < 0.10$; ROS: $\beta = 0.42$, $p < 0.01$; market share growth: $\beta = 0.35$, $p < 0.05$; and customer satisfaction: $\beta = 0.47$, $p < 0.01$).

Discussion

The principal purpose of this research was to examine the relationships between resource and capability characteristics and RO. Our study has shown that capability dynamism and resource sustainability are two of these characteristics that suggest that a firm has a RO. Resources and capabilities are seen as the heart of a firm's competitive position (Collis and Montgomery, 1995). Firms use a combination of both resources and capabilities when making strategic decisions (Eisenhardt and Martin, 2000; Makadok, 2001). The RBV focuses on the heterogeneity of firms, and looks at how these differences determine not only a firm's choice of a particular strategy, but also how successfully the firm is able to implement and execute the strategy (Barney, 1991). Our results show that the characteristics of a firm's resources and capabilities influence its ability to implement RO (i.e. practice a RBV). In fact, these were consistent with our hypotheses that predicted a positive and direct relationship between capability dynamism, resource sustainability and RO. Hence, all of our hypotheses were supported in this research. We recognise that there may be alternate factors that may impinge on this relationship and anticipate that this study may prompt further research and replication.

An additional purpose of this research was to examine the relationships between resource and capability characteristics and RO under different market conditions. Moreover, we sought to assess the relationships between RO and performance in different market conditions. Barney (2001) admits that a valid criticism of his 1991 RBV article is its lack of analysis on the interaction between a firm's resources and its competitive environment. Research has generally shown that a RBV is robust under different market conditions (Barney, 1991; Henderson and Cockburn, 1994). In fact, ever since Penrose (1959), unique resource bundles have been shown to confer a performance advantage to firms experiencing market conditions that are constantly changing. This ability to withstand these changing conditions has been attributed to robust resource bundles that depict distinct characteristics. This is in accordance with Cockburn *et al.*'s (2000) finding that a firm's resources and capabilities enable a firm to armour itself against environmental changes and provide the necessary ammunition to shape their external environment. Consistent with our expectations, this study has shown that the relationships between capability dynamism, resource sustainability

and RO are robust in two of the major market conditions often shown to change the nature of resources in firms (Grant, 1998).

The concepts tested in this study are central to the field of strategy. While we expected these results to emerge based on our comprehensive review of past research, it is rare that all hypotheses are empirically validated in the one study. While such results may simply be an artefact of the sample used, they still do provide an important basis from which further studies may emanate.

Future research may also take a micro-view of the concepts tested in the study. Specifically, rather than test RO in its entirety, its dimensions (such as dynamism), could be assessed to determine their impact on performance. Alternatively, the relationship between the drivers and the dimensions of RO could also be evaluated. This would enable researchers to determine, for example, whether firms that possess resources with low imitability enjoy higher returns[1]. In doing so, the results would also enable senior managers to determine appropriate strategies to implement within the firm.

Our research has been limited by a few elements that are common across many quantitative studies. The use of questionnaires as the sole method of data collection has been argued to be a contributor to common method variance. Ideally, a combination of methods, incorporating both quantitative and qualitative techniques should be used. Cross-sectional research enables us to only examine relationships at one point in time. As a result, we are unable to determine the development of relationships and therefore, causality. Only the use of longitudinal data would enable us to do so and to assess the robustness and generality of the model.

Another limitation has to do with the use of a key informant approach. Some researchers argue that it is more beneficial for research conducted at the business unit-level to use a multiple informant approach (see Chen *et al.*, 1993; Kumar *et al.*, 1993). Using multiple informants within a business unit can enhance researchers' understanding of the mechanisms, processes, and outcomes of the business unit's strategy (Chen *et al.*, 1993). Using multiple informants can also reduce informant bias, particularly on subjective performance-related questions (Kumar *et al.*, 1993; Phillips, 1991).

While there are no past studies on which to compare these findings, this study is a significant one in that it provides a benchmark upon which future studies can be based. While we have examined two of the dominant characteristics of resources in this study based on a comprehensive literature review, future research would be well served to examine if there are further characteristics that influence RO. In addition, examining all constructs under different settings would be beneficial. This could be a review of either different industries or country settings.

Conclusion

Our study sought to accomplish four objectives. First, we introduced and empirically examined the role of resource and capability characteristics as significant drivers of a RO (used as proxy for the implementation of the RBV). Building on this, the second objective of the paper was to analyse the effect of market conditions on the relationships between resource and capability characteristics and RO. Next., we assessed the relationship between RO and performance. Finally, we empirically tested the effects of RO on performance in different environmental settings. The results

provide evidence of the significant role that characteristics play as drivers of RBV implementation. What was also of particular note was the robust nature of the relationships between capability dynamism and RO and resource sustainability and RO, which did not change in the presence of differing market conditions. The performance effects also presented noteworthy results demonstrating significant effects with all outcomes under investigation. Environmental conditions were also evaluated demonstrating a significant effect in some market conditions.

These findings challenge the idea that specific resources and capabilities drive the implementation of the RBV and suggest that we need to examine further the characteristics that resources and capabilities possess that enable a firm to implement a RBV. Our results imply that these findings would be generalisable across industries. These characteristics enable the identification of unique resources and capabilities, something that has been an obstacle for the practice of the RBV (e.g., Conner, 1991). This study provides statistically significant findings that further enhance our knowledge of what is required to implement a resource-based strategy within an organisation. It goes further to demonstrate that there are significant financial and non-financial consequences as a result of the pursuit of a resource-focused strategy. Managers must be able to monitor industry conditions to evaluate their effects on these outcomes. This is pertinent for firms such as multinational enterprises, whose trade often takes place across multiple industries. To advance knowledge in this broad field of study, studies need to move away from analysing industry-specific capabilities and move towards industry-wide studies that assess resource/capability characteristics under turbulent conditions. It is only when this takes place that we can move towards truly assessing whether the RBV assists a firm to achieve a sustainable competitive advantage that is independent of industry effects.

Note

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Further reading

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Corresponding author

Angela Paladino can be contacted at: a.paladino@unimelb.edu.au

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