



External knowledge resources and new venture success in developing economies: Leveraging innovative opportunities and legitimacy strategies

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ABSTRACT

This study draws insights from entrepreneurial opportunity and organizational legitimacy perspectives to specify an intervening role of opportunity recognition and the contingency effect of entrepreneurial legitimacy to explain how and when external knowledge resources are associated with new venture performance. The conceptual model is tested on primary data from 230 new ventures operating in a sub-Saharan African economy: Ghana. Findings from the study indicate that the relationship between external knowledge resources and new venture performance is mediated by opportunity recognition and that high levels of both strategic and regulatory legitimacy strategies strengthen the indirect relationship. Theoretical implications and new venture management lessons drawn from these findings are discussed.

1. Introduction

Entrepreneurial activities have been linked to national and societal economic growth through their ability to trigger expansion in employment, socio-economic progress, new wealth creation, and alleviation of poverty (Pathak, 2020; Devine and Kiggundu, 2016; Vermeire and Bruton, 2016). While policy makers in developed economies have openly embraced and enacted policies to increase entrepreneurial activities as a mechanism to enhance new job and wealth creation, entrepreneurial ventures in these economies continue to experience significant institutional roadblocks (see, Goedhuys and Sleuwaegen, 2010; Hilson et al., 2018), including bureaucracies, weak property rights regimes, crumbling infrastructure, and frail financial markets (Fick, 2002; Parente et al., 2019). In view of the unsupportive institutional environment in which entrepreneurs operate in many developing economies, new ventures are compelled to rely on their own limited and sometimes non-existent resources and capabilities to be competitive and grow (e.g., González-Pernía et al., 2015; Wolf and Frese, 2018).

In the context of limited internal firm resources, the knowledge-

based view (KBV) of the firm highlights the value of external knowledge resources (e.g., knowledge about customers, competitors, other industry partners, and sectoral stakeholders) in complementing limited internal knowledge resources (Smallbone and Welter, 2012). To this end, entrepreneurship research emphasizes the need for firms operating in resource-poor environments to leverage external knowledge resources to boost their competitiveness and performance (e.g., Jiang et al., 2016; Kim et al., 2013; Hervas-Oliver et al., 2021). However, some scholars have argued that there is a limit to the extent to which a stock of external knowledge resources contributes to firm performance (Monteiro et al., 2017; Arfi et al., 2018) in that it can be expensive – in terms of time, personnel, and finances – to acquire these external knowledge resources (McKelvie et al., 2018; Dahlander et al., 2016). This is particularly the case for entrepreneurial ventures that may lack marketplace legitimacy due to their liabilities of newness and smallness. Furthermore, prior empirical research shows that over-reliance on external knowledge resources can decrease firm performance due to the risk of exposure to imitation of unique internal processes by other firms and the likelihood that such external knowledge resources may be

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under-utilized (e.g., Berchicci, 2013; Kotabe et al., 2001; McKelvie et al., 2018). Thus, additional research is needed to explain how and under what conditions external knowledge resource stock contributes to variation in new venture performance.

Against this backdrop, our study seeks to address *how and when entrepreneurial firms in low resource contexts benefit from external knowledge resources*. Specifically, the current study aims to shed light on how and under what conditions new ventures operating in low resource economies (such as developing economies) leverage external knowledge resources (Brunswick and Vanhaverbeke, 2015) to enhance their performance and growth. In examining this research question, our study contributes to the literature on the external knowledge resource–new venture performance nexus (e.g., Monteiro et al., 2017; Ferreras-Méndez et al., 2015; Ferraris et al., 2020) by arguing that new venture performance outcomes from external knowledge resources are a function of the intervening role of entrepreneurial opportunity recognition capability and contingent effects of strategic and regulatory legitimacy strategies. We draw insights from the entrepreneurial capability and opportunity recognition literature to propose that entrepreneurial capability (as captured in entrepreneurial opportunity recognition) serves as an organizing mechanism through which the stock of external knowledge resources is channeled into new venture performance (Phillips and Tracey, 2007; Arthurs and Busenitz, 2006). Given that entrepreneurial capability captures a new venture's ability "to identify a new opportunity and develop the resource base needed to pursue the opportunity" (Arthurs and Busenitz, 2006, p. 199), we argue that variations in the ability of ventures to identify and exploit innovative opportunities may serve as a transformative mechanism to connect external knowledge resources to new venture performance. While external knowledge resources relate to the propensity of new ventures to generate new intelligence on customers, competitors, industry, and the wider macro environment (Kohli et al., 1993; Jansen et al., 2005), entrepreneurial opportunity recognition capability explains the ability of new ventures to recognize and exploit innovative opportunities on the market (Ozgen and Baron, 2007; Grégoire and Shepherd, 2012). New venture performance is defined as the effectiveness of new ventures as captured in the extent of their sales, sales growth, market share, and market share growth relative to their main industry competitors (Boso et al., 2019; Drnevich and Kriauciunas, 2011).

A second contribution from this study relates to the extent to which the ability to secure legitimacy in an institutionally uncertain environment can serve as a complementary capability to explain when external knowledge resources, through entrepreneurial opportunity recognition capability, contribute to new venture performance. We contend that, while success in introducing new products is critical to new venture survival (e.g., Ardito et al., 2015), new ventures often lack the required market clout and legitimacy to effectively exploit new product-market opportunities (Wang et al., 2017; Foss and Klein, 2012; Ketchen et al., 2007). We draw insights from the organizational legitimacy literature to argue that opportunity recognition capability per se might not contribute to new venture performance outcomes under all market conditions. Our contention is that two organizational legitimacy strategies: strategic legitimacy (internal to the firm) and regulatory legitimacy (external to the firm), may be required to explain further when external resources, through opportunity recognition, drive new venture performance. Strategic legitimacy describes the extent to which a new venture's internal operational processes (e.g., registration of business, testing of prototypes, marketing, and promotion) signal the credibility and functionality of the venture (Tornikoski and Newbert, 2007). Regulatory legitimacy refers to the extent to which firms' adherence to societal rules, regulations, and socially responsible behaviors are accepted by external stakeholder constituencies, including regulatory bodies (Suchman, 1995; Dacin et al., 2007). We argue that these two organizational legitimacy strategies, when they increase in magnitude, may enable new ventures to access further (tangible and intangible) resources and capabilities from networks and alliances and become

trustworthy and acceptable to stakeholder groups in targeted markets (Wang et al., 2017; Rao et al., 2008). Therefore, we contend that, when new ventures possess greater levels of both strategic and regulatory legitimacies, perception of marketplace illegitimacy is minimized, which subsequently contributes to stronger new venture performance outcomes.

Contextually, by using primary data from entrepreneurs in a sub-Saharan African economy (specifically, Ghana) to test the proposed conceptual model (see Fig. 1), this study further extends the entrepreneurship and organizational legitimacy literature by demonstrating how new ventures in low resource contexts can adopt legitimacy strategies to facilitate the efficacy of external resources and opportunity recognition capabilities to enhance performance. In the sections that follow, theoretical underpinnings and empirical evidence are presented.

2. Theory and hypotheses

2.1. External knowledge resources and firm performance

The resource-based view acknowledges the role of external knowledge sourcing in driving various performance outcomes (e.g., Grimpe and Kaiser, 2010; Zouaghi et al., 2018). Thus, the acquisition and use of external knowledge stocks help firms access diverse markets and become aware of marketplace changes and conditions, thus enhancing their competitiveness. Indeed, recent research indicates that successful entrepreneurship, as well as new venture performance, sometimes requires firms to acquire and use external knowledge resources (Raza et al., 2020; Randolph et al., 2017; Fuentes-Fuentes et al., 2015). In spite of these advantages, the extant literature suggests that over-reliance on external knowledge may be costly to firms' performance outcomes — leading to suggestions on how other complementary resources and capabilities can help firms achieve the maximum benefits of external knowledge (e.g., Ferraris et al., 2020; Berchicci, 2013; Arfi et al., 2018). To this end, we explain how and why entrepreneurial opportunity recognition capability acts as a significant intervening mechanism through which external knowledge resources drive new venture performance.

2.2. The mediating role of entrepreneurial opportunity recognition

We contend that opportunity recognition is a useful entrepreneurial capability, which operates through the impact of external knowledge resources on new venture performance, for at least four reasons. First, external knowledge includes information on customers, competitors, and industry trends in the markets where firms operate. Thus, reliance on external knowledge can make firms knowledgeable of their business environment and subsequently help them to recognize greater opportunities (Randolph et al., 2017).

Second, when firms operate in markets characterized by intense competition and dynamism, the use of external knowledge acquisition become useful for opportunity recognition. Thus, existing knowledge resources may become obsolete over time, and firms will need continuous exploration of the markets for new knowledge and information to identify and exploit opportunities that are novel to customers and complex to firms' internal existing knowledge base (Foss et al., 2013).

Third, access to external knowledge equips new ventures with industry-specific knowledge, contextual information, and information from the regulatory environment, which is needed to recognize new opportunities that match current market needs. In fact, continuous engagement with regulators, industry associations, and relevant stakeholders can help firms acquire the right knowledge on shifts in demand and new markets in a timely manner (Gaglio and Katz, 2001).

Fourth, external knowledge acquisition includes elements of knowledge on competitors' strategies for new product development, market entry, customer acquisitions, and collaboration with partners (Brunswick and Vanhaverbeke, 2015; Larrañeta et al., 2012). Thus,

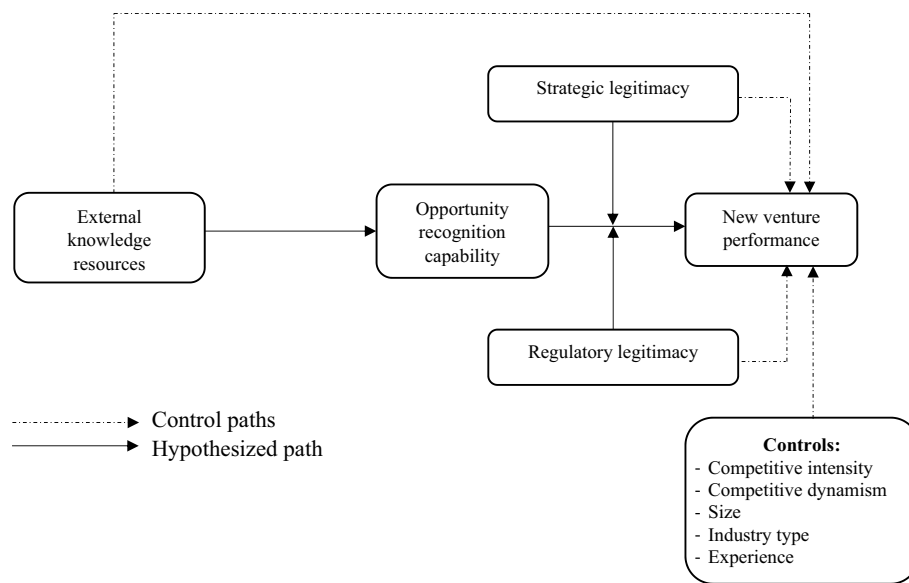


Fig. 1. Conceptual framework.

managers who possess genuine knowledge of competitors' strategies can broaden their capabilities about where and when to compete, predict market gaps, and identify relevant opportunities while anticipating their competitors' next moves (Larrañeta et al., 2012). Consequently, it can be contended that external knowledge resource stocks will drive new product-market opportunity recognition and subsequent exploitation.

Previous entrepreneurship research suggests that variations in new venture performance are dependent on the ability to identify and exploit opportunities (e.g., Short et al., 2010; Ucbasaran et al., 2008). Indeed, the extant literature posits a positive link between entrepreneurial opportunities and firm performance (Jantunen et al., 2005), arguing that variations in performance outcomes may be due to the quality of the opportunities and the methods used to exploit them (Zahra et al., 2005). Accordingly, we submit that, through exploitation activities and the very nature and characteristics of opportunities, opportunity recognition can generate new venture performance.

Specifically, new ventures that are quick to spot market opportunities can increase their performance through early-mover advantages (Chandler and Hanks, 1994; Gielnik et al., 2012). The modes of exploiting recognized opportunities include proactive behaviors, such as first entry or fast follower, erecting and sustaining entry barriers, and speed of exploitation (see Alvarez and Barney, 2010). These unique opportunity exploitation strategies give some new ventures an advantage over others, thereby increasing their market share and profit margins (Foss et al., 2013). Furthermore, the innovation process that characterizes new ventures' opportunity-seeking behaviors (see Marcati et al., 2008) opens another avenue through which opportunity recognition can positively affect new venture performance. For instance, the liabilities of newness and smallness that characterize most new ventures mean that their success as ventures partly depends on their ability to constantly identify opportunities that are innovative and appealing. Similarly, through the innovativeness of their opportunity-seeking behavior, new ventures can introduce products that are unique, novel, and useful. Subsequently, they can not only charge prices above the competition but also improve their sales growth levels.

Moreover, given that the process and context of opportunity recognition is surrounded by risky activities, relatively planned decision-making processes, and transparency (Alvarez et al., 2013; Alvarez and Barney, 2007), there is a high probability that opportunity exploitation will positively impact venture performance (Kreiser et al., 2013). For example, similar to the literature on causation decision-making logic, opportunity recognition involves planned, deliberate, and predictable

decision-making processes that can positively influence firm performance (Smolka et al., 2018; Mayer-Haug et al., 2013). In sum, we contend that external knowledge resources positively drive opportunity recognition, and that opportunity recognition in turn drives new venture performance.

Hypothesis 1. Entrepreneurial opportunity recognition mediates the effect of external knowledge resources on new venture performance.

2.3. Contingency roles of organizational legitimacies

Legitimacy describes the social justification, acceptance, and appropriateness of an activity. Subsequently, the activity and/or the organizing entity is endorsed by the public (Zimmerman and Zeitz, 2002), and the actions of organizations are assumed to be desirable (Higgins and Gulati, 2006). For example, organizations are expected to comply with the industry standards and rules for doing business, the social norms and practices for operating within a particular jurisdiction, and national/regional policies in order to be deemed legitimate. In effect, legitimacy helps firms achieve certain organizational outcomes through the support of influential stakeholders in societies (e.g., Hollen et al., 2013).

The competitiveness and survival of new ventures depend on their efforts to introduce new products by exploiting new product-market opportunities. However, the benefits of opportunity identification, such as increased sales and revenue, vary across firms, and the variation is larger among new ventures with limited resources (Wang et al., 2017; Delmar and Shane, 2004). In line with previous literature on organizational legitimacy (e.g., Suchman, 1995; Oliver, 1991), we identify two forms of legitimacy: (1) strategic legitimacy — internal to the firm, and (2) regulatory legitimacy — external to the firm. Both strategic and regulatory legitimacy are useful processes through which new ventures can effectively exploit opportunities and enhance performance. Thus, ventures that are deemed to be legitimate find it almost "hustle free" while engaging in their everyday business activities. For example, both strategic and regulatory legitimacy can increase firms' networks, alliances, and other resources and make firms look credible and accepted by the society (e.g., Wang et al., 2017; Rao et al., 2008). In effect, new ventures can leverage these tangible and intangible resources that result from legitimacy to enhance the opportunity recognition–performance relationship.

2.3.1. The moderating role of strategic legitimacy

Strategic legitimacy is an internal process that new ventures initiate on their own to make them credible and trustworthy to stakeholders and the external environment. This form of legitimacy shows how new ventures engage in “acting-as-if” behaviors or activities that make them look fully operational (Gartner et al., 1992; Tornikoski and Newbert, 2007). In this context, strategic legitimacy describes the venture operation strategies of entrepreneurs, such as marketing and promotion efforts, applying for patents and copy rights, showing records of opportunity exploitation and new product launching, purchasing raw materials, leasing or renting equipment, and getting listed in business directories among other venture creation processes (Tornikoski and Newbert, 2007). Because legitimacy is sometimes socially constructed (Powell, 1991), this set of activities can create credibility, validity, and trustworthiness for new ventures in the minds of stakeholders.

We argue that, to effectively exploit new opportunities to secure sustainable performance outcomes, new ventures require strategic legitimacy as a complementary resource.

First, when there is congruence between the internal operational activities of new ventures and the perception of relevant stakeholders, entrepreneurs can easily exploit their opportunities, enter new markets, and acquire new customers. For example, showing a record of marketing and promotional activities and product launches can send signals to customers and other stakeholders about the authenticity of market entry activities and the perceived quality of new product introductions (Frankenberger and Stam, 2019). Relatedly, registering one’s business or being listed on business directories could signal survival and trust to investors who wish to invest in the registered ventures (Kistruck et al., 2015).

Second, strategic legitimacy is often considered as managerial initiatives and activities intended to make ventures look functional. Such activities can enhance managerial reputation and status, thereby increasing the chances of managers to attract networks, investors, and alliance partners (see, Fisher et al., 2016). Thus, the claims of entrepreneurs about engaging in venture activities and the resultant reputation for the manager can serve as a springboard for new ventures to obtain otherwise costly resources that facilitate successful opportunity actualization.

Third, when new ventures are faced with the liability of newness and foreignness during new market entry, strategic legitimacy (such as previous firm/managerial experience in exploiting opportunities, developing new products, and obtaining copyrights) can enhance the reputation of new ventures in their new markets (e.g., Dacin et al., 2007; Lee et al., 2017) and, in consequence, improve the effect of opportunity recognition on new venture performance. Through for example, trust, credibility, customer support, networks, and financial assistance, strategic legitimacy can enhance the positive effect of opportunity exploitation on new venture performance.

Hypothesis 2. Through entrepreneurial opportunity recognition, the effect of external knowledge resources on new venture performance is strengthened at high levels of strategic legitimacy.

2.3.2. The moderating role of regulatory legitimacy

Regulatory legitimacy describes firms’ acceptance by the external environment as they conform to the rules and regulations set out by regulatory bodies and other public authorities. Regulatory legitimacy is a significant path toward new venture growth, especially in environments characterized by strict adherence to societal rules and where the survival of firms largely depends on socially responsible behaviors (Dacin et al., 2007).

Regulatory legitimacy specifically paves the way for firms to acquire external resources from both governments and investors that otherwise could have been difficult to access (Wang et al., 2017). These resources can be used to effectively exploit and transform recognized opportunities into superior performance. Regulatory legitimate firms will also

find it easier to form alliances, partnerships, and networks once they have demonstrated to local communities, regulators, and other public interest groups that their business activities conform to social norms and regulations (Rao et al., 2008). These networks and alliances can serve as external collaborators for new ventures relative to knowledge of the markets, the changing needs of consumers, industry standards and expectations, and new technological trends. Thus, such information and support can exert a positive impact on the benefits of opportunity recognition.

Moreover, when firms are seen as following societal rules and regulations, and being socially responsible in their business activities, they win public sympathy from advocates, such as consumer advocacy groups and environmental activists. The effect of such recognition is that these groups (who sometimes argue for product boycotts) will encourage consumers to patronize the products of legitimate firms over others (Dacin et al., 2007). Furthermore, during environmental uncertainties and institutional changes, new ventures who are deemed to be regulatory legitimate by national and/or regional bodies can continue their opportunity recognition and exploitation activities (through government support) with less adverse effects from environmental shocks (Guo et al., 2014; Tang, 2010; Zott and Huy, 2007). This means that ventures that are considered more regulatory legitimate (compared to those that are not) can achieve superior performance from opportunity recognition activities.

Hypothesis 3. Through entrepreneurial opportunity recognition, the effect of external knowledge resources on new venture performance is strengthened at high levels of regulatory legitimacy.

3. Methods

3.1. Sampling and data

To test our conceptual framework, primary data were obtained from new ventures in Ghana, a developing sub-Saharan African economy. Ghana is an appropriate context to test the conceptual framework in a low resource context for a variety of reasons. First, privately owned small and medium-sized enterprises (SMEs) are the driving force of the country’s economic activities, constituting approximately 88 % of gross domestic product and employment creation (OECD, 2008; Amankwah-Amoah et al., 2018). Despite these contributions, SMEs (especially newly established ventures) in these settings are faced with challenges associated with resource constraint, institutional weaknesses, and non-availability of sustained governmental supports. Thus, Ghana provides a fertile context to unearth how new ventures can navigate precarious and complex environmental conditions. Second, despite Ghana’s recent economic challenges caused largely by external forces (such as COVID-19 pandemic and the Russian-Ukrainian war), this country has been described as a beacon of democracy and economic growth in sub-Saharan Africa. Notwithstanding Ghana’s stable political climate, favorable trade policies, and open business economy (African Development Bank Group, 2018; Amankwah-Amoah et al., 2018), it is also the case that new ventures face severe resource limitations due to the country’s under-developed capital market and increasingly high interest rates that make access to capital difficult. In addition, the country’s human capital index is relatively low (ranking 116 out of 157 countries in the World Bank quality of human capital) and is ranked 89th out of 177 countries on the global economic freedom index (Index of Economic Freedom, 2022), suggesting that new ventures may struggle to access essential resources (particularly financial and human) to exploit innovative opportunities to grow.

We followed past studies (e.g., Acquaah, 2007; Boso et al., 2013) to develop a sampling frame from Ghana’s company register database and the Ghana Business Directory. Given our study context (new ventures), we adopted specific selection criteria to decide which firm listed in the two directories should be part of the study. The following criteria were

used to narrow down our sample: (1) independent firms that are not part of any group of companies; (2) companies that are owned and controlled (or at least with majority ownership) by individuals or teams of entrepreneurs; and (3) firms that employed at least five full-time staff; and firms that have been in business for at least five years but no more than ten years. Using the listed selection criteria, we contacted 490 new ventures by telephone and email requesting their participation in the survey. Accordingly, 490 survey questionnaires were sent to the selected firms by email and face-to-face contact with the help of research assistants.

The key informants for the survey included CEOs and/or business owners, entrepreneurial teams, and finance directors. The CEOs and business owners provided information on knowledge resources, capabilities, and other venture creation activities, while the finance directors supplied information on the new venture performance indicators. The categorization of appropriate key informants was our first attempt to reduce the occurrence of common method bias (CMB) in the data being collected. After two rounds of data collection, a total of 230 completed questionnaires were received, representing a 46 % response rate. We categorized the sample into two main sectors — *manufacturing* (38.70 %) and *service* (61.30 %) sectors. On average, the firms have been in business for 9.43 years, with an average of 38.7 full-time employees. On average, the key respondents had 10.70 years of business ownership, management, or star-up experience.

3.2. Measure development

Items measuring the study's constructs were adapted from existing scales. The constructs included both multi- and single-item variables. All multi-item variables were measured on seven-point rating scales with preceding statements that show how the items should be rated. To reflect the understanding of the key informants and the context of the study, some of the items were adapted and reworded based on pre-tests.

3.2.1. Opportunity recognition

We measured entrepreneurial capability by capturing opportunity recognition with five items adapted from Ozgen and Baron (2007) and Grégoire and Shepherd (2012). The CEOs and business owners were asked to rate the extent to which the items describe their opportunity recognition activities.

3.2.2. External knowledge

Entrepreneurial external knowledge resources were measured by items that reflect how information is gathered in the market. They include multiple sources of knowledge on customers, competitors, and industry. Following the marketing orientation literature and the literature of absorptive capacity (Kohli et al., 1993; Jansen et al., 2005), we adapted four items to measure entrepreneurial external knowledge resources.

3.2.3. Strategic legitimacy

Based on our conceptualization of strategic legitimacy and previous studies (Tornikoski and Newbert, 2007), strategic legitimacy was measured using four items. The items describe managerial venture creation activities, such as securing patents and copyrights, previously launching new products, and engaging in marketing and research activities.

3.2.4. Regulatory legitimacy

Following the precedence of the literature on regulatory legitimacy (Zimmerman and Zeitz, 2002; Guo et al., 2014), we adapted measures that describe how firms' business activities are consistent with societal norms and rules set out by regulatory bodies. In all, three items were used in measuring regulatory legitimacy.

3.2.5. New venture performance

To measure the dependent variable, we relied on perceptual performance indicators because of the difficulty in obtaining objective performance data on SMEs in less developed economies due to: i) the absence of regulatory requirements to report financial information; and ii) lack of reliable external databases with information on SMEs' finances. Accordingly, and in line with previous strategy and entrepreneurship studies (e.g., Boso et al., 2019; Drnevič and Kriauciunas, 2011; Wiklund and Shepherd, 2003), new venture performance was measured by asking the new venture owner-managers to rate the venture performance with respect to sales, sales growth, market share, and market share growth relative to main industry competitors.

3.2.6. Control variables

To better capture the effects of our independent variables, we controlled for both firm- and industry level factors. First, we controlled for environmental dynamism and competitive intensity as industry-level factors. The study adapted scales developed by Jaworski and Kohli (1993) to capture both competitive intensity and environmental dynamism. Second, we controlled for firm-level factors, such as firm size, entrepreneurial experience, and the industry in which the firm operates. Firm size was measured by the number of full-time employees in each firm, while experience was measured by the number of years the owner/CEO had been an entrepreneur. For the industry classification, we grouped the industries into two: manufacturing firms and service firms. Accordingly, we captured the two categories using dummy variables: manufacturing = 0, and services = 1. Details of the measurement items are shown on Table 1.

4. Analysis

4.1. Reliability and validity assessment

We conducted confirmatory factor analysis (CFA) using the maximum likelihood estimation method to establish the reliability and validity of the multi-item measures. Model fit was evaluated using the conventional chi-square (χ^2) difference tests in addition to non-centrality-based measures, such as the root mean square error of approximation (RMSEA), relative fit indices including the non-normed fit index (NNFI) and comparative fit index (CFI), and the absolute fit index, such as the standardized root mean squared residual (SRMR) (Bagozzi and Yi, 2012). Accordingly, our CFA provided the following acceptable model fit for the data: $\chi^2/d.f. = 1.48$; NNFI = 0.93; CFI = 0.94; RMSEA = 0.05; and SRMR = 0.05.

As shown in Table 1, the standardized factor loadings for each item are significant at the 1 % level providing support for convergent validity. Cronbach's alpha and the composite reliability (CR) values for each construct exceed the required benchmarks of 0.70 and 0.60 respectively, confirming the internal consistency of the constructs (Fornell and Larcker, 1981). To establish discriminant validity, we compared the average variance extracted (AVE) for each construct and the highest shared variance (HSV) of each pair of constructs. From the correlation table (Table 2) and Table 1, it is clear that each AVE is greater than the HSV between each pair of constructs, therefore evidencing discriminant validity.

4.2. Non-response bias test

Because the data was collected across different waves, we performed a non-response bias test to examine if any significant difference exists between the early and late respondents based on the key variables (Armstrong and Overton, 1977). The analysis shows no significant differences across the two groups of early and late respondents for new venture performance ($p = 0.39$), opportunity recognition ($p = 0.32$), and external knowledge ($p = 0.65$), indicating that non-response bias is unlikely.

Table 1
Constructs and measurement properties.

Measurement items/constructs	Standardized factor loadings (t-values) ^a
<i>Opportunity recognition</i> ($\alpha = 0.89$, $CR = 0.89$, $AVE = 0.61$)	
The firm has special alertness to new opportunities	0.77 ^a
The firm frequently scans the environment for new opportunities	0.81 (12.57)
The firm pursues new opportunities regardless of resources	0.74 (11.37)
The firm evaluates new opportunities as they unfold	0.80 (12.39)
The firm weigh multiple approaches to capitalize on opportunities	0.79 (12.41)
<i>Regulatory legitimacy</i> ($\alpha = 0.80$, $CR = 0.81$, $AVE = 0.59$)	
Our business activities are highly appraised by government	0.71 ^a
Our operations conform with policies, rules and regulations	0.72 (9.25)
Our business follows the norms laid down by community and opinion leaders	0.84 (9.41)
<i>Strategic legitimacy</i> ($\alpha = 0.88$, $CR = 0.91$, $AVE = 0.60$)	
Our business has made progress in obtaining copyrights/patents	0.85 ^a
Our business has made progress in launching new products/services	0.83 (15.12)
We are engaged in frequent marketing activities	0.87 (16.04)
Our business has made progress in gathering information on new products	0.71 (12.06)
We have made progress in obtaining finance to fund our operations	0.58 (9.33)
<i>External knowledge resources</i> ($\alpha = 0.82$, $CR = 0.83$, $AVE = 0.55$)	
We frequently track the strategies and tactics of our competitors	0.59 ^a
We continuously discuss with customers to know their future demand needs	0.62 (7.46)
We have team of entrepreneurs who are committed to forecasting technological trends and customer preferences	0.85 (9.00)
We acquire industry information on emerging opportunities	0.84 (8.96)
<i>New venture performance</i> ($\alpha = 0.89$, $CR = 0.88$, $AVE = 0.64$)	
Return on investment	0.83 ^a
Sales	0.86 (15.08)
Sales growth	0.76 (12.91)
Market share	0.76 (12.75)
Overall firm performance	0.69 (11.37)
<i>Competitive intensity</i> ($\alpha = 0.86$, $CR = 0.86$, $AVE = 0.60$)	
Competition is cutthroat	0.76 ^a
Anything that my company can offer, another company can match readily	0.86 (12.47)
We hear of new competitive move in terms of opportunity discoveries everyday	0.67 (9.89)
Our competitors are very strong in recognizing new opportunities as well	0.79 (11.78)
<i>Environmental dynamism</i> ($\alpha = 0.81$, $CR = 0.83$, $AVE = 0.62$)	
The rate at which products become obsolete to consumers is very slow	0.65 ^a
It is easy to predict the actions of one's competitors	0.91 (9.39)
It is easy to forecast customers' future demands	0.77 (9.65)

Fit indices: χ^2 (DF) = 525.15 (356); $p < 0.00$; NNFI = 0.93; CFI = 0.94; RMSEA = 0.05; SRMR = 0.05; t-values in parenthesis.

^a Fixed parameter.

4.3. Common method bias assessment

To minimize the potential for common method bias (CMB), we first adopted a multiple informant approach during the survey administration, such as obtaining the dependent and the independent variables from different sources. Second, we followed established statistical procedures to test for the presence of CMB in the data (Boso et al., 2013) during the data analysis stage. Specifically, we estimated three competing CFA models. In Model 1, we estimated a method-only model in which all items were loaded on a single latent factor. The model

obtained the following fit indices: χ^2 /d.f. = 9.12; RMSEA = 0.18; NNFI = 0.17; CFI = 0.23; SRMR = 0.17. In Model 2, we estimated a trait-only CFA model in which each item is loaded on its respective latent construct, given the following fit indices: χ^2 /d.f. = 1.47; NNFI = 0.93; CFI = 0.94; RMSEA = 0.05; and SRMR = 0.05. The final model is a method-and-trait model, which combines both Model 1 and Model 2 with the following fit statistics: χ^2 /d.f. = 1.35; RMSEA = 0.04; NNFI = 0.95; CFI = 0.96; SRMR = 0.047. A comparison of the three models indicates that Model 2 and Model 3 are superior to Model 1 and that Model 3 is not substantially different from Model 2, suggesting that CMB does not sufficiently influence the study results.

4.4. Structural model estimation

To test our hypothesis, we employed structural equation modelling (SEM) and maximum likelihood estimation as a method of testing a system of nested structural models. In order to reduce the complexity of the model and maintain an acceptable observation to estimated parameter ratio, we created composite scores (means) instead of using the full measurement items for each construct. Specifically, we computed mean values for each multi-item construct to generate single indicants. However, for each independent variable (opportunity recognition and new venture performance) the individual measurement items were used instead of the mean values. To test the moderation paths (Hypothesis 3a and b), we created two interaction terms: i) opportunity recognition \times strategic legitimacy, and ii) opportunity recognition \times regulatory legitimacy. These interaction terms were mean-centered before computing the product terms in order to reduce the occurrence of multicollinearity.

In all, we estimated six nested structural models. Model 1 and Model 2 have opportunity recognition as the dependent variable. In Model 1, we estimated the effects of the control variables on opportunity recognition while, in Model 2, we added the effect of the independent variable (entrepreneurial knowledge resource). Models 3 to 6 have new venture performance as the dependent variable. Model 3 estimated the effects of the control variables. Model 4 added the effect of entrepreneurial knowledge resources, while Model 5 estimated the effect of opportunity recognition. Finally, we assessed the effects of the two interaction terms (opportunity recognition \times strategic legitimacy and opportunity recognition \times regulatory legitimacy) in Model 6. After each model estimation, model fit indices and variations in squared multiple correlation (i.e., r^2) were recorded. In comparing the six estimated models, we found that Model 6 produced the best fit with the data (as determined by chi-square, degrees of freedom, and fit heuristics) as well as the largest r^2 value.

5. Findings

The combination of Hypothesis 1 and Hypothesis 2 imply that opportunity recognition mediates the effect of entrepreneurial knowledge resources on new venture performance. From the findings, we find support for this. Specifically, as depicted in Table 3, the entrepreneurial knowledge resources \rightarrow opportunity recognition relationship is significant ($\gamma = 0.18$; $t = 2.51$; $p < 0.05$), entrepreneurial knowledge resources \rightarrow new venture performance relationship is significant ($\gamma = 0.15$; $t = 2.25$; $p < 0.05$) and the opportunity recognition \rightarrow new venture performance relationship is also significant ($\gamma = 0.14$; $t = 2.10$; $p < 0.05$). Furthermore, when the opportunity recognition path is added to Model 5 to estimate its effect on new venture performance, the effect size of entrepreneurial knowledge resources on new venture performance becomes insignificant ($\gamma = 0.12$; $t = 1.87$; $p > 0.05$), signaling the presence of full mediation.

The study further contends in Hypothesis 3a and b that the indirect effect of entrepreneurial knowledge resources on performance via opportunity recognition is strengthened by both strategic and regulatory legitimacy. To examine this mediated-moderation relationship, we used

Table 2
Descriptive statistics and inter-constructs correlations.

Variables	M	SD	1	2	3	4	5	6	7	8	9	10
1 Opportunity recognition	4.73	0.96	1									
2 New venture performance	4.42	0.89	0.20**	1								
3 Regulatory legitimacy	4.84	1.13	0.17**	0.15*	1							
4 External knowledge resources	4.67	0.94	0.11*	0.19**	-0.11*	1						
5 Strategic legitimacy	4.86	1.17	0.05	0.02	0.12*	-0.12*	1					
6 Competitive intensity	4.84	1.17	0.05	0.13*	0.03	0.08	-0.02	1				
7 Environmental dynamism	4.60	1.00	-0.02	0.06	-0.05	0.13*	-0.04	0.03	1			
8 Firm size#	3.41	0.82	0.09	0.02	-0.01	-0.00	0.02	-0.07	0.02	1		
9 Industry type†	-	-	0.07	0.28**	-0.08	0.16*	0.09	0.04	0.02	-0.04	1	
10 Entrepreneurial experience#	2.24	0.60	0.06	0.08	0.02	-0.01	-0.04	0.07	-0.02	0.16*	-0.07	1

M = mean; SD = standard deviation.

* $p < 0.05$ level of significance.

** $p < 0.01$ level of significance.

Natural logarithm transformation of the original values.

† Dummy variable.

Table 3
Results of structural model estimation.

Independent variables	Dependent variables					
	Opportunity recognition		New venture performance			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Control paths</i>						
Firm size	0.04 (0.53)	0.04 (0.51)	0.02 (0.31)	0.02 (0.28)	0.00 (0.05)	0.06 (0.98)
Entrepreneurial experience	0.12 (1.23)	0.12 (1.17)	0.09 (1.31)	0.08 (1.27)	0.09 (1.21)	0.06 (0.95)
Industry type	0.12 (0.83)	0.08 (0.54)	0.32 (4.73)**	0.30 (4.50)*	0.28 (4.28)*	0.28 (4.50)**
Competitive intensity	0.07 (1.25)	0.06 (1.04)	0.12 (1.96)*	0.12 (1.76)	0.11 (1.71)	0.10 (1.55)
Environmental dynamism	0.01 (0.23)	-0.00 (-0.05)	0.06 (0.98)	0.05 (0.73)	0.05 (0.97)	0.00 (0.06)
<i>Direct effect paths</i>						
External knowledge resources		0.18 (2.51)*		0.15 (2.25)*	0.12 (1.87)	0.12 (1.86)
Opportunity recognition (OR)					0.14 (2.10)*	0.14 (2.14)*
Regulatory legitimacy (RL)					0.08 (1.27)	0.15 (2.21)*
Strategic legitimacy (SL)					0.04 (0.68)	0.06 (0.99)
<i>Moderating effect paths</i>						
OR × RL						0.26 (3.60)**
OR × SL						0.16 (2.44)*
<i>Goodness of fit statistics</i>						
Variance explained (r^2)	2 %	5 %	12 %	15 %	18 %	28 %
χ^2 /d.f.	54.19/30	48.29/29	98.89/55	94.92/54	87.41/51	63.58/49
RMSEA	0.06	0.05	0.06	0.05	0.05	0.04
SRMR	0.05	0.03	0.06	0.07	0.05	0.03
NNFI	0.91	0.94	0.85	0.85	0.86	0.94
CFI	0.96	0.96	0.93	0.94	0.94	0.96

Critical values of the t distribution for $\alpha = 0.05$, and $\alpha = 0.01$ (two-tailed test) are * = 1.96, and ** = 2.58, respectively (t -values are reported in parentheses).

path analysis to evaluate the moderation effects of strategic and regulatory legitimacy on the relationship between opportunity recognition and new venture performance. As shown in Table 3, we find support for both Hypothesis 3a – that strategic legitimacy enhances the relationship between opportunity recognition and new venture performance ($\gamma = 0.26$; $t = 3.60$; $p < 0.01$) – and Hypothesis 3b – that regulatory legitimacy strengthens the positive relationship between opportunity discovery and new venture performance ($\gamma = 0.16$; $t = 2.44$; $p < 0.05$). As demonstrated by Model 6 in Table 3, there is a significant increase in the variance explained (r^2) (compared to Model 5) after the introduction of the two interaction terms.

To further interpret the significant interaction terms, we followed the recommendations of Cohen et al. (2003) to graphically plot i) the effect of opportunity recognition on new venture performance for different values of strategic legitimacy on the one hand, and ii) the effect of opportunity recognition on new venture performance for different values of regulatory legitimacy on the other. Fig. 2 and Fig. 3 show the results of the surface plots. Both plots confirm the initial findings that there is a positive moderating effect of strategic legitimacy and regulatory legitimacy on the indirect effect of external knowledge, through opportunity recognition, on new venture performance.

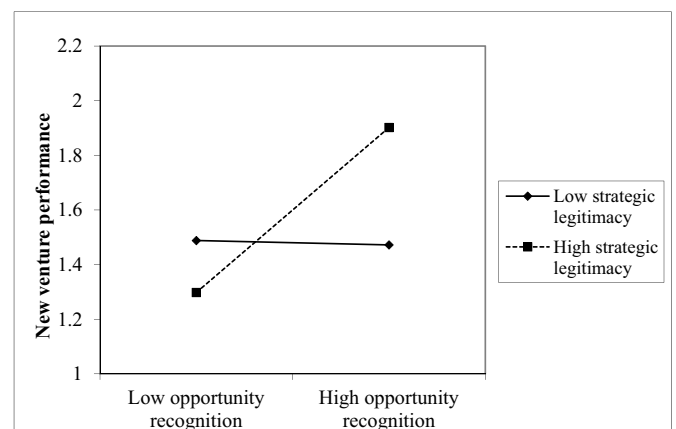


Fig. 2. Surface plot of the moderating effect of strategic legitimacy.

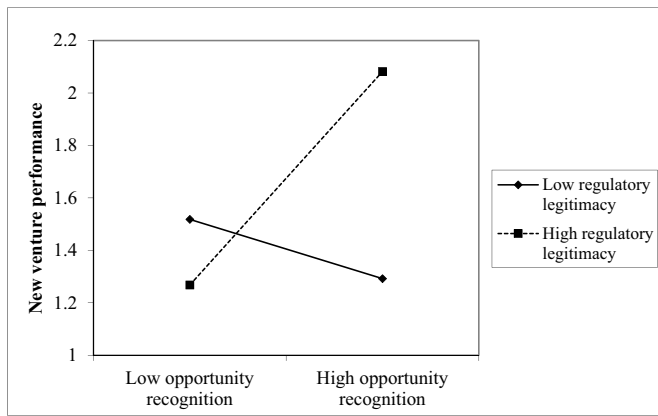


Fig. 3. Surface plot of the moderating effect of regulatory legitimacy.

5.1. Further analysis

To test the robustness of our mediation analysis, we used the PROCESS macro (Model 4) (Hayes, 2013) to confirm the initial SEM analysis. Accordingly, we find positive and significant effects of entrepreneurial knowledge resources on both new venture success ($\beta = 0.12; t = 2.04; p < 0.05$) and opportunity recognition ($\beta = 0.15; t = 2.10; p < 0.05$), as well as a positive significant effect of opportunity recognition on new venture performance ($\beta = 0.16; t = 2.52; p < 0.05$). For confirmation of full mediation effect, we found an insignificant effect of knowledge on new venture performance after the introduction of opportunity recognition. More importantly, we assessed the significance of the total effect of entrepreneurial knowledge resources on new venture success via opportunity discovery and found a corresponding lower bound of 0.01 and an upper bound of 0.25 using a bootstrap-estimated 95 % confidence interval. Since the results of the 95 % confidence interval do not contain zero, we can conclude that the total effect of knowledge resources on new venture performance through opportunity recognition is significant.

Second, we tested for the conditional indirect effect of knowledge resources on new venture performance via opportunity recognition moderated by strategic and regulatory legitimacy, with opportunity recognition being the focal predictor variable. To do this, the PROCESS macro (Model 16) performs a test of conditional effects one standard deviation below the mean, at the mean, and one standard deviation above the mean of the two moderators relative to the mediator variable. Depending on the mean values of the moderators, we find that the conditional indirect effect of entrepreneurial knowledge resources on new venture performance via opportunity discovery is positive and significant for both moderators. For example, the analysis shows that, at the mean values and one standard deviation above the mean values of both strategic and regulatory legitimacy, the conditional indirect effect is significant (no 0 in the 95 % confidence band). Table 4 provides detailed results of the analysis.

Finally, although the non-response bias test did not show evidence of significant difference between responding and non-responding new ventures, the relatively limited sample size may cause potential concerns regarding the statistical power of the obtained results (Hultman et al., 2021). Therefore, a post hoc power analysis was conducted based on the most complex model in the main analysis (i.e., Model 6; $r^2 = 0.28$). This analysis revealed that the obtained study sample of 230 is more than appropriate for the tested model (power = 0.98; α err prob = 0.001; d.f. = 49; critical F = 1.92; non-centrally parameter $\lambda = 89.44$), and that a minimum sample of 160 respondents (at $p < 0.05$) would have been sufficient.

Table 4

Conditional effect of opportunity recognition on new venture performance at values of strategic and regulatory legitimacy.

Strategic legitimacy	Regulatory legitimacy	Indirect effect	LL 95 % CI	UL 95 % CI
-1 SD*	-1 SD*	-0.22*	-0.40*	-0.05*
-1 SD	Mean	-0.07	-0.26	0.10
-1 SD	+1 SD	-0.00	-0.21	0.21
Mean	-1 SD	0.04	-0.09	0.18
Mean*	Mean*	0.19*	0.07*	0.31*
Mean*	+1 SD*	0.27*	0.12*	0.42*
+1 SD*	-1 SD*	0.25*	0.07*	0.43*
+1 SD*	Mean*	0.39*	0.24*	0.55*
+1 SD*	+1 SD*	0.47*	0.30*	0.65*

Notes: N = 230; Bootstrap sample size = 5000; LLCI = lower limit confidence interval; ULCI = lower limit confidence interval.

* Indicates non-zero within the boundaries (significant).

6. Discussion and implications

The extant research underscores the primacy of external knowledge resources as a driver of new venture competitiveness and performance (Kim et al., 2013; Phelps et al., 2012). However, how and under which conditions external knowledge resources contribute to the performance of developing economy new ventures remains under-researched. For example, recent studies give an account of the cost effect of external knowledge resource acquisition, especially for new ventures, and how over-reliance on external knowledge could undermine venture performance (e.g., McKelvie et al., 2018; Dahlander et al., 2016). Accordingly, this study focuses on examining the entrepreneurial opportunity recognition mechanism through which externally generated knowledge resources contribute to the variation in new venture performance. Additionally, in view of the lack of clout and the liabilities of smallness and newness that often characterizes new ventures, especially in institutionally under-developed environments, this study further examines how the association between external knowledge resources and new venture performance, through opportunity exploitation, is conditional on varying degrees of strategic and regulatory legitimacies. With the aid of empirical evidence from new ventures in Ghana, the study makes two major contributions to the entrepreneurship literature, especially with respect to the nexus between external knowledge resources and new venture performance.

6.1. Contribution to entrepreneurship theory

First, the findings from the study show that an ability to recognize new product-market opportunities serves as a transformative process through which external knowledge resources are related to new venture performance. This finding is particularly interesting in that it shows that possession of external knowledge resources per se do not deliver new venture performance improvement (in terms of sales and sales growth). Rather, it is the ability of new ventures to convert those knowledge resources to exploitable new product-market opportunities that results in performance enhancement. This finding is, therefore, a major improvement on prior studies in the sense that it demonstrates entrepreneurial capability development processes that explain how external knowledge resources contribute to the performance of new ventures in low resource settings. In particular, this finding adds to the extant research that finds the external knowledge of firms is an important competitive resource for growth (e.g., Foss et al., 2013; Patel and Fiet, 2011) and to the work of those scholars who advocate for an investigation into other complementary resources and capabilities that can deliver benefits from external knowledge acquisition (e.g., Ferreras-Méndez et al., 2015). For instance, although the extant research emphasizes the role of external knowledge resources in entrepreneurial success (e.g., Raza et al., 2020; Randolph et al., 2017), studies have

argued for the use of other resources that can jointly impact venture success (e.g., Ferraris et al., 2020; Berchicci, 2013; Ben Arfi et al., 2018). Second, previous studies suggests that the ability to recognize new product-market opportunities may not always propel new ventures to transform external knowledge resources into performance. It is contended that new ventures who engage in certain strategic orientations and initiatives are able to exploit maximum value from product-market opportunities (e.g., Mitchell and Shepherd, 2012; Foss et al., 2013; Dencker and Gruber, 2015). We argue that organizational legitimacy, in the form of strategic and regulatory legitimacy strategies, plays an important contingency role in strengthening the relationship between external knowledge resources, through new product-market opportunity recognition capability, and new venture performance. Specifically, using opportunity recognition as the focal predictor, our findings show that the relationship between opportunity recognition and new venture performance is enhanced when firms demonstrate high levels of strategic and regulatory legitimacy strategies. Our contribution extends research on entrepreneurship and legitimacy strategies (e.g., Guo et al., 2014; Pollack et al., 2012; Yu et al., 2018) in various ways. Importantly, by providing evidence to show regulatory and strategic legitimacy strategies as major contingencies on the relationship between opportunity recognition and venture performance, we add to the extant research on legitimacy and entrepreneurship (e.g., Ruebottom, 2013; Zhou et al., 2021) by demonstrating how entrepreneurship research can integrate legitimacy and various entrepreneurship processes in order to better explain heterogeneities in new venture performance outcomes.

6.2. Implications for new venture management in low resource contexts

In the context of new venture management in low resource contexts, our findings provide specific guidelines for owner-managers of new ventures on how and when external knowledge resources contribute to new venture performance. Specifically, the mediating role of opportunity recognition on the relationship between external knowledge resource and performance implies that entrepreneurs should focus on first transferring their external knowledge resource base to build specific entrepreneurial capabilities — specifically, capabilities relating to recognition and exploitation of new product-market opportunities to generate economic value.

Furthermore, our findings regarding the contingency roles of legitimacy strategies suggest that managers should not only focus on continuous exploitation of new product-market opportunities but also strive to strengthen the legitimacy of new ventures with key stakeholders in the society. The capability to recognize new market opportunities and leverage these opportunities to improve venture performance may be dependent on several environmental exigencies. Hence, there is a need to adopt other relevant strategies that are appealing to a broader stakeholder base. Evidence from this study suggests that both strategic and regulatory legitimacy strategies can help new ventures strengthen the extent to which external resources and opportunity recognition capabilities are leveraged to enhance performance. In this case, gaining legitimacy becomes an important strategic tool through which entrepreneurs' opportunity-seeking behaviors can become economically beneficial. For instance, new venture managers can reduce their reliance on other costly resources and instead channel their efforts into achieving greater strategic and regulatory legitimacies. These ends should be pursued to the extent that, as these legitimacy strategies become stronger, the efficacy of external knowledge resource possession and capability to recognize and exploit new product-market opportunities become stronger drivers of the performance of new ventures.

6.3. Limitations and directions for future research

While our findings from the study help advance entrepreneurship theory and practice, it is important to recognize some limitations that

provide avenues for further research. Substantively, this study models legitimacy as a moderating factor that strengthens the relationship between external knowledge resources, opportunity recognition, and new venture performance. However, future research might model a direct relationship between legitimacy strategies and opportunity recognition, with legitimacy serving as a predictor of entrepreneurial opportunity capability. If legitimacy is considered a strategic tool that enables new ventures to acquire resources, form alliances, gain public sympathy and trust, and become a reputed organization (e.g., Kistruck et al., 2015; Rao et al., 2008), then one can predict that legitimacy can potentially increase new ventures' alertness and capabilities in recognizing new market opportunities. Testing this line of argument can help enhance scholarly understanding of the dual roles of legitimacy as both an antecedent and a boundary-conditioning factor in explaining differences in entrepreneurial opportunity recognition capability.

Additionally, while this study focuses on external knowledge resources, other knowledge resources, such as those internally generated, can complement external knowledge resources in further enhancing new venture performance. Internal knowledge resources embedded in employees and in the experiences of entrepreneurs can be good sources of competitive advantage through the recognition of market opportunities and new product introductions (e.g., Shepherd and DeTienne, 2005). In taking a cue from recent findings that emphasize the relative importance of externally acquired and internally generated knowledge (see McKelvie et al., 2018; Maes and Sels, 2014), we encourage future research to extend our moderated-mediation model by testing the effect of interrelations between internal knowledge resources, external knowledge resources, and entrepreneurial opportunity recognition on new venture performance.

Methodologically, it can be argued that this study's reliance on cross sectional data (although from multiple sources) raises common method bias and reverse causality problems. While efforts were made to control for common biases by obtaining data independent and moderator variables from owner-managers and performance data from finance directors, the study is still limited in that all data were obtained at one single time. One way for future research to improve this study is, therefore, to allow a time separation between the independent and the dependent variables so that causality can be established. Additionally, we acknowledge that access to firm-level objective performance data is hard to come by in less developed markets (such as Ghana) and from smaller firms because there might be limited legal requirements for such firms to report their financial information. Hence, it is anticipated that perceptual measures may continue to dominate data collection activities in this context. However, future researchers may wish to cross-validate perceptual performance measures by directing their efforts to obtain archival data directly from finance/accounts units in new venture firms.

Data availability

Primary data from 230 new ventures in a sub-Saharan African economy. First author is responsible for the gathered data.

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