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Organisational configurations explaining the entrepreneurial orientation–performance–environment relationship: a focus on bricolage capability, organisational identity and absorptive capacity

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Abstract

Wide-spread research demonstrates that firms which promote entrepreneurship are dynamic, flexible organisations which tend to realise greater innovation. The entrepreneurial orientation (EO)–firm performance relationship and its contingency factors remain an unresolved area of research in the literature. Recognising the centrality of knowledge and resource-based rationales within EO–performance theorising, we investigate the role of resources and capabilities in terms of bricolage capability, absorptive capacity, and organisational identity as potential moderators to the EO–performance–environment relationship. Primary data are sourced from firms in the South African construction and materials industry sector. After establishing validity and reliability through confirmatory factor analyses (CFA), hierarchical multiple linear regression was used to test the hypotheses. Results reveal that in the context of environmental hostility, the EO–performance relationship is positively moderated by the bricolage capability–organisational identity interaction. Moreover, absorptive capacity is positively moderated by organisational identity. Managers need to appreciate how various internal resources and capabilities could be orchestrated for optimum performance and how these could be complementary and consistent with EO–performance outcomes. The study findings provide novel research implications by increasing the theoretical and empirical reach of bricolage capability, absorptive capacity, and organisational identity as moderators in the EO–performance–environment relationship.

Keywords: Entrepreneurial orientation (EO), Innovativeness, Environmental hostility, Bricolage capability, Absorptive capacity, Organisational identity, Persistent financial performance

Introduction

Several scholars have questioned the assumed linear entrepreneurial orientation (EO)–performance relationship (Gupta & Gupta, 2015; Reyes-Gómez et al., 2024; Šlogar et al., 2023; Soares & Perin, 2020; Tang et al., 2008) with some studies revealing that

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the EO–firm performance relationship exhibits a curvilinear curve over time (Gupta & Gupta, 2015; Kohtamäki et al., 2019). EO is an important organisational orientation towards new entry and value creation, encompassing the entrepreneurial decisions, methods, and actions to create competitive advantage (Alshanty & Emeagwali, 2019; Pinto et al., 2024; Saiyed et al., 2023; Wales et al., 2023). Decades of research highlights that firms with a prevalence of EO hold the capability to take advantage of new market opportunities, improve their performance and counter potential threats successfully despite the difficulties of a competitive and dynamic environment (Kindermann et al., 2022; Kohtamäki et al., 2019; Rauch et al., 2009). Research also shows a robust EO–firm performance relationship, under varying operationalisations, industry and cultural contexts (Abu-Rumman et al., 2021; Anderson et al., 2015; Choi et al., 2020; Gupta & Gupta, 2015; Huang et al., 2023; Urban & Matela, 2022). Furthermore, researchers highlight the centrality of knowledge and resource-based rationales within EO–performance theorising suggesting that critical moderators are essential boundary conditions within the EO–performance relationship (Rosenbusch et al., 2013; Wales et al., 2021; Wiklund & Shepherd, 2011). Such studies draw attention to the importance of stronger causal models in EO research, and in so doing calls have been made for examining novel moderating effects within the EO–performance relationship (D'Souza & Fan, 2022; Naskar, 2023; Niemand & Eggers, 2023; Wales et al., 2023) beyond considerations previously investigated such as task-environmental conditions (Abu-Rumman et al., 2021; Kindermann et al., 2022; Maphumulo & Urban, 2022).

We heed such research calls and attempt to close this gap in the literature where a lack of empirical studies focused on linkages between EO, moderators and firm performance is evident, particularly from an African emerging market perspective. Our study is timely and relevant insofar it directly tackles the research gap insofar there is a 'shortage of complex conceptual models to explain the contradictory results' associated with the EO–firm performance relationship (D'Souza & Fan, 2022; Schröder et al., 2021; Wales, et al., 2013). To provide a meaningful contribution to the literature we focus on pertinent managerial and organisational variables, which have not previously been empirically interrelated within the EO–performance relationship, in an African emerging market context (Urban & Matela, 2022). In this regard, we rely on the base theory of the effectuation theory, which we argue is well suited to broaden our understanding of interactions between EO, firm resources and knowledge, and the environment, as effectual processes are related to recognising and exploiting opportunities in new markets under conditions of uncertainty (Sarasvathy, 2021). By using the theoretical scaffolding of the effectuation theory, and by relying on existing constructs such as EO, our article extends the theoretical and empirical reach of the EO–performance–environment relationship, by revealing new organisational configurations to further support the linkages between this relationship, while accounting for several moderators.

Our study makes several important contributions. An important theoretical contribution of our article is in introducing bricolage capability and absorptive capacity (ACAP) as potential moderators to strengthen the EO–environment–performance link. We integrate bricolage capability and ACAP as moderators to the EO–environment–performance relationship, as these constructs incorporate the restructuring of existing resources and capabilities to address new situations or opportunities, which

resonates with the effectuation theory (Duymedjian & Rüling, 2010; Kohtamäki et al., 2019; Saleem et al., 2024; Schröder et al., 2021). Research reveals that firms operating in hostile environments with resource constraints, require bricolage capability as it allows them to apply combinations of various resources at hand to unfamiliar problems and opportunities (Sengura & Renyan, 2024). Similarly, ACAP is required to develop capacity and/or opportunities, since firms operating in such hostile business environments need to foster the acquisition, assimilation, transformation, and exploitation of information (Engelen et al., 2014). To provide a meaningful and novel contribution to the literature we further extend our examination of how bricolage capability and ACAP act as moderators to the EO–environment–performance relationship by including organisational identity (OI) into this relationship. Prior research shows that OI shapes managerial decisions with regard to resource and capabilities, including decisions related to bricolage capability and ACAP (D'Souza & Fan, 2022). Indeed, the OI of firms has been shown to influence what is noticed in the external environment, as well as how it is interpreted, and what action is to be taken (Tripsas, 2009; Voss et al., 2006). This suggests that OI can play an important role in terms of how bricolage capability and ACAP influences the EO–environment–performance relationship. To this end we anticipate that by focusing on internal resources and capabilities in terms of bricolage capability, ACAP, and OI as potential moderators to the EO–environment–performance relationship, new theoretical and methodological contributions will emerge for the development of more complex conceptual models delineating this relationship.

Furthermore, our study contributes to research calls, such as by Engelen et al. (2014), for more studies to investigate the EO–environment–performance relationship in individual countries with different business contexts (Urban, 2021). Consequently, our study takes place in South Africa and is focused on a single industry sector, the construction and materials sector, which while one of the key pillars of economic development in South Africa has faced a highly turbulent period in the past two decades characterised by a hostile economic climate, and a few exploitable opportunities (Omopariola et al., 2021). Research confirms that concentrating on a distinct industry sector, allows for a greater consistency of context to be realised (Madsen, 2007; Urban, 2021).

In summary, the study objectives are to examine and test the relationship between EO, and persistent financial performance (FP) as moderated by (a) bricolage capability, (b) ACAP, (c) OI, and (d) the environment. The following research questions have been formulated to achieve this study objective: *(1) What is the nature and extent of the association between EO and performance relationship? (2) To what extent is the EO performance relationship moderated by environmental hostility? (3) To what extent is the EO performance relationship moderated by the bricolage capability and environmental hostility interaction? (4) To what extent is the EO performance relationship moderated by the ACAP and environmental hostility interaction? and (5) To what extent is the EO performance relationship moderated by OI in terms of the bricolage capability, ACAP, and environmental hostility interaction?*

The article starts with a brief overview of the constructs and their role in the formulation of the hypotheses. The methodology section addresses sampling and instrument design concerns. Study results are presented, and a discussion of the results follows.

The last section of the article considers implications for theory and practitioners, while delineating study limitations and future research directions.

Literature review and hypotheses formulation

Theoretical base

Established research shows how the persistent achievement of firm performance depends on an optimum fit between internal organisational and external environmental factors (Lawrence & Lorsch, 1967). In this regard, effectuation is useful theoretical base for our study insofar effectuation is "the logic of entrepreneurial expertise, characterized as a dynamic and interactive process of creating new artefacts in the world" (Sarasvathy & Venkataraman, 2011). Sarasvathy (2021) shows how "expert entrepreneurs use an effectual logic that is non-predictive to influence new markets and translate their environments. While predictive strategies are ways to influence current realities to reach preconceived ends, effectual strategies generate unique goals and new worlds from current realities. The effectuation theory suggests that under conditions of uncertainty, entrepreneurs adopt a decision logic that is different to that of causation" (Sarasvathy, 2021). In line with our study objective, effectuation is well suited to broaden our understanding of interactions between EO, bricolage capability, ACAP, OI and the environment as effectual processes are related to recognising and exploiting opportunities in new markets under conditions of uncertainty (Sarasvathy & Venkataraman, 2011). Furthermore, aligned with the EO construct, effectuation theory suggests that resources under the control of the entrepreneur are a key source of opportunity and by concentrating on the resources under their control, entrepreneurs will more willingly take action to create value from the recognised opportunity (Sarasvathy, 2021). Integrating and explaining the previously unrelated constructs of bricolage capability, ACAP, OI as potential moderators to the EO–environment–performance relationship is valuable as prior research shows that complementary resources and capabilities need to be employed to maintain the effects of a firm's strategic resources and capabilities on its performance over time (Campos et al., 2024; Cosa et al., 2024; Gupta & Gupta, 2015; Lee & Kreiser, 2018; Maphumulo & Urban, 2022). These constructs and their interrelationships are now discussed to show their underpinning and relevance to each of the study hypothesis.

Entrepreneurial orientation and performance

Numerous studies conceptualise EO as a strategic imperative for firms which requires the alignment of senior management support with the entrepreneurial actions of employees throughout the firm (Gantsho et al., 2024; Urban & Govender, 2024). EO is typically construed as either an all-encompassing construct incorporating 'innovativeness, risk-taking, and proactiveness' or as a multi-faceted construct where these dimensions are viewed as autonomous elements of EO (Anderson et al., 2015; Covin & Slevin, 1991; Pinto et al., 2024; Rauch et al., 2009; Wales et al., 2021). Lumpkin and Dess (1996) offer an alternative view of EO as the combination of five dimensions, those put forth by Covin and Slevin (1991) which include competitive aggressiveness and autonomy. However, some studies report that 'competitive aggressiveness' forms a part of the proactiveness dimension and does not represent a separate dimension, while others propose that

past dimensional approaches toward understanding broader organisational orientation have different emphases within the literature depending on the research objectives, and that no level of 'dimensional granularity has proven inherently superior' (Wales et al., 2021). Several studies have also focused on the EO–firm performance relationship in the South African context (see, Gupta & Gupta, 2015; Mgwenya & Urban, 2024; Urban, 2021; Urban & Govender, 2024), and report positive moderating effects of technological opportunism on the EO–performance relationship (Maphumulo & Urban, 2022), while others investigate the moderating effect of interfunctional coordination on EO–performance, and also account for the role of market orientation in opportunity exploitation (Mathafena & Msimango-Galawe, 2023). Moreover, resonating with the effectuation theory (Sarasvathy, 2021), the achievement of persistent performance is dependent on a firm's ability to possess strategic internal resources and capabilities (Barney, 1991) that can counter market threats and facilitate the creation of unique product offerings, a notion consistent with EO and the proposed moderators influencing the EO–performance relationship. Prior research reveals that EO impacts firm performance due to a harmonious configuration of organisational fundamentals which sponsor a pattern of new entry initiatives (Kumar et al., 2024; Wiklund & Shepherd, 2011). For the purpose of our study persistent financial performance (FP) refers to performance over time, measured as long-term profitability, long-term growth, market value, or a combination of these factors (Dobbs & Koller, 2005). The achievement of firm performance over time, depends on how firms restructure their resources and develop new strategies in the context of the external environment within which they operate (Dobbs & Koller, 2005; Lawrence & Lorsch, 1967), making it a suitable measure of EO–performance as we capture both internal and external influencing factors to this relationship. Consequently, relying on the theory of the effectuation (Sarasvathy, 2021), we provide our first hypothesis on the relationship between EO and financial performance.

H1. The association between entrepreneurial orientation and financial performance displays a nonlinear relationship.

Entrepreneurial orientation and the environment

A hostile environment is defined and characterised by intense competition, harsh business climates, scarce resources, and a relative lack of exploitable opportunities (Khandwalla, 1976; Rosenbusch et al., 2013). Prior research has shown that the external environmental factors are capable of affecting the failure and success of firms and have largely been clarified in terms of environmental munificence or hostility, both of which offer opportunities as well as challenges to firms (Choi et al., 2020; Covin & Slevin, 1989; Rosenbusch et al., 2013). Based on the study context, the South African construction and materials sector, which during the 2008–2019 period was characterised by an unfriendly industry setting, a harsh economic climate, and a few exploitable opportunities (Omopariola et al., 2021), we argue this scenario fits with a hostile environment characterisation, typified by intense competition, harsh, overwhelming business climates, scarce resources, and the relative lack of exploitable opportunities (Covin & Slevin, 1989; Khandwalla, 1976; Rosenbusch et al., 2013). Prior studies indicate that a hostile environment may be an impediment to EO and persistent performance (Morić, 2022). The source of such impediment could once more be attributed to the bounded

rationality of TMTs, caused by the high variance induced by the EO and environmental hostility combination (Revilla et al., 2016). Furthermore, effectuation theory suggests that resources are a key source of opportunity and by directing the resources under their control, entrepreneurs will exploit opportunities to improve performance and create value from such opportunities identified in the environment (Sarasvathy, 2021). Therefore, based on the study context and acknowledging prior research which suggests introducing a moderator into the bivariate relationship between EO and firm performance to help reduce the potential for misleading inferences and to allow for a more precise and specific understanding of the EO–firm performance relationship (Rauch et al., 2009; Rosenbusch et al., 2013; Schröder et al., 2021), we anticipate that the EO–FP relationship is negatively moderated by environmental hostility.

H2. The entrepreneurial orientation and financial performance relationship is negatively moderated by environmental hostility.

Bricolage capability

Baker and Nelson (2005, p. 333), define bricolage as "making do by applying combinations of resources at hand to new problems and opportunities". Similarly, others define bricolage capability as the restructuring of existing resources and capabilities to address new situations or opportunities or as an entrepreneur's capability to defy the limitations-imposed by resource scarcity (Duymedjian & Rüling, 2010; Urban & Matela, 2022). To counter the negative effects of a hostile external environment, firms adopt a variety of strategies, where complementary resources and capabilities could be employed to maintain the effects of a firm's strategic resources and capabilities on its performance over time (Duymedjian & Rüling, 2010; Urban, 2021). Several studies have shown that moderating variables such as networking capability, information, communication, and technology, board monitoring, industry life cycle, intra and extra industry social capital, ambidexterity, working capital efficiency, relatedness, as well as employee psychological safety, could strengthen the curvilinear EO–performance relationship (e.g., Gupta & Gupta, 2015; Huang et al., 2023; Kindermann et al., 2022; Kohtamäki et al., 2019). By extending this logic further and directly resonating with the effectuation theory, we incorporate bricolage capability as a potential moderator in the EO–performance relationship, as it involves the restructuring of existing resources and capabilities to address new situations or opportunities (Abu-Rumman et al., 2021; Duymedjian & Rüling, 2010; Schröder et al., 2021). Where the effects of the environment within which firms operate, results in resource constraints, and threaten firm survival, bricolage capability is required which involves making do by applying combinations of the resources at hand to unfamiliar problems and opportunities (Baker and Nelson, 2005; Sengura & Renyan, 2024; Xiaobao et al., 2022). We argue that bricolage is well suited as an additional organisational element in EO research as it is typically studied in the context of new businesses in extremely constrained environments (Xiaobao et al., 2022). This argument suggests that in a hostile environment, bricolage capability could explain the extent to which existing resources and capabilities are leveraged to strengthen the EO–FP relationship. Bricolage capabilities rely on the use the existing resources optimally and hence resource bricolage is an effective solution to overcome the resource-constraint impasse facing some firms in hostile environments (Santos et al., 2022). In addition, recent research

indicates that the higher the degree of resource bricolage, the stronger the levels of EO which results from top-management decisions, insofar bricolage does not independently affect EO but serves as a moderating influence on the EO–performance relationship (Xiaobao et al., 2022). Furthermore, aligned with the EO construct and based on the key principles of the effectuation theory it is anticipated that resources under the control of the entrepreneur provide a key source of opportunity and by focusing on these resources they will be able to realise greater performance (Sarasvathy, 2021).Consequently, it could be posited that in addition to an optimum hostile environment–EO fit, the achievement of FP also depends on the extent to which EO is complemented by a firm's bricolage capability (Sengura & Renyan, 2024; Urban & Matela, 2022).

H3. The entrepreneurial orientation and financial performance relationship is negatively moderated by the bricolage capability and environmental hostility interaction.

Absorptive capacity

Absorptive capacity (ACAP) (Zahra & George, 2002) is conceptualised as the absorption of new knowledge that assists firms to increase their performance, while also instilling more flexibility and innovative practices (Mata et al., 2023). Firms with higher levels of ACAP are more likely to identify opportunities, obtain market information and understand the customer needs, and as a result, they undertake innovation activities (Mata et al., 2023). Firms require such capacity to address new situations or opportunities, particularly for firms operating in volatile and complex business environments which need "structures that can facilitate the acquisition, assimilation, transformation, and exploitation of reliable and current information from a diverse pool of stakeholders across external boundaries" (Engelen et al., 2014, p. 1354). Similarly, EO which is inherently focused on exploration and experimentation with innovative, proactive, and risk-taking activities, requires a measure of information and knowledge about the immediate environment (Kindermann et al., 2022; Putniņš & Sauka, 2020). Furthermore, D'Souza and Fan (2022) propose a capability-anchored articulation of the EO–ACAP relationship using a moderated-mediation interaction. These authors characterised EO as a dynamic managerial capability and demonstrated that ACAP influences the EO versus organisational performance relationship. Thus, the extent to which firms acquire ACAP, particularly in a hostile environment, is important in order to explain the EO–performance relationship (Urban & Matela, 2022). The positive moderating role of ACAP amidst turbulent environmental conditions have been demonstrated in literature (Engelen et al., 2014; van Doorn et al., 2017). Consequently, by building on in this research direction it could be posited that an optimal EO–FP relationship depends on the extent to which this relationship is strengthened by the environmental hostility–ACAP interaction. Hence, if the environmental hostility–ACAP relationship strengthens the EO–FP relationship, then ACAP would have to negate or remedy the weakening effect of environmental hostility on the EO–FP relationship. In formulating our hypothesis, we rely on the effectuation theoretical base as effectuation is based on the logic of entrepreneurial expertise and knowledge (ACAP), characterised as a "dynamic and interactive process of creating new artefacts in the world" and such a non-predictive effectual logic can influence new markets and translate the environments (Sarasvathy, 2021; Sarasvathy & Venkataraman, 2011).

H4. The entrepreneurial orientation and financial performance relationship is negatively moderated by the ACAP and environmental hostility interaction.

Organisational identity

OI is conceptualised as a "set of statements that members of an organization perceive to be central, distinctive, and enduring to their organization" (Whetten, 2006, p. 224). Prior studies show that in turbulent business environments, the need to resolve a real or potential identity crisis dominates the attention of decision-makers as OI shapes managerial decisions with regard to resource and capabilities, including decisions related to bricolage capability and ACAP (D'Souza & Fan, 2022; Voss et al., 2006). The OI of firms has been shown to shape what is noticed in the external environment of an organisation, as well as how it is interpreted, and what action is to be taken (Lin, 2004; Tripsas, 2009). This suggests that OI can be used to guide TMTs to make focused decisions. For example, through its "what are we no longer" and "who are we becoming" lenses, TMTs could, in a focused matter, define their past and future, respectively, which could guide their decision-making in respect of the right combination of existing resources and capabilities, resonating with bricolage capability (Shiferaw et al., 2023). OI also has direct relevance to bricolage, where studies show that bricolage resonates with strategies and control mechanisms within an organisation, and how subjective knowledge resulting from bricolage will enable opportunities identification, and increase EO, corporate venturing, product innovation, and strategic renewal (O'Mahoney & Visscher 2017; Voss et al., 2006). Additionally, studies have shown how an OI could be used to direct managerial decisions in hostile business environments (Voss et al., 2006) where effects of organisational culture and ACAP on open innovation have been investigated. Furthermore, OI can be used to guide TMTs to make focused decisions. For example, through its "what are we no longer" and "who are we becoming" lenses, TMTs could, in a focused matter, define their past and future, respectively, which could guide their decision-making in respect of acquiring and processing relevant and current information. Researchers note the importance of having common knowledge and relational embeddedness to explain knowledge transfer based on ACAP and show how the firm needs to focus strongly on organisational culture and OI which are considered to be important the determinants of the effectiveness of organisational transfer (Naqshbandi & Tabche, 2018). In addition, other studies indicate that organisational structure and integration capabilities are the main mechanisms through which organisational ACAP can coevolve with their external knowledge environment, all of which suggests a link between ACPA and OI (Tripsas, 2009; Voss et al., 2006). Consequently, it can be posited that OI has the potential to strengthen the ACAP of firms where OI would have to strengthen ACAP against the high variance induced by environmental hostility and EO, respectively. Hence, the environmental hostility–ACAP–OI interaction would strengthen the EO–FP relationship. Extending our reach in terms of the shared alignment of organisational elements which promote EO (Wales et al., 2021; Wiklund & Shepherd, 2011) we include OI as a determinant explaining the EO–performance relationship. Moreover, we argue that in line with the effectuation theory (Sarasvathy, 2021), the attainment of persistent performance is dependent on a firm's ability to possess strategic internal resources and capabilities, such as OI, that can counter hostile markets and facilitate the creation of an

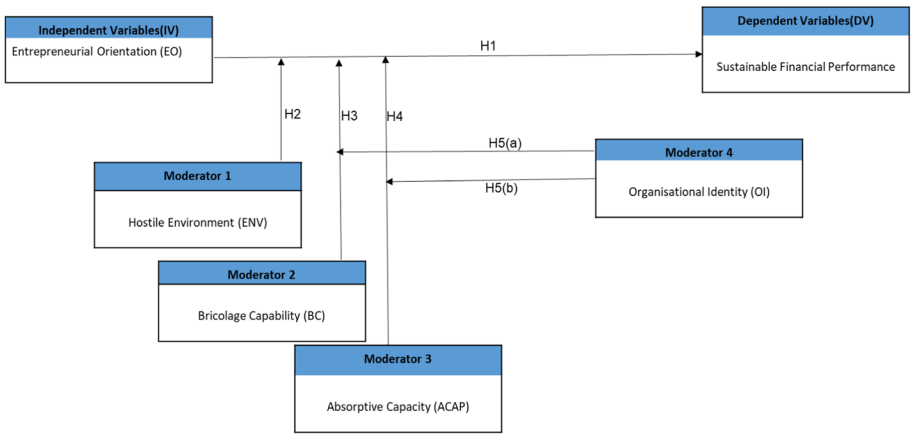

Fig. 1 Research conceptual model

EO. Building on H2 and H3, OI would have to strengthen bricolage capability against the high variance induced by environmental hostility and EO, respectively. Stated differently, the environmental hostility–bricolage capability, and OI interaction would moderate the EO–FP relationship.

H5a The entrepreneurial orientation and financial performance relationship is negatively moderated by organisational identity in terms of the bricolage capability and environmental hostility interaction.

H5b The entrepreneurial orientation and financial performance relationship is negatively moderated by organisational identity (MV1) in terms of the ACAP and environmental hostility interaction.

The study conceptual model as shown in Fig. 1 identifies EO as an independent variable (IV), that directly influences FP, as the dependent variable (DV) (H1). Given the nature of the study sector context, the external hostile environment is depicted as moderating variable (MV1) influencing the EO–FP relationship (H2). Furthermore, based on the scaffolding of the RBV, which requires firms to possess or develop complementary resources and capabilities, which could influence the EO–FP relationship, bricolage capability (MV2), is postulated as a moderator in the model (H3). Similarly, based on the notion that the acquisition, assimilation transformation and exploitation of information and knowledge is central to EO, it was postulated that the EO–FP relationship could be influenced by ACAP (MV3) (H4). Lastly, regarding OI (MV4) it is hypothesised that bricolage capability is moderated by OI (H5a) and that ACAP is moderated by OI H5(b). We argue that bricolage capability and ACAP are resource capabilities required by firms to address new situations or opportunities which can influence the EO propensity of firms, and hence the use of a moderated-moderator model similar to that of other studies (see, Kohtamäki et al., 2019).

Methodology

Data collection and sampling

The study focused on the South African construction and materials sector. While it was not possible to account for the entire population of firms involved in construction and/or construction-related materials industry, as no database was available in South Africa,

sampling frames from both sector related and official company documents were established (JSE, 2021; PWC, 2016). A target respondent was defined as the group of top management of an organisation who effect strategic decision-making and have overall responsibility over a firm or organisation (Khandwalla, 1976; Naqshbandi & Tabche, 2018). All participants in the sampling frame were assigned a random number using the RAND function in Microsoft Excel and 240 random participants were extracted from sampling frame, with a final sample size of 126 firms as represented by their respective top management (response rate of 53%). In terms of ethical procedures, it was made clear that participation in this study was voluntary and anonymous. Following the Protection of Information Act (POPI Act) of the Republic of South Africa, the privacy and anonymity of participants was preserved throughout the research.

Following the EO literature, firm age and size were used as control variables, respectively (Campos et al., 2024), as well as several respondent demographics. For firm size, the majority (73%) of respondents had more than 40 employees (aligned with the medium size or class of enterprise/enterprise category as defined for SMME classifications in SA), and for firm age 33% were in the 40 years and above category, while 23% were in the 10 to 20 years category, while 23% were in the 21–30 years category. With respect to total experience in this sector, 41% had 11–20 years' experience, and for total work experience 58% had 21–30 years' experience, while for total experience in top management 27% were in the more than 30 years category. Educational qualifications revealed that 33% held a bachelor's degree while 36% held a post-graduate qualification. These characteristics imply that relevant participants were sampled, i.e. strategic decision-makers whose insight is relevant to make inferences about the EO–FP relationship under investigation.

We conducted tests to explore potential sources of sample bias by analysing whether there were differences between respondents and non-respondents, using a Wilcoxon–Mann–Whitney test, according to frim size type with no significant differences were detected (Schindler, 2019). Additionally, t-tests confirmed no significant differences between early and late respondents in terms of firm size of firm age.

Measures

All measures were operationalised based on the theoretical discussions in the literature (full instrument is available). The survey questionnaire was designed such that participants could not complete the next survey without completing a preceding one. On an ad hoc basis, we conducted follow-ups with participants to remind participants to complete the survey.

FP was measured as the study dependent variable (DV) and refers to the persistent achievement of financial outcomes (Putniņš & Sauka, 2020; Tang et al., 2008) measured with four items on a 5-point Likert scale. These questions involved asking TMTs to evaluate their firms' FP relative to their principal competitors during the 2008–2019 on (a) sales growth rate; (b) market share; (c) pretax profit growth rate; and (d) overall performance. The weighted average of these four items was used as the performance measure.

Consistent with the majority of the extant research, EO, as the independent variable (IV) was measured using the Covin and Slevin (1989) scale for assessing three of the EO dimensions in terms of innovativeness, proactiveness and risk-taking. Employing

the multidimensional nature of EO is advantageous as it is backed by "theoretically meaningful relationships established in earlier studies, thus allowing for more advanced knowledge to evolve" (Rauch et al., 2009; Wales et al., 2021). Consequently, EO was measured along a six-point bi-polar Likert scale, represented by the three dimensions in terms of nine items.

Environmental hostility as the moderating variable (MV) was selected to represent the study context in terms of the South African construction and materials sector, during the 2008–2019 period, as we previously mentioned. Environmental hostility is typically measured subjectively using survey questionnaires (Covin & Slevin, 1989; Khandwalla, 1976), which we relied on to gauge whether participants considered their external environment as one that promotes FP or the extreme opposite as measured with 3 items on a 7-point Likert scale, with questions such as: "In general, the top managers of my firm have …a strong proclivity for high-risk projects (with chances of very high returns)", using the Khandwalla (1976) scale.

Bricolage capability (MV) was measured with 8 items on a 5-point Likert scale, with questions such as "We use any existing resource that seems useful to responding to a new problem or opportunity" (Santos et al., 2022; Senyard et al., 2014).

Absorptive capacity (MV) was measured with 21items on a 7-point Likert scale, with questions such as: "We periodically organize special meetings with customers or third parties to acquire new knowledge" (Engelen et al., 2014; Kohtamäki et al., 2019; Zahra & George, 2002).

OI was measured with 6 items on a 5-point Likert scale, with questions such "who are we as a firm?" and "who we want to become as a firm?" and "what are we no longer?" as sourced from (Voss et al., 2006).

Data analyses

All constructs were subjected to confirmatory factor analyses (CFA). We conducted hierarchical regression analyses to test the hypotheses. Multicollinearity diagnostics on each regression model were performed using the commonly applied thresholds VIF < 10 and tolerance > 0.2 to exclude multicollinearity issues (Kohtamäki et al., 2019; Schindler, 2019).

Results

Table 1 presents the means, standard deviations (SD) and correlations for the respective constructs. In terms of Pearson's correlation coefficients, FP was weakly to moderately correlated positively to EO $r\ (15) = 0.32$, $p < 0.01$, proactiveness $r\ (13) = 0.37$, $p < 0.01$, risk-taking $r\ (14) = 0.25$, $p < 0.01$, $r\ (53)$, OI $r\ (16) = 0.37$, $p < 0.01$, $r\ (53)$, bricolage capability $r\ (18) = 0.28$, $p < 0.01$ and ACAP $r\ (19) = 0.41$, $p < 0.01$, respectively. FP and environmental hostility were weakly and negatively correlated $r\ (17) = -0.22$, $p < 0.05$. EO was strongly and positively correlated to innovativeness, proactiveness and risk-taking with $r\ (52) = 0.83$, $p < 0.01$, $r\ (53) = 0.76$, $p < 0.01$ and $r\ (54) = 0.83$, $p < 0.01$, respectively. This was expected since EO was derived from these respective constructs. Furthermore, these high correlations were not viewed as a potential source of multicollinearity because the constructs concerned were not used in the

Table 1 Mean values, standard deviations and correlations among the constructs and control variables

		Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Financial performance	2.97	1.12	1.00														
2	Innovativeness	4.44	1.44	0.16	1.00													
3	Proactiveness	4.79	1.38	0.369**	0.474**	1.00												
4	Risk-taking	4.26	1.26	0.247**	0.540**	0.408**	1.00											
5	Entrepreneurial orientation	4.49	1.44	0.316**	0.825**	0.752**	0.837**	1.00										
6	Organisational identity	3.53	1.25	0.373**	0.392**	0.329**	0.458**	0.493**	1.00									
7	Environmental hostility	4.92	1.45	−0.215*	−0.190*	−0.344**	−0.10	−0.253**	−0.15	1.00								
8	Bricolage capability	3.80	1.01	0.278**	0.330**	0.207*	0.431**	0.411**	0.551**	−0.08	1.00							
9	Absorptive capacity	4.57	1.85	0.414**	0.452**	0.418**	0.421**	0.533**	0.634**	−0.16	0.547**	1.00						
10	Firm size	4.09	1.57	0.09	0.13	0.10	0.04	0.11	0.06	−0.07	−0.191*	−0.01	1.00					
11	Firm age	3.27	1.43	0.01	0.09	0.04	−0.10	0.00	0.03	0.204*	−0.245**	−0.11	0.529**	1.00				
12	Total experience in sector	3.04	1.15	0.209*	0.12	0.17	0.04	0.13	0.09	0.255**	0.10	0.252**	0.17	0.347**	1.00			
13	Total work experience	3.19	1.07	0.11	0.15	0.03	0.08	0.10	0.06	0.254**	0.10	0.194*	0.12	0.282**	0.814**	1.00		
14	Total work experience in top management	3.21	1.38	0.08	0.06	0.06	0.12	0.10	0.200*	0.13	0.241**	0.316**	0.07	0.15	0.466**	0.436**	1.00	
15	Qualification	3.00	0.95	−0.02	0.05	−0.09	0.06	0.01	0.187*	0.06	0.07	0.05	0.15	0.217*	−0.14	−0.11	−0.02	1.00

** Correlation is significant at the $p < 0.01$ level (2-tailed) and * correlation is significant at the $p < 0.05$ level (2-tailed). SD stands for standard deviation

same model. The VIF ranged between 1.20 and 8.00 and the tolerance ranged between 0.12 and 0.82, respectively, which confirms the absence of multicollinearity (Schindler, 2019).

Prior to hierarchical regression, all main constructs were subjected to CFA; see results in Table 2. The main criteria examined include Chi-square (χ^2), the root-mean square error approximation (RMSEA), the incremental fit index (IFI), the Tucker–Lewis index (TLI), the comparative fit index (CFI) and the standard root mean square residual (SRMR), respectively (Hu & Bentler, 1999). Table 2 tabulates the actual model fit indices, internal consistency, and convergent validity of the main constructs against their acceptable thresholds. Compared against the recommended thresholds, the model fit indices of the respective constructs confirmed adequate fit. Furthermore, the AVE, composite reliability (CR) and Cronbach Alpha confirmed the existence of convergent validity and internal consistency within the respective constructs (Schindler, 2019).

Hypothesis testing results are presented in Table 3, where Model 1 tests the effects of control variables on FP. Model 2 tests the relationship between FP in terms of the main or direct effects. Model 3 tests the EO–FP relationship (hypothesis **H1**). Model 4 tests the moderating effects of environmental hostility on the EO–FP relationship (hypothesis **H2**). Model 5 tests the moderating effects of the environmental hostility–bricolage capability on the EO–FP relationship (hypothesis **H3**). Model 6 tests the moderating effects of the environmental hostility–bricolage capability–organisational identity interaction on the EO–FP relationship (hypothesis **H5(a)**). Model 7 tests the indirect effects of bricolage capability, organisational identity, the bricolage capability–organisational identity on EO, respectively.

In terms of the control variables, non-statistically significantly effects with the DV, $F(6, 119) = 1.47$, $p = 0.193$, were observed. The control variables explain 7% ($R^2 = 0.07$) of the total variance and have a small effect ($\omega^2 = 0.02$) on FP. The direct effects on FP were observed as statistically significantly, $F(11, 114) = 3.67$, $p < 0.001$. The direct

Table 2 Confirmatory factor analyses results for all study constructs

Model index fit	Acceptable threshold	Financial performance	Entrepreneurial orientation	Environmental hostility	Bricolage capability	Absorptive capacity	Organisational identity
χ^2/df	< = 3	0.07	1.11	–	0.66	1.26	0.20
RMSEA	< = 0.08	0.00	0.03	–	0.00	0.05	0.00
IFI	> = 0.9	1.00	1.00	1.00	1.00	0.99	1.00
TLI	> = 0.9	1.02	0.99	–	1.00	0.98	1.00
CFI	> = 0.9	1.00	1.00	1.00	1.00	0.99	1.00
SRMS	< = 0.10	0.00	0.05	0.00	0.02	0.04	0.01
Average variance extracted (AVE)	> = 0.5	0.69	0.53	0.51	0.53	0.56	0.73
Composite reliability	> = 0.7	0.90	0.83	0.75	0.89	0.89	0.89
Cronbach Alpha	> = 0.5	0.90	0.75	0.73	0.89	0.89	0.90

The environmental hostility construct consists of three items which translate into zero degrees of freedom (*df*) thus model could only be estimated or approximated. Nonetheless, AVE, composite reliability and Cronbach Alpha could be determined

Table 3 Hierarchical regression analyses results for hypotheses H1, H2, H3 and H5(a)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Beta	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***
Dependent variable	FP													
Control variables														
Firm age	0.12	0.25	0.06	0.55	0.06	0.55	0.05	0.61	0.04	0.66	0.05	0.60	0.06	0.58
Firm size	− 0.14	0.21	0.00	0.97	0.00	0.99	0.00	0.97	0.00	0.99	0.00	0.99	− 0.01	0.91
Total experience in sector	0.38	0.02*	0.30	0.05*	0.26	0.08	0.28	0.06	0.27	0.07	0.27	0.08	0.28	0.07
Total work experience	− 0.17	0.28	− 0.11	0.42	− 0.07	0.64	− 0.07	0.61	− 0.06	0.67	− 0.05	0.72	− 0.06	0.65
Total work experience in TMT	− 0.01	0.95	− 0.11	0.26	− 0.11	0.24	− 0.10	0.30	− 0.09	0.33	− 0.09	0.33	− 0.13	0.18
Educational level	0.03	0.79	− 0.04	0.65	0.01	0.89	0.02	0.82	0.03	0.74	0.03	0.77	0.00	0.98
Main/direct effects														
Entrepreneurial orientation (EO)			0.03	0.78	0.01	0.94	− 0.05	0.65	− 0.04	0.68	− 0.06	0.59	− 0.02	0.89
Organisational identity (OI)			0.16	0.17	0.12	0.31	0.13	0.27	0.13	0.30	0.14	0.28	0.06	0.69
Environmental hostility (ENV)			− 0.17	0.06	− 0.22	0.02*	− 0.13	0.20	− 0.14	0.20	− 0.14	0.23	− 0.21	0.03
Bricolage capability (BC)			0.07	0.53	0.11	0.34	0.08	0.47	0.11	0.33	0.12	0.30	0.20	0.18
Absorptive capacity (ACAP)			0.22	0.08	0.22	0.07	0.21	0.08	0.22	0.08	0.22	0.08	0.20	0.11
Nonlinear effects														
EO					− 0.20	0.03*	− 0.24	0.02*	− 0.25	0.02*	− 0.23	0.04*	− 0.18	0.17
Moderating effects														
ENVxEO							0.01	0.92	− 0.02	0.86	− 0.03	0.80		
ENVxEO							− 0.20	0.08	− 0.25	0.15	− 0.25	0.17		
BCXEOxENV									0.16	0.23	0.20	0.25		
BCXEOxENV									− 0.07	0.65	− 0.13	0.54		
BCXEOxENVXOI											0.13	0.52		
BCXEOxENVXOI											− 0.09	0.67		
Indirect effects														

Table 3 (continued)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Beta	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***
BCxEO													0.07	0.56
BCxEO													− 0.19	0.34
BCxOIxEO													0.00	1.00
BCxOIxEO													− 0.14	0.41
EOxOI													0.12	0.44
EOxOI													0.22	0.28
R-square (R^2)	0.07		0.26		0.29		0.31		0.32		0.33		0.31	
Adjusted *R*-squared (R^2)	0.02		0.19		0.22		0.23		0.22		0.21		0.19	
R-squared change	0.07		0.19		0.03		0.02		0.01		0.00		0.02	
F change	1.47		5.95		5.09		1.59		0.87		0.23		0.41	
Sig *F* change	0.19		0.00		0.03		0.21		0.42		0.80		0.87	

*** Correlation is significant at the $p < 0.001$, ** correlation is significant at the $p < 0.01$ and * correlation is significant at the $p < 0.05$. Models 1 to 6 are compared successively. Indirect effects are shown in model 7

effect variables explain 19% ($R^2 = 0.19$) of the total variation and have large effect ($\omega^2 = 0.19$) on FP. However, none of the individual direct effects were observed to be statistically significantly.

Hypothesis (H1) investigated the relationship between the EO and FP and exhibited a nonlinear effect. The ANOVA results suggest that the direct and nonlinear effects statistically significantly predicted FP, F (12, 113) = 3.94, $p < 0.001$. Furthermore, they explained 26% ($R^2 = 0.26$) of the total variance in the DV. The beta coefficients show that environmental hostility directly and negatively predicted FP (*beta* = − *0.22 and* $p = 0.03$). Furthermore, the results show that EO statistically significantly predicted FP (*beta* = − *0.20 and* $p = 0.03$).

Hypothesis (H2) investigated the EO–FP link as moderated by a hostile environment. The ANOVA results reveal that the direct, nonlinear, and moderating effects statistically significantly predicted FP, F (14, 111) = 3.62, $p < 0.001$. Furthermore, they explain 31% ($R^2 = 0{,}31$) of the total variance in FP. The coefficient analysis reveals that no direct and moderating effects were statistically significantly. However, the results show that EO statistically significantly predict FP (*beta* = − 0.21, and $p = 0.02$).

Hypothesis (H3) investigated the EO–FP link as moderated by a hostile environmental–bricolage capability interaction. The ANOVA results reveal that the direct, nonlinear, and moderating effects statistically significantly predicted FP, F (16, 109) = 3.27, $p < 0.001$. Furthermore, they explain 32% ($R^2 = 0.32$) of the total variance in FP. he hierarchical coefficient analysis reveals that neither the direct nor the indirect (BCxEO and BCxEO) and moderating effects statistically significantly predict FP. However, the results show that EO statistically significantly predicted FP (*beta* = − 0.25, and $p = 0.02$).

Hypothesis H5(a) investigated the EO–FP relationship as moderated by an environmental hostility–bricolage capability–organisational identity interaction. The ANOVA results indicate direct, nonlinear, and moderating effects which were statistically significantly in predicted FP, F (18, 107) = 2.89 $p < 0.001$. Furthermore, they explain 33% ($R^2 = 0{,}33$) of the total variance in FP. The coefficient analysis reveals that except for EO (*beta* = − 0.23, and $p = 0.04$) none of the other interactions statistically significantly predict FP.

In Table 4, Model 5 tests the moderating effects of the environmental hostility–absorptive capacity interaction on the EO–FP relationship (hypothesis **H4**). Model 6 tests the moderating effects of the environmental hostility–absorptive capacity–organisational identity interaction on the EO–FP relationship (hypothesis **H5(b)**). Model 7 tests the indirect effects of absorptive capacity, organisational identity, the absorptive capacity–organisational identity on the EO and EO, respectively.

Hypothesis H4, investigated the EO–FP relationship as moderated by the absorptive capacity–environmental hostility interaction. The ANOVA results reveal that the direct, nonlinear, and moderating effects statistically significantly predict FP, F (16, 109) = 3.22, $p < 0.001$. Furthermore, the independent variables explain 32% ($R^2 = 0.32$) of the total variance in FP. The coefficient analysis shows that except for absorptive capacity (*beta* = − 0.25, and $p = 0.02$) and EO (*beta* = − 0.21, and $p = 0.05$) none of the other direct, indirect, and moderating effects statistically significantly predict FP.

Hypothesis H5(b) investigated he relationship between the EO and FP as moderated by its hostile environmental–absorptive capacity interaction–organisational identity

Table 4 Hierarchical regression analyses results for hypotheses H1, H2, H4 and H5(b)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Beta	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***
Dependent variable	FP													
Control variables														
Firm age	0.12	0.25	0.06	0.55	0.06	0.55	0.05	0.61	0.05	0.61	0.06	0.53	0.09	0.37
Firm size	−0.14	0.21	0.00	0.97	0.00	0.99	0.00	0.97	0.01	0.93	0.01	0.94	−0.05	0.63
Total experience in sector	0.38*	0.02*	0.30*	0.05	0.26	0.08	0.28	0.06	0.28	0.06	0.28	0.07	0.22	0.16
Total work experience	−0.17	0.28	−0.11	0.42	−0.07	0.64	−0.07	0.61	−0.07	0.61	−0.06	0.66	0.00	0.97
Total work experience in TMT	−0.01	0.95	−0.11	0.26	−0.11	0.24	−0.10	0.30	−0.09	0.33	−0.08	0.42	−0.08	0.43
Educational level	0.03	0.79	−0.04	0.65	0.01	0.89	0.02	0.82	0.02	0.83	0.03	0.75	−0.01	0.95
Main/direct effects														
Entrepreneurial orientation (EO)			0.03	0.78	0.01	0.94	−0.05	0.65	−0.07	0.52	−0.07	0.52	−0.01	0.94
Organisational identity (OI)			0.16	0.17	0.12	0.31	0.13	0.27	0.13	0.28	0.12	0.35	0.08	0.59
Environmental hostility (ENV)			−0.17	0.06	−0.22	0.02*	−0.13	0.20	−0.13	0.24	−0.15	0.20	−0.18	0.06
Bricolage capability (BC)			0.07	0.53	0.11	0.34	0.08	0.47	0.08	0.49	0.09	0.45	0.00	0.97
Absorptive capacity (ACAP)			0.22	0.08	0.22	0.07	0.21	0.08	0.25	0.05*	0.28	0.03*	0.21	0.14
Nonlinear effects														
EO					−0.20	0.03*	−0.24	0.02*	−0.23	0.03*	−0.22	0.05	−0.27	0.03*
Moderating effects														
ENVxEO							0.01	0.92	−0.03	0.81	−0.05	0.72		
ENVxEO2							−0.20	0.08	−0.31	0.06	−0.34	0.06		
ACAPXEOxENV									0.17	0.28	0.33	0.15		
ACAPXEOxENV									−0.02	0.89	−0.37	0.29		
ACAPXEOxENVXOI											0.41	0.22		
ACAPXEOxENVXOI											−0.16	0.53		
Indirect effects														
ACAPxEO													−0.19	0.30

Table 4 (continued)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Beta	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***	**Beta**	***p***
ACAPxEO													−0.40	0.21
ACAPxOIxEO													0.54	0.06
ACAPxOIxEO													0.15	0.40
EOxOI													0.17	0.27
EOxOI													0.00	1.00
R-square (R^2)	0.07		0.26		0.29		0.31		0.32		0.33		0.34	
Adjusted *R*-squared (R^2)	0.02		0.19		0.22		0.23		0.22		0.22		0.22	
R-squared change	0.07		0.19		0.03		0.02		0.01		0.01		0.04	
F change	1.47		5.95		5.09		1.59		0.64		0.82		1.13	
Sig *F* change	0.19		0.00		0.03		0.21		0.53		0.44		0.35	

***Correlation is significant at the $p < 0.001$, ** correlation is significant at the $p < 0.01$ and * correlation is significant at the $p < 0.05$. Models 1 to 6 are compared successively. Indirect effects are shown in model 7

interaction. The ANOVA results reveal that the direct, nonlinear, and moderating effects statistically significantly predict FP, F (18, 107) = 2.95, $p < 0.001$. Furthermore, they explain 33% ($R^2 = 0.33$). The coefficient analysis shows that except for absorptive capacity (*beta* = 0.28, and $p = 0.03$), EO (*beta* = − 0.22 $p = 0.03$) none of the other direct, indirect, and moderating effects statistically significantly predict FP.

To gain further insights into the hypotheses, the ANOVA results of each model were used to compute effect sizes based on omega-squared (ω^2) (Yigit & Mendes, 2018). The latter was used because it is less bias than its alternative the eta-squared (η^2) (Yigit & Mendes, 2018). Omega-squared results are interpreted as follows: 0.01 represents a small effect, 0.06 represents a medium effect and 0.14 represents a large effect. The effect size results show that the effect of predictor variables on FP for all the hypotheses is large, i.e. H1 ($\omega^2 = 0.22$), H2 ($\omega^2 = 0.23$), H3 ($\omega^2 = 0.22$), H4 ($\omega^2 = 0.22$), H5(a) ($\omega^2 = 0.21$), H5(b) ($\omega^2 = 0.22$), respectively.

In addition to effect sizes, the Tukey HSD test was also performed for all hypotheses using the results from ANOVA and interpreted according to prescribed conventions (Schindler, 2019). For H1, the calculated mean difference between EO and each of the predictor variables was determined to be equally statistically significant (MD = 0.90 > Tukey HSD critical value = 0.38). For H2, the mean differences between EO and the EOxENV interaction (MD = 3.52) as well as between EO and EOxENV interaction (MD = 3.35) were determined to be the most statistically significant, i.e. 3.52 and 3.35 are greater than 0.39 the Tukey HSD critical value. For H3, the mean differences between EO and the EOxENVxBC interaction (MD = 13.37) as well as between EO and EOxENVxBC interaction (MD = 30.64) were determined to be the most statistically significant, i.e. 13.37 and 30.64 are greater than 0.39 the Tukey HSD critical value. For H5(a), the mean differences between EO and the EOxENVxBCxOI interaction (MD = 18.54) as well as between EO and EOxENVxBCxOI interaction (MD = 21.47) were determined to be the most statistically significant, i.e. 18.54 and 21.47 are greater than 0.40 the Tukey HSD critical value. For H4, the mean differences between EO and the EOxENVxACAP interaction (MD = 2.95) as well as between EO and EOxENVxACAP interaction (MD = 6.04) were determined to be the most statistically significant, i.e. 2.95 and 6.04 are greater than 0.39 the Tukey HSD critical value. Lastly, for H5(b), the mean differences between EO and the EOxENVxACAPxOI interaction (MD = 4.56) as well as between EO and EOxENVxACAPxOI interaction (MD = 8.20) were determined to be the most statistically significant, i.e. 4.56 and 8.20 are greater than 0.40 critical value. These results are consistent with the hierarchical regression analysis results shown in Tables 3 and 4, respectively.

The slope analyses results for all the hypotheses are shown in Figs. 2, 3, 4, 5, 6, 7. These results show different FP results were yielded by different configurations of these moderating effects and EO. This is consistent with the RBV and contingency theory and provides insights into hypotheses H3, H4, H5(a) and H5(b). In Fig. 2, the slope analyses results reveal that the EO–FP relationship was a nonlinear, statistically significantly relationship, providing support for H1. Figure 3 reveals that the EO–FP relationship exhibits a U-shaped behaviour and is negatively moderated by environmental hostility, providing support for H2. Figure 4 results show that an increase in

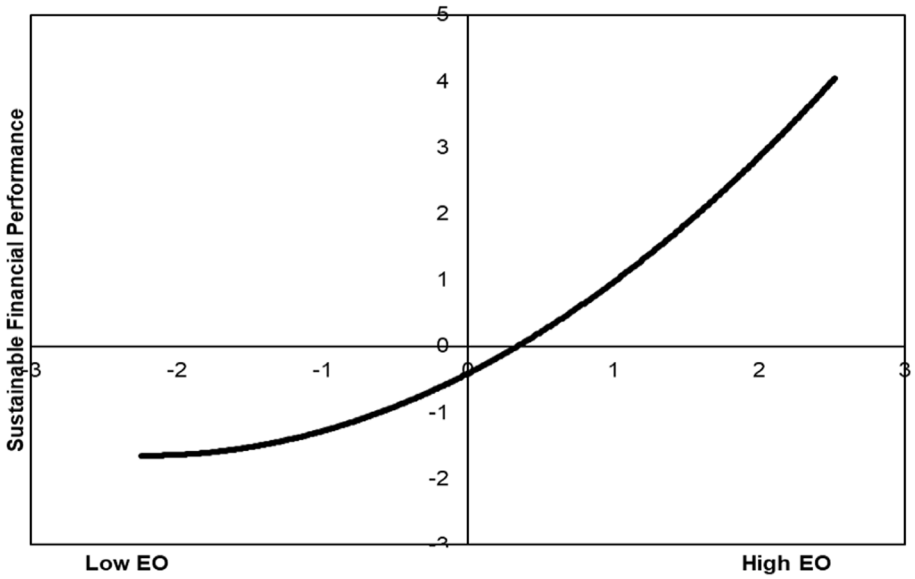

Fig. 2 EO–FP relationship

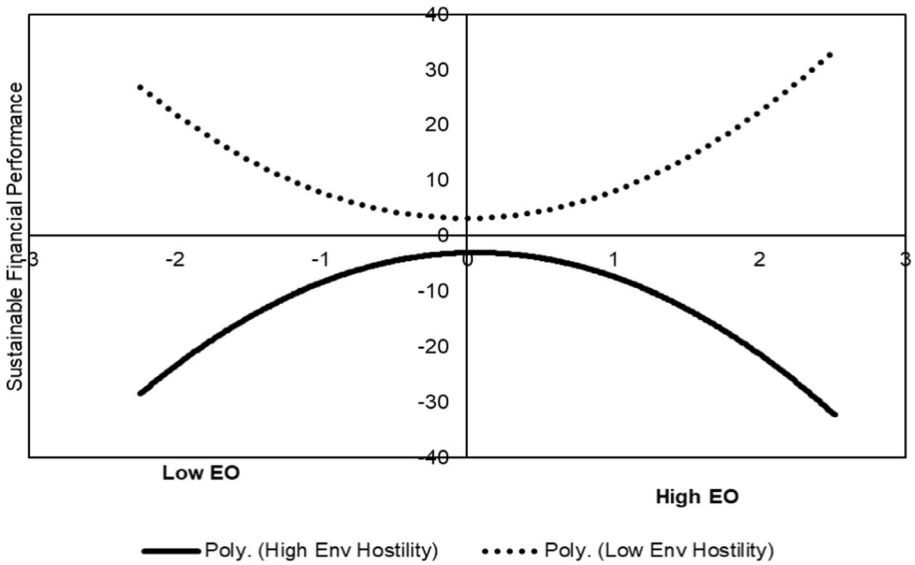

Fig. 3 EO–FP relationship with environmental hostility moderating effects

FP was solely realised when there were medium to high levels of EO innovativeness, providing partial support for H3. Based on Fig. 5, H4 is not supported as far as the slope analyses show that the EO–FP relationship exhibits a U-shaped behaviour and is negatively moderated by ACAP. Figure 6 highlights that the EO–FP relationship exhibits a U-shaped behaviour and is positively moderated by the bricolage capability–organisational identity interaction, providing support for H5a. Figure 7 results show that the EO–FP relationship exhibits a U-shaped behaviour and is positively

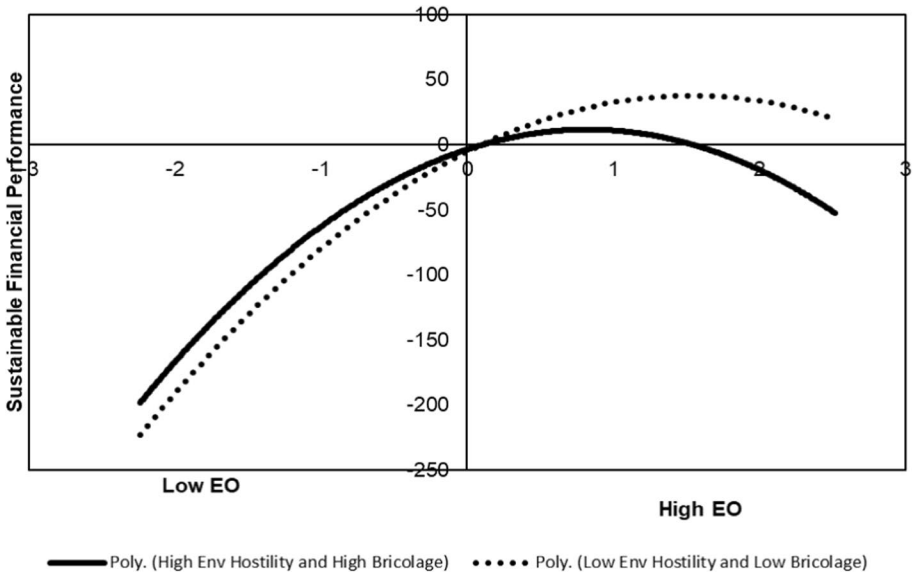

Fig. 4 EO–FP relationship with environmental hostility–bricolage capability interaction moderating effects

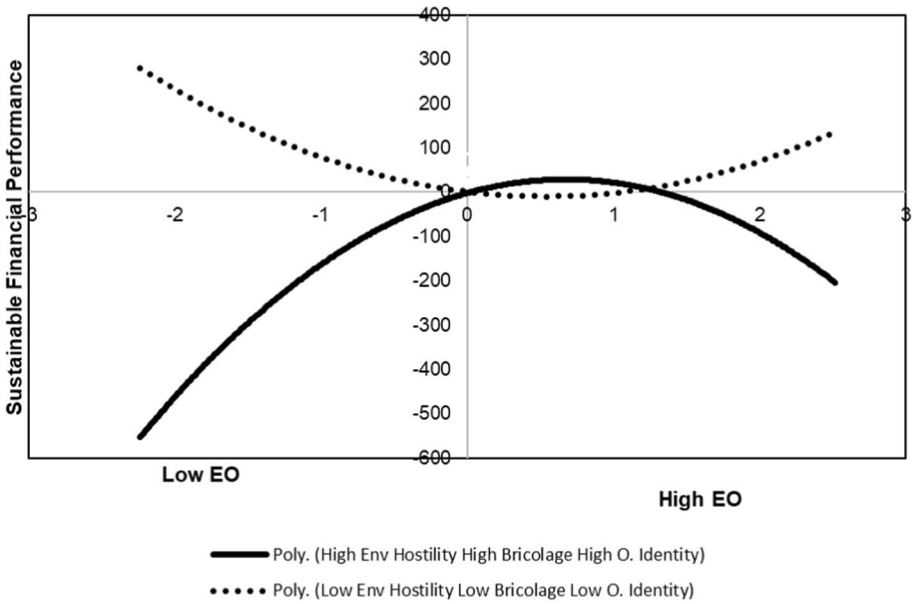

Fig. 5 EO–FP relationship with environmental hostility–bricolage capability–organisational identity interaction moderating effects

moderated by the absorptive capacity–organisational identity interaction, providing support for H5b.

Discussion

The empirical results reveal that the EO–FP relationship was a nonlinear, statistically significantly relationship. Furthermore, the results indicated that the moderating effects of the environmental hostility–bricolage capability, ACAP, OI interactions,

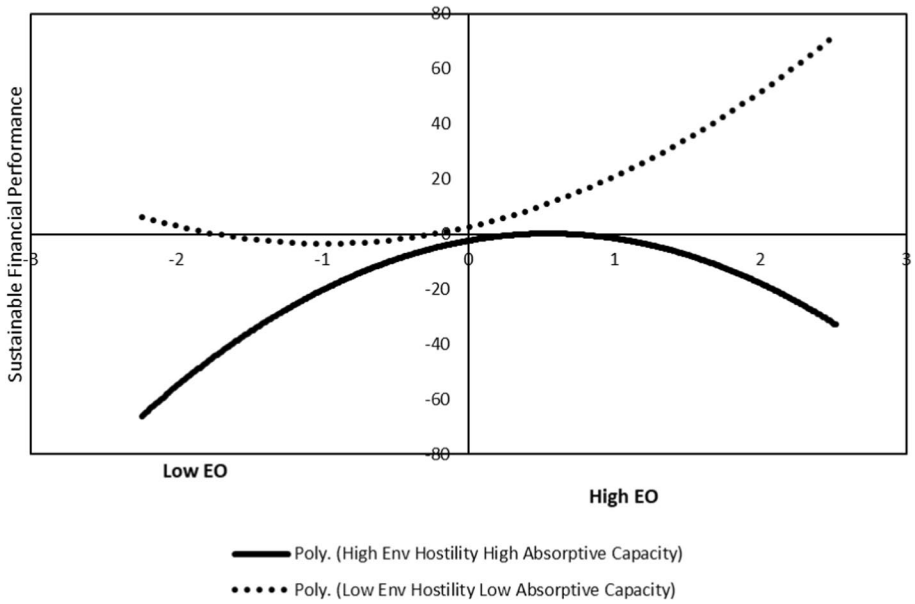

Fig. 6 EO–FP relationship with environmental hostility–absorptive capacity interaction moderating effects

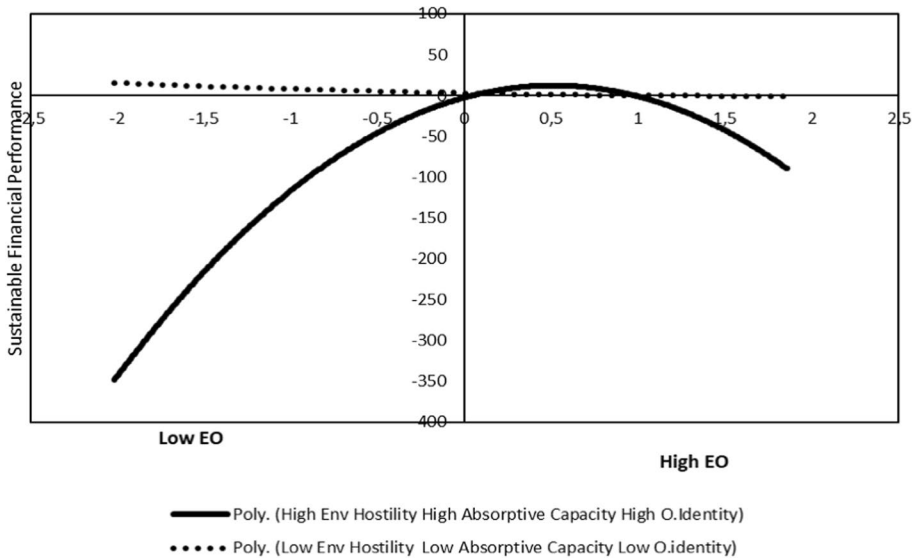

Fig. 7 EO–FP relationship with environmental hostility–absorptive capacity–organisational identity interaction moderating effects

were all nonlinear with different configurations of interactions yielding both significant and non-significant FP outcomes. Moreover, using effect sizes, the results suggest that the nonlinear behaviour between EO and FP is largely contributed to by the innovativeness and proactiveness dimensions of EO. The findings relate to the debate on the EO–firm performance link which is well captured in literature (e.g., Tang et al., 2008), but increasing research reveals the EO–firm performance relationship largely exhibits nonlinearity (Kohtamäki et al., 2019; Morić, 2022; Soares & Perin, 2020;

Tang et al., 2008). While the long-term effects of EO on firm performance have been scrutinised by Tang et al. (2008) who found a curvilinear (inversed U-shaped) relationship between EO and firm performance using both the subjective and objective measurement approaches, other researchers also confirm that the EO and firm performance relationship exhibits a curvilinear curve over time (Gupta & Gupta, 2015; Kohtamäki et al., 2019), while the effects of EO (as both a gestalt and multidimensional construct) on long-term performance (using ROA and Tobin's Q, respectively) indicate that EO had an inverse U-shaped effect on performance with the EO dimension of innovativeness contributing positively to performance over time, whereas proactiveness and risk-taking had a significant negative effect on performance over time (Madsen, 2007; Morić, 2022; Šlogar et al., 2023). Another study which has relevance to the present study findings is by D'Souza, and Fan (2022), who proposed a capability-anchored articulation of this relationship using a moderated-mediation interaction. These authors suggested that their model indicates a negative and curvilinear relationship between EO and organisational performance for emergent organisations and a positive and curvilinear relationship for post-emergent organisations. This relationship is consistent with the reality of firms especially when the bounded rationality (Jia et al., 2021) of top management teams (TMTs), caused by the variance inherent in EO (Revilla et al., 2016; Shiferaw et al., 2023), makes possessing a valuable, rare, imitable and non-substitutable (VRIN) resource, that yields persistent sustainable performance difficult to achieve (Abu-Rumman et al., 2021; Cosa et al., 2024).

Our study builds in this research direction to provide an accompanying explanatory framework for such contradictory results relating to the EO–firm performance relationship. In relation to the South African construction and materials sector, these findings suggest that in response to the persistent decline in performance, firms seem to have largely adopted EO practices which positively impact their FP, providing support for H1. Since the end of apartheid in 1994 South Africa has been on a long institutional reform path and is arguably one of Africa's most advanced economies. Nonetheless, South Africa also has one of the highest inequality rates in the world and is characterised by a weak job-creating capacity leading to widespread unemployment and prevalent poverty rates (Urban, 2021). By establishing that EO positively impacts FP and interrogating validity of the various constructs in an African emerging market context we anticipate this will allow for replicative studies to take place in the future, in similar emerging market contexts.

H2 was also supported as far as the EO–FP relationship exhibits a U-shaped behaviour and is negatively moderated by environmental hostility. However, the U-shaped behaviour suggests that that in the context of environmental hostility, low to medium levels of EO translate into a decrease in FP and medium to high EO levels translate to an increase in FP albeit not to levels that could negate the overall negative moderating effects of environmental hostility. These findings underscore prior research findings that show how under conditions of hostility, increased market/demand turbulence causes firms to respond to this rapidly changing market by adopting non-predictive strategies, such as EO (Engelen et al., 2014). However, there are mixed findings in terms of the influence of a hostile environment on EO, where some researchers—specifically in the South African

emerging market context—argue that hostility results in competitive intensity which positively influences innovations.

H3 was supported as the results reveal that the EO–FP relationship is positively moderated by its bricolage capability albeit marginally when compared to the hypothesis H2. This finding confirms that bricolage capability, which is concerned with restructuring or recombining exiting internal resources and capabilities to respond to new situations or opportunities (Sengura & Renyan, 2024), is positively related to the EO–FP relationship as a moderator. In this regard, the findings of the current study in relation to the positive moderating effect of bricolage capability on the EO innovativeness–FP relationship are consistent with the literature (Xiaobao et al., 2022). More specifically, the results suggest that this increase in FP was solely realised when there were medium to high levels of EO innovativeness. It seems that bricolage is an effective strategy to overcome the resource constraints facing firms in hostile environments. Additionally, the results have demonstrated that bricolage capability is relevant to established firms as well as it helps firms to mobilise resources and overcome environmental constraints (Santos et al., 2022). In the South African context, this finding aligns with similar studies which highlight the moderating effect of interfunctional coordination, an essential element in restructuring resources, on the EO–performance (Mathafena & Msimango-Galawe, 2023). Similarly, others (Urban, 2021), show that EO–performance in South Africa firms is influenced by organisational boundaries, strategy, and resources.

In terms of H4 insofar the EO–FP relationship exhibits a U-shaped behaviour and is negatively moderated by ACAP, H4 cannot be supported. This U-shaped behaviour suggest that low to medium levels of EO translates into a decrease in FP and medium to high EO levels translate to an increase in FP. This finding is somewhat surprising, and a plausible explanation could be that ACAP does not influence the EO–FP relationship because of inefficiencies relating to the way current and relevant information is acquired and processed. However, the findings of the current study are not entirely without precedent and are comparable to and consistent with the study of Kohtamäki et al. (2019), where the authors show that ACAP negatively moderated the EO–performance relationship. Similarly, other studies in the South African context also highlight the complex association between EO in terms of innovativeness and elements of ACPA, such as knowledge management (Urban & Matela, 2022). The current study findings also provide insights into how the postulations of D'Souza and Fan (2022) relating to the potential positive effects of ACAP and its variations on the EO–firm performance relationship could be affected by hostile environmental effects.

The results for H5a suggest that in the context of environmental hostility, the EO–FP relationship exhibits a U-shaped behaviour and is positively moderated by the bricolage capability–organisational identity interaction. The U-shaped behaviour suggest that in the context of the environmental hostility–bricolage capability–organisational identity interaction, low to medium levels of EO translates into a decrease in FP and medium to high EO levels translate to an increase in FP. Our findings are in line with research conducted by D'Souza and Fan (2022), who shows how environmental turbulence-induced innovations are facilitated through OI steering the process by its 'who are becoming' lens. The results for H5b suggest that in the context of environmental hostility, EO–FP relationship exhibits a U-shaped behaviour and is positively moderated by

the absorptive capacity–organisational identity interaction. This U-shaped behaviour suggest that low to medium levels of EO translates into a decrease in FP and medium to high EO levels translate to an increase in FP. A plausible explanation for these results, is that when viewing ACAP through the OI lens the acquisition and processing of current and relevant information relating to market changes, market demands, and customer needs is strengthened, leading to an increase in the EO–performance relationship. Similarly, from a South African perspective, Gantsho et al., (2024) show how consumer perspectives and branding affect EO–performance. These findings are congruent with other researcher findings which explains knowledge transfer based on ACAP and show how firms need to focus strongly on OI to increase its effectiveness (Naqshbandi & Tabche, 2018). Overall our results are congruent with previous studies (e.g., D'Souza & Fan, 2022; Gupta & Gupta, 2015) which also reveal contradictory results associated with the EO–firm performance relationship, and how the variance inherent with environmental hostility could be leveraged using variables such as bricolage capability, ACAP, OI, and their respective interactions to sustain firm performance. These findings resonate with recent studies (Urban & Govender, 2024) in the South African context which emphasise through an integrated model the complex interplay of antecedents and moderators driving entrepreneurship activity in South Africa.

Theoretical and managerial implications

Our study provides several contributions to the literature where previously unrelated constructs were brought together in a framework to help explain the contradictory results associated with the EO–FP relationship. This framework and empirical testing provide scholars with alternative ways to create new theoretical linkages between these constructs and paves the way for more the development of more complex conceptual models that could explain the EO–firm performance relationship. Additionally, by validating the psychometric properties of the constructs under examination in an African market context, allows for replication studies to take place in other similar emerging market contexts.

The study findings have several managerial implications which suggest that in hostile environments, managers by reflecting upon the current, past, and future state of their firms, i.e. their organisational identity, could strengthen the extent to which their bricolage capability and ACAP optimises the EO–FP relationship. Managers in the South African construction and materials sector need to appreciate how various internal resources and capabilities could be orchestrated for optimum performance and how these could be complementary and consistent with an EO. In this regard, firms should pay particular attention (a) to changes in their external environments, i.e. to invest in environmental scanning activities, develop evaluation and control mechanisms that guide, (b) how they apply EO, and (c) how they leverage from internal resources and capabilities, such bricolage capability, ACAP, and OI.

Study limitations and future research

The current study only focused on surviving firms in the South African construction and materials sector and excluded failed firms. This survival bias limitation could be overcome by including data on failed firms to provide many insights into the nature of the

EO–sustainable financial performance relationship. Moreover, the conceptual model developed for the purpose of this study is by no means representative of all performance improving strategies in firms. Bricolage capability, ACAP and OI are not exhaustive of all managerial strategies that could be used as complementary resources and capabilities to sustain financial performance. Therefore, examining other strategies such as market orientation and digital technology adoption could be used in future research focused on DI in emerging markets. Future research could assess the EO–FP relationship across diverse sub-context organisational environments to isolate the determinants of bricolage capability, ACAP and OI within the organisational ecosystem.

Conclusion

We anticipate that our study conceptual framework, which draws on the vast literature of EO–performance relationship, will assist in better understanding the moderating effects of bricolage capability, absorptive capacity, and organisational identity, while accounting for the hostile environment setting of the South African construction and materials sector. By testing new organisational configurations to further support the EO–performance relationship, we contribute and extend the theoretical and empirical reach of theory on the EO construct. It is anticipated that our research will stimulate the development of more complex EO conceptual models, where valuable insights are gained into how an organisation could respond to the demands of hostile external environments, especially in an African emerging market context.

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Authors' contribution
BU: Conceptualisation, literature identification, hypotheses development, methodology, write-up of article, handling of reviewers comments. FK: identification of research gap, conceptual model, methodology, data collection, data analyses, data interpretation, discussions.

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Availability of data and materials
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Declarations

Competing interests
The authors declare no conflict of interest.

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References

Abu-Rumman, A., Shraah, A., Al-Madi, F., & Alfalah, T. (2021). Entrepreneurial networks, entrepreneurial orientation, and performance of small and medium enterprises: Are dynamic capabilities the missing link? *Journal of Innovation and Entrepreneurship, 10*(1), 1–16. https://doi.org/10.1186/s13731-021-00170-8

Alshanty, A. M., & Emeagwali, O. L. (2019). Market-sensing capability, knowledge creation and innovation: The moderating role of entrepreneurial-orientation. *Journal of Innovation & Knowledge, 4*(3), 171–178. https://doi.org/10.1016/j.jik.2019.02.002

Anderson, B. S., Kreiser, P. M., Kuratko, D. F., Hornsby, J. S., & Eshima, Y. (2015). Reconceptualizing entrepreneurial orientation. *Strategic Management Journal, 36*(10), 1579–1596.

Baker, T., & Nelson, R. E. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. Administrative science quarterly, 50(3), 329–366.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120.

Campos, V., Sanchis, J. R., & Ejarque, A. T. (2024). Can organizational size moderate the relationship between sustainable-driven financial management and business competitiveness? *International Entrepreneurship and Management Journal, 20*, 39–54. https://doi.org/10.1007/s11365-023-00928-4
Choi, S. B., Lee, W. R., & Kang, S.-W. (2020). Entrepreneurial orientation, resource orchestration capability, environmental dynamics, and firm performance: A test of three-way interaction. *Sustainability, 12*(13), 5415.
Cosa, M., Pedro, E., & Urban, B. (2024). How to assess the intellectual capital of firms in uncertain times: A systematic literature review and a proposed model for practical adoption. *Journal of Intellectual Capital, 25*(7), 1–22.
Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal, 10*(1), 75–87.
Covin, J. G., & Slevin, D. P. (1991). A conceptual model of entrepreneurship as firm behaviour. *Entrepreneurship Theory and Practice, 16*(1), 7–24.
Dobbs, R., & Koller, T. (2005). Measuring long-term performance. *The McKinsey Quarterly, 16*, 17–27.
D'Souza, D. E., & Fan, G. (2022). A capability-anchored articulation of the EO-organizational performance relationship in emergent and post-emergent organizations. *Journal of Business Research, 146*, 107–117. https://doi.org/10.1016/j.jbusres.2022.03.069
Duymedjian, R., & Rüling, C.-C. (2010). Towards a foundation of bricolage in organization and management theory. *Organization Studies, 31*(2), 133–151.
Engelen, A., Kube, H., Schmidt, S., & Flatten, T. C. (2014). Entrepreneurial orientation in turbulent environments: The moderating role of absorptive capacity. *Research Policy, 43*(8), 1353–1369.
Gantsho, K. A., Van Vuuren, J., & Fabris-Rotelli, I. (2024). Consumer perspectives on the relationship between iconic branding and entrepreneurial orientation. *Southern African Journal of Entrepreneurship and Small Business Management, 16*(1), 716.
Gupta, V. K., & Gupta, A. (2015). Relationship between entrepreneurial orientation and firm performance in large organizations over time. *Journal of International Entrepreneurship, 1*(13), 7–27.
Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling: A Multidisciplinary Journal, 6*(1), 1–55.
Huang, S., Huang, Q., & Soetanto, D. (2023). Entrepreneurial orientation dimensions and the performance of high-tech and low-tech firms: A configurational approach. *European Management Journal, 41*(3), 375–384.
Jia, Y., Tsui, A. S., & Yu, X. (2021). Beyond bounded rationality: CEO reflective capacity and firm sustainability performance. *Management and Organization Review, 17*(4), 777–814.
JSE. (2021). Johannesburg Stock Exchange (JSE) - Listed Companies. https://www.african-markets.com/en/stock-markets/jse/listed-companies
Khandwalla, P. N. (1976). Some top management styles, their context and performance. *Organization and Administrative Sciences, 7*(4), 21–51.
Kindermann, B., Schmidt, C. V. H., Pulm, J., & Strese, S. (2022). The double-edged sword of entrepreneurial orientation: A configurational perspective on failure in newly public firms. *Entrepreneurship Theory and Practice, 47*(5), 1811–1842.
Kohtamäki, M., Heimonen, J., & Parida, V. (2019). The nonlinear relationship between entrepreneurial orientation and sales growth: The moderating effects of slack resources and absorptive capacity. *Journal of Business Research, 100*, 100–110.
Kumar, S., Raj, R., Salem, I., Singh, E. P., Goel, K., & Bhatia, R. (2024). The interplay of organisational culture, transformational leadership and organisation innovativeness: Evidence from India. *Asian Business Management, 23*, 180–210. https://doi.org/10.1057/s41291-023-00230-9
Lawrence, P. R., & Lorsch, J. W. (1967). Differentiation and integration in complex organizations. *Administrative Science Quarterly, 12*(1), 1–47.
Lee, Y., & Kreiser, P. M. (2018). Entrepreneurial orientation and ambidexterity: Literature review, challenges, and agenda for future research. In D. F. Kuratko & S. Hoskinson (Eds.), *The challenges of corporate entrepreneurship in the disruptive age* (pp. 37–62). Emerald Publishing Limited.
Lin, Y.-Y. (2004). *Organizational identity and its implication on organization development*. Paper presented at the Academy of Human Resource Development International Conference (AHRD) Austin, TX.
Lumpkin, G. T., & Dess, G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review, 21*(1), 135–172.
Madsen, E. L. (2007). The significance of sustained entrepreneurial orientation on performance of firms–A longitudinal analysis. *Entrepreneurship and Regional Development, 19*(2), 185–204.
Maphumulo, M., & Urban, B. (2022). The moderating effects of entrepreneurial orientation on technological opportunism and innovativeness performance. *European Journal of Innovation Management, 25*(3), 901–921.
Mata, M. N., Martins, J. M., & Inácio, P. L. (2023). Impact of absorptive capacity on project success through mediating role of strategic agility: Project complexity as a moderator. *Journal of Innovation & Knowledge, 8*(1), 100327. https://doi.org/10.1016/j.jik.2023.100327
Mathafena, R. B., & Msimango-Galawe, J. (2023). Entrepreneurial orientation, market orientation and opportunity exploitation in driving business performance: Moderating effect of interfunctional coordination. *Journal of Entrepreneurship in Emerging Economies, 15*(3), 538–565.
Mgwenya, J., & Urban, B. (2024). State-Owned Entities in an African emerging market context: The role of entrepreneurial intensity and capabilities in performance. *Managing Global Transitions: International Research Journal, 22*(1), 27–51.
Morić, M. B. (2022). Exploring direct and non-linear effects of entrepreneurial orientation and its dimensions on firm performance in a small, open, transitional economy. *Strategic Management, 27*(3), 26–38.
Naqshbandi, M. M., & Tabche, I. (2018). The interplay of leadership, absorptive capacity, and organizational learning culture in open innovation: testing a moderated mediation model. *Technological Forecasting and Social Change, 133*(C), 156–167.
Naskar, S. (2023). The mediating role of HPWS in the EO-firm performance relationship. *Journal of Managerial Issues, 35*(2), 195–219.

Niemand, T., & Eggers, F. (2023). *One scale fit all? meta-analysing psychometric properties of measuring entrepreneurial orientation*. Paper presented at the Academy of Management Proceedings (Vol. 2023, No. 1, p. 12559), Briarcliff Manor, NY.
O'Mahoney, J., & Visscher, K. (2017). Bricolage and identity work. *British Journal of Management, 29*(2), 356–372.
Omopariola, E. D., Windapo, A., Edwards, D. J., & El-Gohary, H. (2021). Level of financial performance of selected construction companies in South Africa. *Journal of Risk and Financial Management, 14*(11), 518.
Pinto, P., Pallikkara, V., Pinto, S., & Hawaldar, I. T. (2024). Unveiling the entrepreneurial mindset: Exploring orientation and intentions among students of prominent engineering disciplines. *Journal of Innovation and Entrepreneurship, 13*, 33. https://doi.org/10.1186/s13731-024-00390-8
Putniņš, T. J., & Sauka, A. (2020). Why does entrepreneurial orientation affect company performance? *Strategic Entrepreneurship Journal, 14*(4), 711–735.
PWC. (2016). *Highlighting trends in the South African Construction Industry.* Johannesburg: https://www.pwc.co.za/en/assets/pdf/sa-construction-2016.pdf
Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice, 33*(3), 761–787.
Revilla, A. J., Pérez-Luño, A., & Nieto, M. J. (2016). Does family involvement in management reduce the risk of business failure? The moderating role of entrepreneurial orientation. *Family Business Review, 29*(4), 365–379.
Reyes-Gómez, J. D., López, P., & Rialp, J. (2024). The relationship between strategic orientations and firm performance and the role of innovation: A meta-analytic assessment of theoretical models. *International Journal of Entrepreneurial Behavior & Research*. https://doi.org/10.1108/IJEBR-02-2022-0200
Rosenbusch, N., Rauch, A., & Bausch, A. (2013). The mediating role of entrepreneurial orientation in the task environment–performance relationship: A meta-analysis. *Journal of Management, 39*(3), 633–659.
Saiyed, A. A., Tatoglu, E., Ali, S., & Dutta, D. K. (2023). Entrepreneurial orientation, CEO power and firm performance: An upper echelons theory perspective. *Management Decision, 61*(6), 1773–1797. https://doi.org/10.1108/MD-05-2022-0641
Saleem, I., Al-Breiki, N. S. S., & Asad, M. (2024). The nexus of artificial intelligence, frugal innovation and business model innovation to nurture internationalization: A survey of SME's readiness. *Journal of Open Innovation: Technology, Market, and Complexity*. https://doi.org/10.1016/j.joitmc.2024.100326
Santos, L. L., Oliveira Junior, M. M., Bernardes, R. C., Borini, F. M., & Rossetto, D. E. (2022). Bricolage as capability for frugal innovation in emerging markets in times of crisis. *European Journal of Innovation Management., 25*(2), 413–432.
Sarasvathy, S. D. (2021). *Effectuation: Elements of Entrepreneurial Expertise.* (2nd Ed.). Edward Elgar, New Horizons in Entrepreneurship Series
Sarasvathy, S. D., & Venkataraman, S. (2011). Entrepreneurship as method: Open questions for an entrepreneurial future. *Entrepreneurship Theory and Practice, 35*(1), 113–135.
Schindler, P. (2019). *Business research methods* (13th ed.). McGraw-Hill Education.
Schröder, K., Tiberius, V., Bouncken, R. B., & Kraus, S. (2021). Strategic entrepreneurship: Mapping a research field. *International Journal of Entrepreneurial Behaviour & Research, 27*(3), 753–776.
Sengura, J. D., & Renyan, M. (2024). The role of entrepreneurial orientation and entrepreneurial bricolage on frugal innovation and SMEs sustainable performance in emerging markets. *International Journal of Management Science and Business Administration, 10*(4), 19–37.
Senyard, J., Baker, T., Steffens, P., & Davidsson, P. (2014). Bricolage as a path to innovativeness for resource-constrained new firms. *The Journal of Product Innovation Management, 31*(2), 211–230.
Shiferaw, R. M., Birbirsa, Z. A., & Werke, S. Z. (2023). Entrepreneurial leadership, learning organization and organizational culture relationship: A systematic literature review. *Journal of Innovation and Entrepreneurship, 12*, 38. https://doi.org/10.1186/s13731-023-00305-z
Šlogar, H., Morić Milovanović, B., & Hrvatin, S. (2023). Does the relationship between entrepreneurial orientation and subjective financial firm performance have an inverted u-shape? Evidence from Southeast European SMEs. *Administrative Sciences, 13*(2), 26.
Soares, M. C., & Perin, M. G. (2020). Entrepreneurial orientation and firm performance: An updated meta-analysis. *RAUSP Management Journal, 55*, 143–159.
Tang, J., Tang, Z., Marino, L. D., Zhang, Y., & Li, Q. (2008). Exploring an inverted U–shape relationship between entrepreneurial orientation and performance in Chinese ventures. *Entrepreneurship Theory and Practice, 32*(1), 219–239.
Tripsas, M. (2009). Technology, identity, and inertia through the lens of "The Digital Photography Company." *Organization Science, 20*(2), 441–460.
Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika, 38*(1), 1–10.
Urban, B. (2021). Public sector entrepreneurial orientation in South Africa: A focus on organisational boundaries, strategy, and resources. *International Journal of Entrepreneurship and Innovation Management, 25*(1), 1–19.
Urban, B. & Govender, T. (2024). An integrated PLS-SEM model on the interplay of antecedents and moderators driving corporate entrepreneurship activity in South Africa. *Journal of Entrepreneurship, Management and Innovation.*
Urban, B., & Matela, L. (2022). The nexus between innovativeness and knowledge management: A focus on firm performance in the hospitality sector. *International Journal of Innovation Studies, 6*(2), 26–34.
Urbano, D., Turro, A., Wright, M., & Zahra, S. (2022). Corporate entrepreneurship: A systematic literature review and future research agenda. *Small Business Economics, 59*, 1541–1565. https://doi.org/10.1007/s11187-021-00590-6
van Doorn, S., Heyden, M. L., & Volberda, H. W. (2017). Enhancing entrepreneurial orientation in dynamic environments: The interplay between top management team advice-seeking and absorptive capacity. *Long Range Planning, 50*(2), 134–144.
Voss, Z. G., Cable, D. M., & Voss, G. B. (2006). Organizational identity and firm performance: What happens when leaders disagree about "who we are?" *Organization Science, 17*(6), 741–755.
Wales, W. J., Covin, J. G., Schüler, J., & Baum, M. (2023). Entrepreneurial orientation as a theory of new value creation. *The Journal of Technology Transfer, 48*(5), 1752–1772.
Wales, W. J., Kraus, S., Filser, M., Stöckmann, C., & Covin, J. G. (2021). The status quo of research on entrepreneurial orientation: Conversational landmarks and theoretical scaffolding. *Journal of Business Research, 128*, 564–577.

Wales, W. J., Patel, P. C., Parida, V., & Kreiser, P. M. (2013). Nonlinear effects of entrepreneurial orientation on small firm performance: The moderating role of resource orchestration capabilities. *Strategic Entrepreneurship Journal, 7*(2), 93–121.
Whetten, D. A. (2006). Albert and Whetten revisited: Strengthening the concept of organizational identity. *Journal of Management Inquiry, 15*(3), 219–234.
Wiklund, J., & Shepherd, D. A. (2011). Where to from here? EO-as-experimentation, failure, and distribution of outcomes. *Entrepreneurship Theory and Practice, 35*(5), 925–946.
Xiaobao, P., Rui, G., Jiewei, Z., & Xiaofan, S. (2022). The impact of resource bricolage on entrepreneurial orientation in start-ups: the moderating roles of TMT heterogeneity and TMT behavioural integration. *Frontiers in Psychology, 13*, 900177. https://doi.org/10.3389/fpsyg.2022.900177
Yigit, S., & Mendes, M. (2018). Which effect size measure is appropriate for one-way and two-way ANOVA models? A Monte Carlo Simulation Study. *REVSTAT-Statistical Journal, 16*(3), 295–313.
Zahra, S. A., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review, 27*(2), 185–203.

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