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Entrepreneurial orientation and firm performance: How can micro, small and medium-sized enterprises survive environmental turbulence?

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ABSTRACT

This study investigates the entrepreneurial ecosystem to determine the role of environmental turbulence in the relationship between entrepreneurial orientation (EO) and firm performance. This study attempts to provide additional insight to understand the relationship between EO and performance. This study uses a structural equation model with data from micro, small and medium-sized enterprises operating in Indonesia. The results indicate that environmental turbulence may have either a positive or negative impact on firm performance by encouraging firms to be more effective and achieve greater performance or having a negative effect on firms with superior entrepreneurial orientation.

1. Introduction

Entrepreneurial orientation (EO) is a 'strategic posture' of firms that indicates their entrepreneurial posture to the sustainment of firm viability (Gürbüz and Aykol, 2009; Covin and Lumpkin, 2011). In certain ecosystems, EO may be a useful construct to understand the capability of certain firms that are able to maintain their performance trajectories while other firms fail (Covin and Lumpkin, 2011). However, environmental turbulence may have a negative effect on the firm's reputation and is associated with changes in competitive advantage and the complex market environment. This situation implies that a complex relationship exists between EO and firm performance (Zellweger and Sieger, 2012).

Prior studies have utilized mediating variables such as marketing capability (Morgan et al., 2009) and reward philosophy (Pratono and Mahmood, 2015) to understand the relationship between EO and firm performance. However, it is not sufficient to clarify the complex relationship between EO and firm performance because different patterns of relationships may form in different contexts. This scenario indicates the need for a moderating variable and reveals a condition such that EO influences firm performance (Wales et al., 2011).

This study investigates the role of environmental turbulence in the complex relationship between EO and firm performance. By investigating the mediating effect of marketing capability and the moderating effect of environmental turbulence, this study attempts to characterise the relationship between EO and performance.

2. Literature review

This study utilizes a combination of the resource-based view (RBV) and contingency theory to explain the methods firms use to leverage their EO to reach optimal performance. The classical theory of the RBV purports that firms need to control more resources to achieve their goals (Penrose, 1959). These resources may include assets, capabilities and knowledge (Barney, 1991). The RBV denotes that firms with valuable, rare, inimitable and non-substitutable resources are considered to have the capability for competitive advantage (Porter, 1990). This theory presumes that the capability of firms to control resources is heterogenic because it takes time to duplicate such valuable resources (Day, 2011). Because resources constitute both tangible and intangible assets, EO may also be considered a valuable resource or capability (Bakar and Ahmad, 2010). Apparently, EO may play a pivotal role in ensuring that a

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firm's resources meet these criteria because EO is considered to be an entrepreneurial method that firms use to promote innovation, risk-taking behaviour, and proactive management that seizes opportunities (Covin and Wales, 2012). Because these are intangible resources, firms with greater EO tend to seize more business opportunities. Hence, the RBV regards firms with high levels of EO as intangible assets and capabilities.

Valuable resources may prompt a unique innovation that is difficult to copy, slow to depreciate, has no substitution, and is superior to similar resources (Collis and Montgomery, 2008). This innovation may change the current economic structure; it is often necessary destroy the prior economic structure for the firm to survive (Schumpeter, 1942). Valuable resources with a niche-market orientation allow small businesses to develop their organizations (Kotler et al., 2009). Large companies promote research & development programs, enhance reward systems and stimulate innovation in the workplace (Andersén, 2010).

Intimate knowledge of customers is one typical resource of small and medium-sized enterprises (SMEs). Customer awareness typically occurs in firms with niche products or services and improves the competitiveness of SMEs to achieve optimal performance (Luz, 2010). Entrepreneurial opportunities refer to a set of circumstances that make it possible to recombine resources and generate profit; the methods that entrepreneurs use to recombine these resources to seize an opportunity is known as business ideas (Shane, 2012). It is unimportant how firms invest in research and development (R&D) through scientific discoveries and technologies, but how to commercialize such resources becomes a vital issue.

In regards to contingency theory, it appears that there is no single generic strategy that provides an optimal result for all business organizations. Environmental turbulence is considered impact SMEs; therefore, it becomes necessary for SMEs to use a careful combination of contingency variables and decision-making structure to obtain optimal performance (Chung et al., 2012). Environmental turbulence refers to a business environmental feature regarding the customers and their preferences for new products.

Greater environmental turbulence indicates that customers' product preferences change over time and become more price sensitive (Zhang and Duan, 2010). Stable environmental turbulence occurs when customer preference is more predictable and firms are able to leverage their resources to achieve optimal performance. Access to information may prompt consumers' preferences to dramatically change. For instance, a blue ocean environment refers to more dynamic environmental turbulence and implies that greater challenges hinder the ability of firms to identify market signals and better understand customer needs (Sundqvist et al., 2012).

2.1. Hypothesis development

This study includes three proposed hypotheses that emphasize the impact of EO on firm performance (FP). A dispute regarding the complex relationship between EO and FP has recently emerged. Certain reputable scholars argue that a positive relationship exists between EO and FP, while other scholars argue that a negative relationship exists between EO and FP. However, it has generally been acknowledged since the concept of EO emerged, that a positive relationship exists between EO and FP (Miller, 1983).

The following empirical analysis supports this argument regarding EO with more specific elements such as firm growth (Moreno and Casilas, 2008) and sales growth (Simon et al., 2011). This different context may result in a negative or insignificant relationship between EO and FP (Andersén, 2010). Another bias estimation may stem from a non-linear relationship between EO and FP (Kreiser et al., 2013). In the context of small firms, EO and income have strong positive relationship (Nandamuri and Gowthami, 2013).

Innovativeness is a primary element of EO that plays a pivotal role in boosting FP to differentiate SMEs' products from competitors' products. This concept may stimulate the capability of the firm to engage in product development and adjust production levels (Chang et al., 2007). Conversely, certain other studies highlight that EO has no effect on FP due to the effect of other independent variables (Runyan et al., 2008) and the impact of moderating variables such as the business cycle time frame (Andersén, 2010).

Hypothesis 1. EO has a positive impact on FP.

To understand the complex relationship between EO and FP, this study uses marketing capability as a mediating variable. Firms with greater EO may invest in valuable innovation with a certain level of risk-taking behaviour, but marketing capability is required to convert resources into commercially viable products or services (Shin and Aiken, 2012).

Firms with superior marketing capabilities may obtain advantages because of the relationship between EO and FP. Marketing capabilities are valuable resources that may help customers to better understand the goods and services while the firm operates more effectively (Ruiz-Ortega and Parra-Requena, 2013). Therefore, firms with superior EO may achieve greater marketing capabilities (MC). Hence, the second hypothesis may be stated as follows.

Hypothesis 2. MC has a mediating effect on the relationship between EO and FP.

It is necessary to conduct an analysis of the moderating effect of environmental turbulence on the relationship between EO and SME performance. EO ensures that firms are aware of changing market preferences and that decision makers focus on industry changes and customer demand (Lumpkin et al., 2009). The accelerating capability to manage market turbulence for tailored programs needs to address the mismatch between market preference and the relatively homogenous resources (Day, 2011). Firms with superior EO may adapt quickly to changing consumer preferences that may stem from a different level of income or increasing awareness of future generations (Devezer et al., 2014).

Conversely, environmental turbulence may have a negative impact on FP, particularly in the context of small firms. During periods of intense environmental turbulence, firms allocate more resources and may adopt new technologies; these are considered to be risk factors for poor performance (Li et al., 2008). Firms with greater EO may suffer from strategic posturing during inappropriate situations (Wales et al., 2011).

The negative impact of environmental turbulence on FP may stem from unanticipated environmental turbulence (Wang and Fang, 2012). Intense environmental turbulence may have a major impact on entrepreneurial firms due to poor forecasts of customer trends. Along with an unpredictable environment, firms may prefer coordination activities instead of assuming a greater EO position. Firms may consider marginal improvements when analysing dynamic customer preferences (Iyer, 2011). Hence, the relationship between EO and SME performance should not be considered to be inherently positive because entrepreneurial firms are heterogeneous entities (Wales et al., 2011).

The role of moderating variables in influencing the relationship between EO and FP on SME performance has been the subject of extensive studies. Renko, Carsrud and Bra mback (2009) emphasize that EO refers to responsive behaviour to the market environment and contradicts traditional and adaptive market orientations. Firms with a greater EO may suffer from strategic posturing in

inappropriate situations (Wales et al., 2011). Hence, Parker et al. (2010) argue that organizations engaging in proactive behaviour seek to create compatibility with the environment, through improving the functions of the internal organization and improving strategic fit between the organization and the business environment.

Hypothesis 3. Environmental turbulence has a moderating effect on the relationship between EO and FP.

Hypothesis 3a. During low environmental turbulence, the effect of EO on SME performance will be positive.

Hypothesis 3b. During intense environmental turbulence, the effect of EO on SME performance will be negative.

3. Research methods

This research uses a quantitative method with a cross-section design. The information quantifies a relationship among the observed latent variables by utilizing questionnaires and a random sampling method. This study employs a standardized set of questionnaires. The questions are designed to measure dichotomous responses with low/high questions for FP and disagree/agree questions for independent, mediating and moderating variables using a seven point Likert scale (1–7 ratings). The measures of the observed variables are adapted from prior studies. The measures of FP rely on subjective financial measures to determine the SMEs' disclosure of financial information (Mahmood and Hanafi, 2013). EO constitutes five elements including autonomy, innovation, risk-taking behaviour, proactive behaviour and aggressiveness (Lumpkin et al., 2009). The measures of market turbulence refer to product preferences, new products, new customers, product-related needs (Zhang and Duan, 2010) and price sensitivity (Didonet et al., 2012).

The study utilizes a sampling data frame from a SME database published by the Government of Indonesia. Along with distributed questionnaires to randomized respondents, this study received responses from 409 owner/managers of SMEs interested in contributing to this study. To test the mediating effect of MC and the moderating effect of environmental turbulence on the relationship between EO and FP, this study uses the partial least square test. This approach overcomes the multivariate normality problem by using an iterative sequence and maximizing the variance, but does not include model fit measures (Hair et al., 2012).

To test the moderating and mediating hypothesis, this study uses PLS-SEM. The broad range of methodological research indicates that the application of PLS-SEM is growing with complex models, including the moderating and mediating effects. The moderating variable affects the relationship between exogenous and endogenous variables and the mediating variable absorbs the effect of an exogenous variable on the endogenous variable (Hair et al., 2014).

3.1. Partial least square

To test the model and hypothesis, this study uses the Partial Least Square (PLS) test to provide an extended solution for the maximization of the variance of the dependent latent variable. PLS is used for this study because of the proposed model that is considered to be balanced with a number of exogenous latent variables that are greater than the endogenous latent variables. This approach focuses on a prediction using a resampling procedure and non-parametric evaluation criteria to analyse the adequacy of the partial model structure (Hair et al., 2012).

Using the PLS test provides certain advantages. First, the PLS test allows unrestricted computation of the structural equation model with reflective and formative measurements. Second, a small sample size is still acceptable without leading to an estimation problem, even for complex models. The PLS can manage highly skewed data distribution. This implies that PLS-SEM is more relevant for an application where a strong assumption of multivariate normality cannot be fully met (Henseler, 2012). However, certain disadvantages exist when using the PLS-SEM test for analysis. These include a lack of general optimization criteria that indicate a lack of model fit measures. This implies that only a limited analysis can be conducted regarding theory testing and model comparison. Second, a classic inferential framework is lacking that indicates the analysis should revert to resampling procedures and prediction-oriented and non-parametric evaluation criteria (Hair et al., 2012). Because there is no global fitting function to assess the goodness of the model, the PLS test relies on a variance-based model that is strongly oriented to prediction (Vinzi et al., 2010).

SmartPLS2.0 is an open source software used for designing the PLS test with path modelling and latent variables. To evaluate the SEM, the tool includes two sets of linear equations: outer and inner model assessments. The outer model evaluation involves a reliability test of each individual measure to ensure that internal consistency reliability exists within the model (Henseler and Sarstedt, 2013). The coefficient of determination (R2) refers to the amount of explained variance for each endogenous latent variable and is considered as a primary criterion for inner model assessment (Hair et al., 2012).

3.2. Mediating test

To test the mediating effect of MC, the PLS provides an outer model assessment and an inner model assessment. The validation process of the partial model structure assessment involves certain criteria that includes a two-step process outer model evaluation and an inner model evaluation. The outer model evaluation provides evidence of reliability and validity, while the coefficient of determination (R2) is considered to be a primary criterion for inner model assessment that determines the amount of variance for each endogenous latent variable to explain FP as a dependent variable (Hair et al., 2012). Inner model assessment also involves the significant level of path coefficient estimation with bootstrapping to assess the level of confidence intervals. To assess the outer measurement model, this study uses reflective models for a single dimension, followed by an internal consistency reliability test, an indicator reliability test, a convergent validity test and a discriminant validity test. The PLS test is used following the evaluation of data quality. The result provides estimated coefficients and includes model validation. This is a systematic evaluation process to determine whether the collected data supports the hypotheses expressed by the structural model. This approach considers quality criteria for empirical analysis. Because there is not goodness-of-fit criterion within PLS, the validation process of partial model structure assessment involves certain criteria using a two-step process: (1) assessment of the measurement model and (2) assessment of the structural equation model.

Two types of mediating effects exist, the full mediating effect and the partial mediating effect. These effects occur when no significant direct effect exists; the partial mediating effect exists when an independent variable has a direct effect on the dependent variable. Baron and Kenny (1986) assert that the full mediating effect is considered to be the strongest mediation. This effect has a different impact in regards to theory testing and the development of behaviour studies. The full mediation effect may indicate how an independent variable influences a dependent variable through a

mediating variable; it is unnecessary to determine the indirect effect. Conversely, the partial mediating effect indicates that other indirect effects could be empirically examined. The terms "partial" and "full" imply the proportion of a mediating effect. Full mediation may be considered to have a greater impact than the partial mediating effect. Apparently, indirect effects vary in size and are computed and interpreted using raw metrics. If the analysis aims to identify the effect size, the coefficients, "a" and "b", may be computed with relative ease. It is not necessary to use term the terms "partial" or "full" to describe the mediating effect. The bootstrap test of the indirect effect is recommended to replace mediation of the Baron-Kenny "three tests + Sobel" steps. Hence, the mediating test includes the indirect mediating effect, the direct mediating effect, the no effect non-mediating effect, the complementary mediating effect and the competitive mediating effect (Rucker et al., 2011).

3.3. Moderating test

To test the moderating effect of environmental turbulence, this study uses an interaction term that includes moderating and independent variables (Henseler, 2012). The interaction approach of the structural equation model involves EO × ET, which includes a combination of EO as an independent variable and ET as a moderating variable. The concept of moderating effect implies a change in the relationship between the independent variables and the dependent variable on account of a moderating variable. The moderating effect occurs if a moderating variable changes the direction of the relationship between dependent and independent variables (Baron and Kenny, 1986).

The moderating effect is also known as the interaction effect that involves interaction between two independent variables. Interaction occurs when both variables interact if the effect of one variable differs depending on the level of another variable. The interaction effect is applied in correlation and experimental data, but the moderating effect is more relevant for models that test causal hypotheses. Specifically, the moderating effect requires a causal theoretical background prior to data analysis (Wu and Zumbo, 2008).

To explain the moderating effect on the relationship between EO and FP, the interaction approach in the structural equation model involves EO × ET, which includes a combination of EO as an independent variable and ET as a moderating variable. Therefore, this study uses the two-way interaction effect to analyse the interaction between two variables; interaction that includes three variables is called a three-way interaction.

4. Results and analysis

To test reliability of the measures, this study uses the following tests: Cronbach's coefficient alpha, average variance extracted (AVE) and composite reliability (CR). Because the average variance extracted (AVE) test measures variance of the construct in relationship to the amount of variance due to measurement error, all latent variables have an AVE greater than 0.60 that confirms all measures have high reliability. Similarly, the composite reliability test indicates interrelated non-homogenous components; all latent variables have both CRs and Cronbach's alpha greater than 0.7, which indicates the measures are reliable.

This study develops a structural equation model (SEM) that represents both moderating and mediating variables. In PLS, the primary criterion for inner model assessment is the coefficient of determination (R2), which represents the amount of explained variance for each endogenous latent variable (Hair et al., 2012). R2 indicates the percentage level that the model can explain the amount of variance in the construct. Specifically, the R2 for FP is 0.498, which indicates that the model explains nearly 50 percent of the variance in FP. Another value of R2 shows that EO explains 37 percent of the variance in MC (see Table 1).

In the SEM (structural equation model), the total effect of the FP construct can provide additional information (Xuo, 2007). The variable with the greatest impact on FP is EO (weight 1.13), followed by environmental turbulence (ET) and MC, 0.96 and 0.28, respectively.

The PLS output indicates that a direct effect of EO on FP and a mediating effect of MC on the relationship between EO and FP. Table 2 demonstrates that EO has a significant impact on FP with a coefficient of 0.9 and alpha <0.01. This indicates that Hypothesis 1 is accepted.

The output also provides evidence that Hypothesis 2 is accepted. EO has a significant impact on MC with a coefficient of 0.62 and alpha <0.01; there is a significant relationship between MC and FP with a coefficient 0.28 and alpha 0.01. This result implies that MC has a mediating effect on the relationship between EO and FP. In summary, EO has a significant direct and indirect effect on FP, which implies that MC has a complementary mediating effect of $0.62 \times 0.28 = 0.17$. Fig. 1.

To assess the moderating effect of ET on the relationship between SC and FP (hypothesis 3), the PLS provides an iteration

Table 1
Quality criteria.

	AVE	Composite reliability	R square	Cronbachs alpha	Communality	Redundancy
EO	0.555530	0.860988		0.798028	0.555530	
EO*ET	0.583424	0.971948		0.969600	0.583424	
FP	0.658420	0.920329	0.497607	0.895915	0.658420	0.029720
MC	0.773414	0.931753	0.378942	0.902408	0.773414	0.292495
ET	0.546747	0.854614		0.785016	0.546747	

Table 2
Hypothesis testing.

	Original sample (O)	Sample mean (M)	Standard error (SE)	T statistics (|O/SE|)	Significance
EO → FP	1.131872	1.001117	0.226591	4.995225	Significant
EO → MC	0.615583	0.626171	0.056151	10.962906	Significant
EO*ET → FP	−1.074800	−0.888452	0.314225	3.420482	Significant
MC → FP	0.277226	0.260497	0.096491	2.873073	Significant
ET → FP	0.957748	0.866628	0.193124	4.959239	Significant

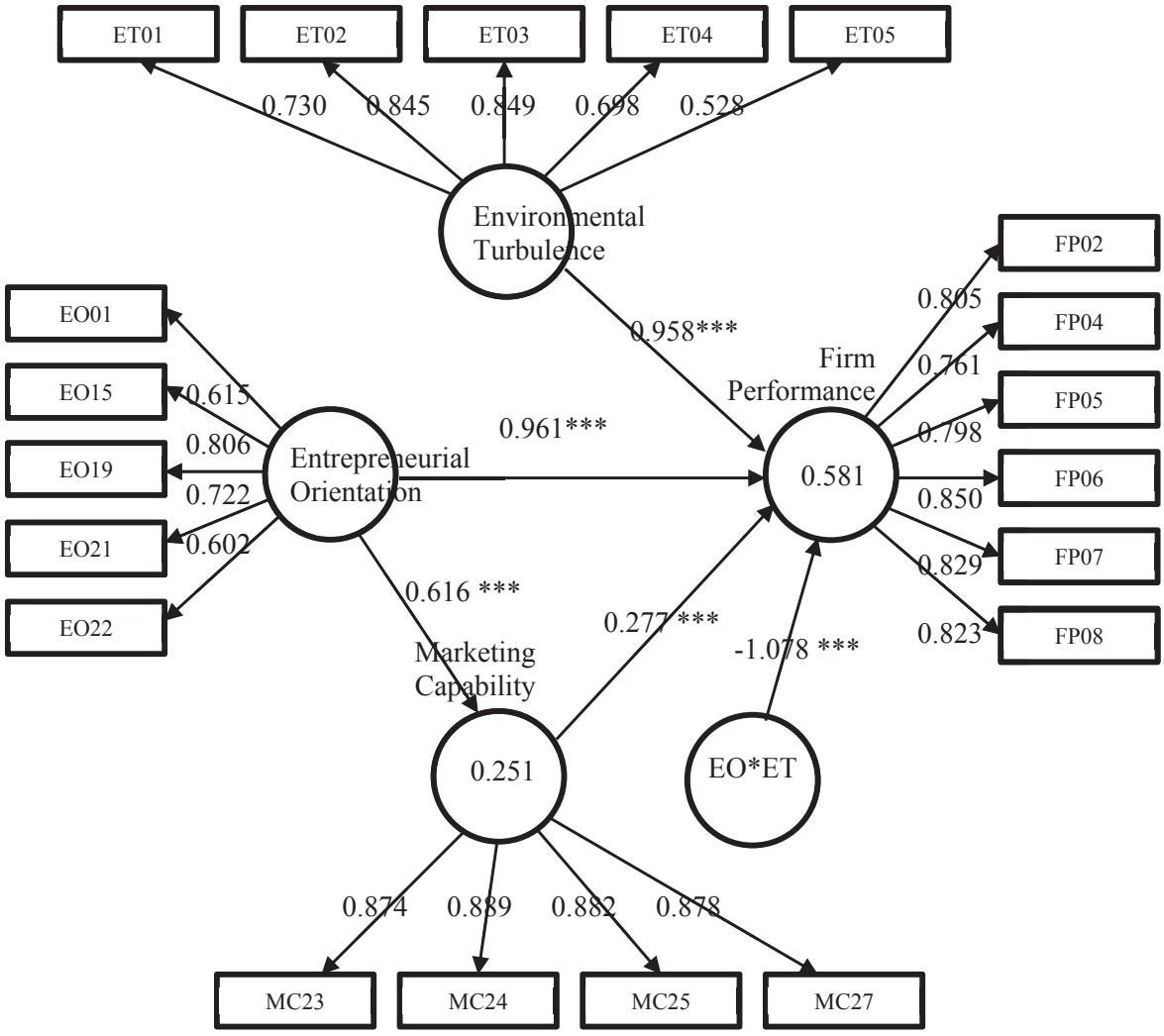

Fig. 1. Estimated model.

approach by adding the EO × ET interaction term and a direct path of ET on FP. Both the iteration term and direct path have a significant impact on FP. This indicates that ET as a moderating variable has a significant effect on the relationship between EO and FP. This further implies that environmental turbulence dampens the positive relationship between EO and FP. During low environmental turbulence, EO has a positive effect on FP. Conversely, greater environmental turbulence brings about a negative effect of EO on FP (see Fig. 2).

5. Discussion

This study analyses SMEs operating in Indonesia and provides empirical data demonstrating that EO has both a positive direct and a positive indirect impact on FP. This analysis supports the previous argument that EO has pivotal role in promoting FP (Moreno and Casilas, 2008; Simon et al., 2011). MC has a complementary mediating effect on FP. Firms can combine both EO and MC to enhance their performance.

This study argues that firms with EO gain sustainable viability during predictable environmental turbulence. However, during dynamic environmental turbulence, firms with greater EO posture will suffer from poor performance. This aligns with previous research conducted by Wales et al. (2011). These scholars argue that greater EO strategic posturing during unpredictable environmental turbulence does not have a positive impact on FP (Wales et al., 2011). This argument also gains support from Zellweger and Sieger (2012), who argue that EO may decrease due to a spillover effect from business reputation.

Taking a proactive position may allow entrepreneurial firms to understand the low dynamic level of environmental preference.

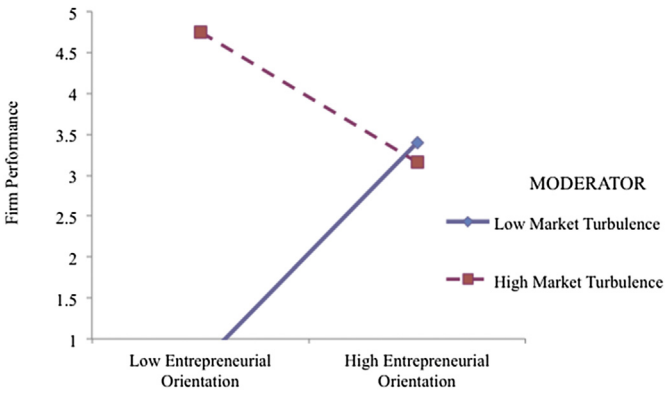

Fig. 2. Moderating effect of market turbulence.

Entrepreneurs must set goals and priorities to successfully balance performance requirements (Nambisan and Baron, 2013). Low environmental turbulence allows firms to predict environmental preference, to utilize new innovations and to take more risks. During periods of extreme environmental turbulence, entrepreneurial firms may become more risk averse to effectively manage unpredictable market preferences. This effort requires a large amount of resources and SMEs often struggle because of limited resources due to their small scale.

6. Research implication

This study investigates an unexplored contingency effect on the relationship between valuable resources and FP. The utilization of contingency theory provides guidance for conditions when firms with EO may enhance performance. The significant role of a moderating variable indicates that the positive relationship between EO and FP is often conditional. Specifically, environmental turbulence changes the direction of the positive relationship between EO and FP.

For decision makers, this study provides a decision-making framework. Dramatic changes in environmental turbulence may have a negative effect on how business innovation impacts performance. In an uncertain environment, firms should be more innovative to maintain their market share; however, SMEs tend to avoid increasing R&D investment due a lack of finances. Deployment of unique resources because of price competition may bring about the downfall of many firms (Costa et al., 2013). The outcome of this research suggests that policies to support SMEs should emphasize R&D during times of environmental turbulence. For managers, study results highlight challenges associated with the firm's capability to value resources and satisfy customer preferences. Broadly speaking, this study suggests that EO helps firms successfully reach the intended performance and that firms may rely on MC to manage environmental turbulence.

However, this study includes certain limitations. First, the empirical approach relies on responses from owner/managers. As result, this study could not investigate the perspective of employees and other stakeholders. Interviews of stakeholders that includes a longitudinal context may yield insightful findings. Second, future research may address the adaptation strategy of SMEs to manage contingency factors in the longitudinal context.

7. Conclusions

This analysis demonstrates that EO influences FP during different levels of environmental turbulence and that MC has a partial mediating effect. Because there is a significant relationship between EO and FP, the conclusion also indicates that MC provides a complementary mediating effect on the relationship between EO and FP. As a result, the model indicates that firms with greater EO may gain better performance with support from MC. This complementary mediating effect implies that firms perform better when they have MC.

This research also broadly supports the combination of the RBV and the contingency theory through combining both mediating and moderating variables. The structural equation model demonstrates that MC would be a fundamental element in resource based theory by enabling firms to acquire resources and achieve optimal performance under certain conditions. The results of this analysis indicate that environmental turbulence may have either a positive or negative impact on FP by encouraging firms to be more effective and achieve greater performance or having a negative effect on firms with superior entrepreneurial orientation. Specifically, dynamic consumer preference and higher price sensitivity represent increased environmental turbulence and dampens the positive impact of EO on FP.

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