

# LEVERAGING STRATEGIC MANEUVERABILITY TO AUGMENT BUSINESS MODEL INNOVATION FOR COMPETITIVE ADVANTAGE DURING ENVIRONMENTAL TURBULENCE

Received: 19 April 2023

Revised: 04 June 2023

Accepted: 06 June 2023

Published: 13 July 2023

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## ABSTRACT

**Purpose:** Ensuring that businesses thrive in turbulent environments is as challenging as navigating the proverbial stormy waters. Drawing upon attention-based and action-based views of firms' dynamic capabilities, we examined whether firms with high strategic maneuverability can gain a competitive advantage in turbulent environments by adopting business model innovation.

**Design/Methodology:** We obtained data from 174 managers of SMEs in Pakistan dealing with consumer staples industry retail through a two-wave online survey. The study data was analyzed using process modeling technique to test the proposed theoretical model.

**Findings:** The results revealed a direct negative relationship between turbulent environment and competitive advantage and an indirect positive relationship between these variables via business model innovation. In this context, the study found that strategic maneuverability further fortified the indirect positive relationship and weakened the negative direction.

**Originality:** The results show how business model innovations can assist in transforming threats from the turbulent environment into opportunities for competitive advantage and that the firms in turbulent environments pursue business model innovation to a greater degree when they have high strategic maneuverability. The implications of these findings, limitations, and possibilities for future research are discussed.

**Keywords:** *Turbulent environment, strategic maneuverability, business model innovation*

**Paper type:** Research Paper

# NBR

NUST Business Review

ID: NBR23041901

Vol. 05 (01)

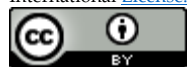
07, 2023

pp. 1-25

DOI:

<https://doi.org/10.37435/NBR23041901>

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## INTRODUCTION

Ensuring that businesses remain competitive in a turbulent environment is just as difficult as surviving the proverbial stormy waters safely and gainfully. The maneuverability of the business and managers can contribute to secure navigation of a turbulent business environment. The external environment presents both opportunities and threats. Even reputed and smart companies may fail to compete in changing market conditions. Organizations cannot avoid interactions with their environment but need to develop capabilities and systems to benefit from the opportunities and prevent or minimize the impact of environmental threats. If a business aspires to survive, it must be competitive. A competitive advantage is what a company can do better than its competitors, and a sustainable competitive advantage predicts sustainable business performance (Madhavan et al., 2022). The increasing demand for sustainable development and the competitive advantages of manufacturing industries has given rise to and increase in pressure towards mitigating global economic, social, and environmental concerns (Song et al., 2021). Organizations with a range of competitive advantages are not only more resilient and better able to withstand the adverse effects of a volatile environment but also better equipped to perform without interruption (Ilinova et al., 2021).

A turbulent environment is volatile, uncertain, complex, and ambiguous (VUCA), whereby organizations end up confronting various challenges and threats. To address these pressures, organizations must leverage their capabilities to improve existing business models (product, service, process, organization, and marketing) or introduce new business models to attain desired outcomes (Pandit et al., 2018). Unless innovation is present in the equation to improve products and services, environmental turbulence can negatively impact business performance (Turulja & Bajgoric, 2019). It increases the perceived importance of innovation (Bodlaj & Čater, 2019). It enhances innovation capability (Gyedu et al., 2021) which could be implemented to improve a product, service, process, strategy, or business model and performance. On the other hand, competing results show that a tumultuous environment has little to no impact on competitive advantage (Khourouh et al., 2020). An unstable climate forces businesses to innovate and launch new items more quickly (Calantone et al., 2003; Olavarrieta & Friedmann, 2008). Therefore, creativity in challenging contexts is a compulsion created by the environment, given its potential for enhancing performance (Miller & Friesen, 1983). According to research, the relationship between innovation and performance is dependent on environmental turbulence (Li & Atuahene-Gima, 2001) and product innovation enhances performance in challenging circumstances (Wright et al., 2004). Although they mostly concentrate on product innovation, these studies demonstrate that environmental turbulence affects the link between innovation and performance (Jiménez-Jiménez & Sanz-Valle, 2011). The right form of innovation at the right time can benefit the organization. However, what is not clear is how firms can put their capabilities into

practice (Teece & Leih, 2016), when a firm is better positioned to innovate, and what type of innovation can give it a competitive edge in turbulent situations.

Dynamic capabilities help organizations adapt to the VUCA business environment and obtain sustainable growth. However, environmental turbulence can negatively influence the potential gain from dynamic capabilities (Piening & Salge, 2015). In turbulent times, firms look for actionable dynamic capabilities that minimize risks and maximize opportunities for success. Prior research provides limited guidance on how to make such capacities actionable to generate strategic leverage and competitive advantage (Gomes et al., 2022) and lacks sufficient information on organizations' capabilities and strategies for coping with uncertainty (Zahra et al., 2022). A turbulent environment presents opportunities for improvement and innovation velocity, enabling a competitive renaissance (Joshi, 2010). However, not all companies can identify these opportunities and equally benefit because they have different levels of awareness and capability. Organizations need to be maneuverable, that is, to be flexible, agile, and responsive in challenging and competitive situations. Strategic maneuverability is an action-oriented dynamic capability that has the potential to turn environmental VUCA into a competitive advantage; the firms with greater levels of this capability will likely benefit more in turbulent times. However, this notion needs to be empirically verified.

The present study integrated the attention-based view of firms and the action-based view of the firm's dynamic capabilities (Madhok & Marques, 2014; Zahra et al., 2022) to explain the proposed research model (Figure 1). The primary objective was to examine the extent to which firms' strategic maneuverability moderates the impact of environmental turbulence and enables them to gain a competitive advantage in turbulent times, such as during the last three years (2020-2022) of the Covid-19 pandemic situation. More specifically, we tested hypotheses to answer the following questions: (1) What connection exists between organizational competitive advantage and environmental turbulence? (2) Whether this relationship is mediated by business model innovation. (3) Does the organization's strategic maneuverability modify this mediated process, and if so, to what extent?

## **THEORY AND HYPOTHESES**

The theory of business entails that every organization has (1) an environment that consists of society, social structure, market, customers, and technology, (2) a mission to achieve within its environment, and (3) core competencies needed to accomplish its mission (Drucker, 1994). In turbulent (VUCA) times, organizations have the least control over uncertainty; therefore, instead of struggling for uncertainty reduction, they must dynamically endeavor for uncertainty management to mitigate the associated risks and benefit from potential opportunities. We predicted that in a turbulent environment, like the recent Covid-19 pandemic, the organizations seeking a competitive advantage would need to pay attention to the changing situations,

exploit their dynamic capabilities, and innovate using available resources to mitigate the environmental risks benefit from the potential opportunities.

This study integrated the attention-based view of the firm (Ocasio, 1997) and the action-based dynamic capabilities view (Zahra et al., 2022) to explain how firms could benefit from strategic maneuverability when making decisions to facilitate competitive advantage in turbulent times. Attention-based view supports the idea that the attention of decision-makers is contextually situated in external environmental factors and directly influences a firm's strategic priorities, behavior, and outcomes. The managerial attention shapes how firms respond to external challenges and high-frequency changes (Joseph & Gaba, 2020a, 2020b; Yaniv, 2011). We believe strategic maneuverability involves high active managerial attention (agility) to scan turbulent environments and identify associated threats and opportunities. It also involves managerial attention to be flexible enough to adapt to the demands of changing situations, formulate suitable response strategies, and act on what is best suited in a specific turbulent context.

The dynamic capability view, an extension of the resource-based theory of the firm, supports that valuable, rare, difficult to imitate, and non-substitutable resources play a strategic role in developing capabilities that add value for customers, create competitive advantage, and place a firm in its best for long-term success (Barney, 1991; Wernerfelt & Karnani, 1987). Dynamic capabilities enable adaption and innovation (Dixon et al., 2014). During uncertainty, firms face tradeoffs in acting early or late and deploying resources to a single scenario or creating flexibility by investing them in multiple scenarios (Wernerfelt & Karnani, 1987). Early action and investment of their strategic resources in several scenarios by firms may lead to dynamic advantage over their business rivals.

Dynamic capabilities help firms sense, seize, and transform problems into opportunities to maintain the continuity of the firm's life (Fachrudin et al., 2021). We advanced the action-based view of dynamic capabilities (Madhok & Marques, 2014; Zahra et al., 2022) to explain how the action-based dynamic capabilities help firms better respond to the challenges and threats associated with VUCA situation and take the lead to competitive success. The VUCA management requires organizations to use their tangible and intangible resources effectively. Dynamic capabilities are critical factors for the firm's adaptation to its changing environment (Castiaux, 2012; Dixon et al., 2014; Zahra et al., 2022). The words 'action-based dynamic capabilities' denote acting to renew firm capabilities to align with the changing operating environment. In emerging innovation economies, organizations need to establish and maintain flexible systems that support an agile response to navigate unexpected situations with minimal disruptions. It is possible for firms with strong dynamic capabilities that serve as early warning systems and make it easy to respond to environmental shocks (Teece, 2007, 2019; Teece & Leih, 2016).

Mere reliance on past experience and creating strategies to survive and succeed in turbulent times is not easy. New learning and capability development are fundamental to acclimatizing to changing situations, resources, and requirements of

new business models to shape value propositions, value co-creation, and value capturing to serve customers better and gain an advantage over competitors (Schneckenberg et al., 2017). Successfully navigating a turbulent environment also requires developing and infusing an entrepreneurial culture and continuous engagement in strategic renewal by practicing firms' strong, actionable dynamic capabilities (Teece, 2012, 2019). Dynamic capabilities of flexibility, agility, and responsiveness characterize the proposed strategic maneuverability. We explain that strategic maneuverability has great potential to serve as an action-focused dynamic capability of firms to sense what is required in a changing situation, be flexible in approach, be agile in actions, and respond to environmental threats and opportunities. Strategic maneuverability provides strategic foresight to anticipate and prepare for change. It also serves as a decision support system for effectively deploying firms' strategic resources and capabilities to transform products, processes, organizations, marketing, and business models, thus gaining an advantage over competitors (Scoblic, 2020). Therefore, it could support firms in formulating and implementing actionable strategies in uncertainty.

#### *Environmental Turbulence and Organizational Competitive Advantage*

Environmental turbulence reflects a firm's external environment's degree of unpredictability, uncertainty, and volatility (Boyne & Meier, 2009; Danneels & Sethi, 2011). It offers business opportunities wrapped in challenges and threats. Attention-based view of firms supports that the firms aiming to remain competitive and in leading positions must pay active attention to emerging situations, threats, and opportunities to formulate effective responses to external stimuli. The action-based view of dynamic capabilities encourages firms to exploit their capabilities to deploy strategic resources actively. The turbulent opportunities and threats influence organizational competitive advantage (Lee & Yoo, 2021). Turbulence affects the strategic decision-making process (Murphy & Seriki, 2021). It encourages the decision-makers to manage their fear and use an improvisation strategy instead of sticking to the existing plans (Shabbir et al., 2021). Environmental turbulence inspires learning, flexibility, and innovation for sustainable growth (Baba et al., 2017; Kuankuan & Zhang, 2022). Environmental factors like technology, market and competitive volatility are associated with innovation and business performance (Abbas & Hassan, 2017). Marketing turbulence directly impacts innovation velocity, while competitive intensity reduces the impact of innovation velocity on competitive advantage (Ojha et al., 2021). In a recent study, business model innovation and sustainable competitive advantage explained a serial mediation in the relationship between environmental turbulence and sustainable performance (Madhavan et al., 2022). Environmental turbulence has a strong potential to offer opportunities for firms to gain a competitive advantage (Bashir & Verma, 2017; Dymitrowski & Mielcarek, 2021; Mitchell & Coles, 2003) and remain competitive (Witschel et al., 2022). Therefore, we emphasized that the firms' taking appropriate early actions would be able to minimize risks and capitalize on opportunities of environmental turbulence and

acquire a competitive advantage; the situation would be vice versa for other firms. Accordingly, hypothesis 1 is stated as under:

**Hypothesis 1:** *Environmental turbulence has a positive association with organizational competitive advantage.*

#### *Mediating Role of Business Model Innovation*

Attention-based view calls firms' strategic attention to their external environment to identify threats and opportunities and build a base of strategic knowledge resources. Organizational attention helps to focus on organizational renewal, speed of technology adoption, performance, development of capabilities, internationalization, and transformation (Laamanen, 2019). Action-based dynamic capabilities suggest benefiting from the firm's strategic knowledge resources and formulating appropriate action plans to prevent risks and benefit from opportunities. In turbulent times the organizations would need to take actions, such as engaging in innovation, to remain competitive and high performing; otherwise, they may end up with a survival risk. These actions may include innovating products, processes, organization, marketing, and business models. Firms benefit more from open innovation in a turbulent environment (Hung & Chou, 2013). Business model innovation is an effective means to remain competitive (Witschel et al., 2022). It is a source of competitive advantage (Bashir & Verma, 2017; Dymitrowski & Mielcarek, 2021; Mitchell & Coles, 2003) that enhances organizational performance (Anwar, 2018). It is the process through which new ideas are applied to make large or small and radical or incremental changes that create or add value to customers and the organizations' knowledge by renewing and updating their products, services, processes, organization, and marketing methods. Innovation through technological and non-technological means helps organizations adapt to the changing needs and thus ensures their survival and success (Hauser et al., 2006).

Environmental turbulence demands that businesses constantly learn, remain flexible, and innovate to grow sustainably (Baba et al., 2017; Kuankuan & Zhang, 2022). It also increases the perceived importance of innovation (Bodlaj & Čater, 2019), inspires firms to innovate (Baba et al., 2017), and thus achieve higher performance (Turulja & Bajgoric, 2019). Technology turbulence is positively associated with disruptive innovation (Wang et al., 2022); marketing turbulence bears a significant positive effect on innovation speed, while competitive intensity impedes the positive impacts of innovation speed on competitive advantage (Ojha et al., 2021). Environmental turbulence can negatively impact business performance unless innovation is present in the equation to improve products and services (Turulja & Bajgoric, 2019). It can also dampen the positive effects of social capital (Pratono & Mahmood, 2014) and external corporate social responsibility (Wang et al., 2022).

Environmental turbulence uplifts organizations' abilities to adopt high-performance work systems and learning orientation that facilitates innovation (Gemici & Zehir, 2021). It may have varied effects on innovation capabilities; for example, it positively and significantly affects new product development (Kuankuan & Zhang, 2022). Other

studies show that technological turbulence strengthens the link between innovation capability and business performance, while market turbulence weakens this relationship (Gyedu et al., 2021). Environmental turbulence also encourages business model innovation, which has a strong potential for businesses to remain competitive (Witschel et al., 2022) by gaining a sustainable competitive advantage (Bashir & Verma, 2017; Dymitrowski & Mielcarek, 2021; Mitchell & Coles, 2003). One recent study reported a serial mediation of business model innovation and sustainable competitive advantage in the relationship between environmental turbulence and sustainable performance (Madhavan et al., 2022). It supports that business model innovation explains how environmental turbulence may impact organizational competitive advantage in the long term. Accordingly, we postulated that:

***Hypothesis 2: Business model innovation mediates the relationship between environmental turbulence and organizational competitive advantage***

*Moderating Effect of Strategic Maneuverability*

Organizational environment and capabilities predict competitive advantage (Lee & Yoo, 2021). Action-based view supports that strategic maneuverability can act as a source of firms' active attention (agility) to scan the external environment, flexibility to adapt to the changing contexts, and responsiveness to act on what is considered appropriate to acquire and maintain a competitive advantage. In turbulent times, the action-based view of dynamic capabilities requires firms to take efficient and effective actions to gain an advantage over others and sustain high performance; otherwise, they may end up with a survival risk. In turbulent spells, organizational learning supports innovativeness (Baba et al., 2017), while inertia negatively impacts a firm's entrepreneurial orientation (Wang et al., 2021). Therefore, businesses must constantly learn, remain flexible, and innovate to grow sustainably (Baba et al., 2017; Kuankuan & Zhang, 2022). Environmental turbulence offers opportunities for business model innovation needed to achieve competitiveness; however, most firms fail to explore and exploit those opportunities. It requires strong attentional focus and dynamic capabilities for practical business model innovation (Witschel et al., 2022) and a sustainable competitive advantage (Khourouh et al., 2020). Firms must practice strategic maneuverability (flexibility, agility, and responsiveness) to innovate their business models and gain competitive advantage in highly volatile, uncertain, complex, and ambiguous (VUCA) environments. Strategic flexibility is regarded as the dynamic capability needed to survive and prosper in environmental turbulence and promote innovation (Dreyer & Grønhaug, 2004). It can even help the resource deficient firms to exploit new opportunities and survive through bricolage (an activity to "create something from nothing") by recombining their underdeveloped handy resources in the product or service development process (Kuankuan & Zhang, 2022; Meng et al., 2020). Accordingly, we predict that organizations with high strategic maneuverability will be more willing and capable of investing in business model innovation and thus gain a competitive advantage during turbulent times, while the other firms would be able to shield themselves against the odds of turbulence and

survive by at least sustaining their existing competitiveness by effectively deploying their available resources.

**Hypothesis 3:** *Strategic maneuverability strengthens the relationship between environmental turbulence and business model innovation (H3a) and thereby enhances the organizational competitive advantage (H3b).*

**Hypothesis 4:** *Strategic maneuverability mitigates the direct negative relationship between environmental turbulence and organizational competitive advantage.*

## **METHODS**

### *Context of Study, Procedure, and Sample*

The set of essential products used by consumers is called consumer staples. The consumer staples industry comprises the firms that manufacture and distribute food, food and staples retailing, beverages, household, personal, and tobacco products. It includes food and drug retail companies, hypermarkets, and consumer superstores. The business climate in which the consumer staples sector operates is unpredictable and full of uncertainty. This makes adapting to environmental demands and making strategic decisions more difficult (Murphy & Seriki, 2021). In order to reduce costs, boost revenue, and improve customer value, this industry must constantly innovate in order to compete in the market. By examining how and when companies in the consumer staples sector innovate to stay competitive in challenging times, it provides a suitable framework for empirically testing the suggested model.

The data was collected from 174 managers belonging to the consumer staples industry in Pakistan on a volunteer basis using a two-phased field survey from October–November 2022. We used this approach to prevent common method bias (Ali et al., 2020). The potential participants were approached to fill out the study questionnaires through the senior managers of various firms within the consumer staples industry. In both phases of data collection, a link to the online questionnaire (Google Form) was shared with an initial sample of 30 senior managers requesting to share the link further with their professional fellows within the consumer staples industry. The participants were asked to respond purely on a volunteer basis and assured that their responses would remain strictly confidential and not used except to publish aggregate findings.

At time 1, the survey contained questions on demographics, environmental turbulence, strategic maneuverability, and a box with instructions to create and provide a unique key for use in the second phase of the survey to identify and match their responses. This data collection phase ended with 250 responses received over three weeks after the start of the survey. At time 2 (three weeks after time 1), the survey contained questions on business model innovation and organizational competitive advantage and a box with instructions to indicate the same unique key



that was provided in the first phase survey to match their responses in both surveys. The online survey link was shared through the same initial sample of 30 senior managers, using the same network-based approach; the direct contacts of all participants were not obtained to ensure their confidentiality. This phase was terminated with 174 matched responses received over four weeks after the start of the time-2 survey.

The profile of the final sample of 174 managers was examined using frequency analysis. The sample consisted of 88.5% male and 11.5% female managers in different age groups: 25-30 years (10.3%), 31-35 years (13.2%), 36-40 years (13.8%), 41-45 years (58.0%), and above 46 years (4.7%). The participants reported to be well educated (MS/M.Phil 28.2%, BS/Masters 64.9%, and BA/B.Sc. 6.9%) and highly experienced in the consumer staples industry (1-5 years 13.2%, 6-10 years 10.3%, 11-15 years 14.4%, 16-20 years 55.2%, and above 21 years 6.9%). They reported currently working at various levels of management: senior-level (61.5%), middle-level (20.1%), and first-level (18.4%). The sample represented the consumers' staples industry located across Pakistan: Islamabad (36.8%), Punjab (36.2%), Sindh (12.1%), Khyber Pakhtunkhwa (10.9%), Balochistan (1.7%), Gilgit Baltistan (1.1%), and Azad Jammu & Kashmir (1.1%).

### *Measures*

We adapted validated scales from prior research to collect data on study variables; environmental turbulence, strategic maneuverability, business model innovation, and organizational competitive advantage, tapped on the 5-point scales described below. Table 1 shows the mean, standard deviation, factor loadings, reliability, and average variance explained for all these variables.

#### *Environmental Turbulence*

Environmental turbulence was examined using five items (Reed, 2022), which assessed the environment of participants' organizations in terms of complexity, rapidity, novelty, unpredictability, and frequency of change from stability to instability. The participants were asked to consider the term "environment" defined as the economic, social, technological, ecological, political, and legal factors affecting their firm during the last three years of the Covid-19 pandemic and then respond to the questions, such as "How rapidly did challenges arise in the external environment?" using a response from specified five options. The complete list of items and appropriate response options is shown in Annex-A. The scale indicated good reliability and validity in the current study ( $\alpha=0.84$ ,  $CR=0.89$ , and  $AVE=0.62$ ).

#### *Strategic Maneuverability*

Strategic maneuverability was evaluated through nine items along three strategic dimensions, each containing three items: flexibility, agility, and responsiveness (Kornelius et al., 2020; Kornelius, Supratikno et al., 2021). We adapted eight items

from existing research (Kornelius et al., 2020; Kornelius, Supratikno, et al., 2021), and one item to assess strategic responsiveness (“my firm is capable to accommodate technological changes required in its business operations”) was added by the authors to indicate the firm’s response to technological changes. The participants rated their firms on given statements in comparison to their significant competitors using a five-point scale of strongly disagree (1) to strongly agree (5), such as “To benefit more than our major competitors, in general, my firm has the flexibility to exercise different competitive strategies”. The complete list of items is shown in Annex-A. The scale indicated a good level of reliability and validity in the current study: strategic flexibility ( $\alpha=0.73$ , CR=0.85, and AVE=0.65), strategic agility ( $\alpha=0.88$ , CR=0.92, and AVE=0.81), strategic responsiveness ( $\alpha=0.88$ , CR=0.93, and AVE=0.81), and full scale ( $\alpha=0.87$ , CR=0.95, and AVE=0.67).

#### *Business Model Innovation*

Business model innovation was evaluated using a continuum of nine items (Bhatti et al., 2021). The items represented firms’ focus from improving an existing to developing a new state of value proposition, customer segments, key resources, key activities, key partnerships, customer relationships, channels, cost structure, and revenue streams. The participants rated their firms on given statements to indicate their focus on existing to new during the last three years of the Covid-19 pandemic, such as “My firm focus of improving EXISTING products (1) to developing radically NEW products and/or services (5). The complete list of items is shown in Annex-A. The scale indicated good reliability and validity in the current study ( $\alpha=0.93$ , CR=0.95, and AVE=0.80).

#### *Organizational Competitive Advantage*

Organizational competitive advantage was assessed using nine items (Delmas et al., 2011), which examined the participants’ organization’s competitive advantage in terms of cost, reputation, and innovation/differentiation. The participants compared their firms with their competitors and responded to given statements on a five-point scale of strongly disagree (1) to strongly agree (5), such as “Attraction of new customers was realized”. The complete list of items is shown in Annex-A. The scale indicated good reliability and validity in the current study ( $\alpha=0.95$ , CR=0.97, and AVE=0.81).

#### *Control Variables*

The firm age and size were used as control variables in this study. Firm age was measured in terms of years after the start of business in five groups: 1 (1 to 5 years), 2 (6-10 years), 3 (11-15 years), 4 (16-20 years), and 5 (21+ years). The firm size was estimated as the number of employees in the firm in five groups: 1 (Up to 25 employees), 2 (26-50 employees), 3 (51-100 employees), 4 (101-150 employees), and 5 (151+ employees). However, the MANOVA test indicated no significant relevance of

these variables to the mediator and dependent variables in this study; hence both were not included in further regression analysis.

## DATA ANALYSIS AND RESULTS

### *Descriptive Analysis*

We performed descriptive analysis to examine item-level statistics. Table 1 shows the means, standard deviations, factor loadings, skewness, and kurtosis. The factor loadings exceeded the minimum threshold of 0.60 (Cruz-Ros et al., 2021). The skewness ranging from -0.720 to 0.138 with a standard error of 0.184 and the kurtosis ranging from -1.150 to 1.283 with a standard error of 0.366 were also acceptable within  $\pm 2$  (George & Mallery, 2018). Therefore, the data was considered normal for further analysis. The item level responses were averaged to calculate construct level means and standard deviations shown in Table 1.

### *Reliability and Validity of Measures*

A panel of six management professionals, three from academia and three from the manufacturing industry evaluated and established each scale's face and content validity for better adaptation and application in the context of this study in Pakistan. The final list of items for each scale is shown in Annex-A. To ensure that a common method bias does not exist in our data, we used the time lag approach (Podsakoff et al., 2003, 2012) in the data collection. We performed Harman's single factors analysis by entering items of all variables in the test. Using varimax rotation in principle component analysis based on Eigen values above 1, Harman's factor analysis produced six factors explaining 22.03%, 12.24%, 11.16%, 11.12%, 10.05%, and 7.20% (total variance explained 73.80%). We also extracted a single fixed factor, which explained a total variance of 41.80%. Hence, the highest variance explained by any single factor was below the threshold of 50% (Podsakoff et al., 2012; Tehseen et al., 2017), indicating that a common method bias was unlikely.

We also performed the confirmatory composite analysis using Bootstrapping procedure in Smart PLS software to examine the reliability and validity of scales, which showed a good model fit (SMSR=0.08,  $d_{ULS}$ =3.850,  $d_G$ =2.442, Chi-Square=1116.313, NFI=0.639). All the items loaded (0.69 to 0.90) on their respective factors well above the minimum threshold of 0.600 (Hair et al., 2010, 2020). The results also indicated sufficient construct reliability, convergent validity, and discriminant validity with acceptable collinearity statistics ( $1.297 < VIF < 4.512$ ). Table 1 shows the results of mean, standard deviation, factor loadings, Cronbach's alpha ( $\alpha$ ), composite reliability (CR), and average variance extracted (AVE) for all variables/constructs. The values were acceptable, above 0.70 and 0.50 for the  $\alpha$ , CR (Hair et al., 2010) and AVE, respectively. The values of CR greater than AVE for all variables supported the convergent validity of all measures (Alfuqaha et al., 2022). The values of  $\sqrt{AVE}$  of all variables were greater than their correlations with other variables, which confirmed the discriminant validity of all variables (Alfuqaha et al., 2022). The HTMT values for

all variables were also found below the threshold of 0.85 (Henseler et al., 2015), confirming the discriminant validity of measures.

The inter-construct correlations supported the likelihood of proposed relationships; further analysis was performed to test the study hypotheses.

#### *Mediation Model Assessment*

We assessed the mediation model using process model 4 (Hayes, 2013, 2015). Environmental turbulence (ET) was entered as an independent variable to predict business model innovation (BMI) as a mediator, and the organizational competitive advantage (OCA) as the dependent variable. Results are shown as models 1, 2, and 3 in Table 3. Model 1 presented a significant positive relationship between ET and OCA (total effect=0.32,  $p<0.01$ ), supporting H1. Model 2 indicated that ET has a significant positive association with BMI ( $\beta=0.66$ ,  $p<0.01$ ). Model 3 disclosed a positive association between BMI and OCA ( $b=0.88$ ,  $p<0.01$ ). Table 4 shows the results of total, direct, and indirect effects. These revealed an indirect positive relationship between ET and OCA through the mediation of BMI (indirect effect=0.58,  $p<0.01$ ). This supported H1 and H2.

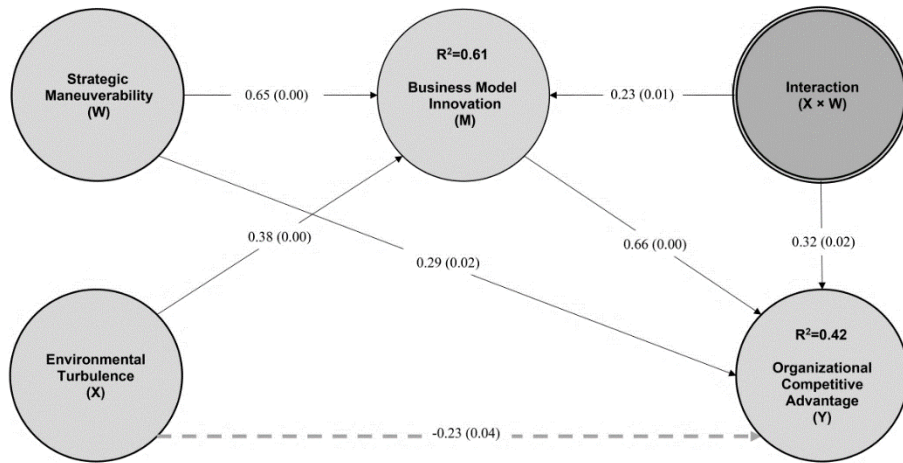
#### *Moderated-Mediation Model Assessment*

We examined the moderated mediation (Figure 1) using process model 8 (Hayes, 2013, 2015). In this model, ET (independent variable), strategic maneuverability (SM; moderating variable), and BMI (mediating variable) were entered to predict OCA (dependent variable). Table 3 shows the results of moderated mediation as models 4 and 5. Model 4 revealed that ET ( $\beta=0.38$ ,  $p<0.01$ ), SM ( $\beta=0.65$ ,  $p<0.01$ ), and their interaction term ET $\times$ SM ( $\beta=0.23$ ,  $p<0.01$ ) were positively associated with BMI. Model 5 showed a positive linkage of SM ( $\beta=0.66$ ,  $p<0.00$ ), BMI ( $\beta=0.29$ ,  $p<0.02$ ), and their interaction term ET $\times$ SM ( $\beta=0.32$ ,  $p<0.02$ ) with OCA. Table 4 shows the conditional direct and indirect effects of ET on BMI and OCA at low, average, and high values of the moderator. It has been observed that SM significantly moderated (improved) the relationship between ET and BMI ( $\beta_{\text{low}}=0.23$ ,  $\beta_{\text{average}}=0.38$ ,  $\beta_{\text{high}}=0.53$ ). The conditional indirect effects showed that SM significantly moderated (improved) the indirect positive relationship between ET and OCA through BMI ( $\beta_{\text{low}}=0.15$ ,  $\beta_{\text{average}}=0.25$ ,  $\beta_{\text{high}}=0.35$ ); H1, H2, H3a and H3b supported. The conditional direct effects showed that SM significantly moderated (reduced) the direct negative relationship between ET and OCA in a way that their significant direct negative relationship in the absence of moderator ( $\beta=-0.26$ ,  $p<0.01$  as shown in model 3, Table 3) became insignificant ( $\beta_{\text{low}}=-0.44$ ,  $\beta_{\text{average}}=-0.23$ ,  $\beta_{\text{high}}=-0.02$ ); H4 supported. Accordingly, all the hypotheses (1, 2, 3, and 4) were accepted. Figures 4A and 4B display the interaction plots showing the moderating effects of SM on BMI and OCA, respectively.

Table 1: Descriptive and Psychometric Properties of Scales

Variables	Items	Mean	SD	Factor Loading	Reliability		Validity	
					$\alpha$	CR	KMO	AVE
Environmental Turbulence (EE)	5	3.87	0.57	-	0.84	0.89	0.74	0.62
	ET1	3.87	0.71	0.89				
	ET2	3.94	0.71	0.72				
	ET3	3.89	0.76	0.81				
	ET4	3.84	0.71	0.80				
	ET5	3.82	0.78	0.69				
Strategic Maneuverability (SM)	9	3.45	0.66	-	0.87	0.95	0.87	0.67
Flexibility	3	2.97	0.73	-	0.73	0.85	0.66	0.65
	SM1	2.93	0.87	0.76				
	SM2	2.95	0.91	0.69				
	SM3	3.04	0.93	0.81				
Agility	3	3.64	0.90	-	0.88	0.92	0.72	0.81
	SM4	3.49	1.04	0.90				
	SM5	3.70	0.98	0.83				
	SM6	3.73	0.97	0.75				
Responsiveness	3	3.74	0.82	-	0.88	0.93	0.74	0.81
	SM7	3.72	0.93	0.85				
	SM8	3.74	0.88	0.87				
	SM9	3.78	0.91	0.85				
Business Model Innovation (BMI)	9	3.79	0.71	-	0.93	0.95	0.91	0.80
	BMI1	3.57	0.88	0.70				
	BMI2	3.63	0.83	0.83				
	BMI3	3.68	0.81	0.82				
	BMI4	3.88	0.91	0.85				
	BMI5	3.83	0.87	0.85				
	BMI6	3.81	0.87	0.76				
	BMI7	3.97	0.91	0.88				
	BMI8	3.99	0.93	0.86				
	BMI9	3.78	0.89	0.75				
Organizational Competitive Advantage (OCA)	9	3.77	0.91	-	0.95	0.97	0.94	0.81
	OCA1	3.59	0.97	0.85				
	OCA2	3.60	1.09	0.86				
	OCA3	3.80	1.06	0.83				
	OCA4	3.74	1.16	0.79				
	OCA5	3.81	1.13	0.83				
	OCA6	3.80	1.08	0.81				
	OCA7	3.83	1.06	0.87				
	OCA8	3.91	1.14	0.90				
	OCA9	3.82	0.98	0.89				

Notes:  $\alpha$ =Cronbach's Alpha, Abbreviations: AVE=Average Variance Extracted, CR=Composite Reliability, SD=Standard Deviation, KMO=Kaiser-Meyer-Olkin Measure of Sampling Adequacy.



**Figure 1** Moderated-Mediation Model

*Table 3: Regression Results of Mediation and Moderated Mediation Models*

Path	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	2.54** [1.63, 3.46]	1.25** [0.63, 1.87]	1.44** [0.67, 2.21]	3.76** [3.69, 3.83]	1.22** [0.32, 2.13]
ET	0.32** [0.50, 0.82]	0.66** [0.50, 0.82]	-0.26* [-0.49, -0.04]	0.38** [0.25, 0.51]	-0.23* [-0.45, -0.01]
BMI	-	-	0.88** [0.70, 1.06]	-	0.66** [0.42, 0.90]
SM	-	-	-	0.65** [0.54, 0.76]	0.29* [0.05, 0.52]
Interaction (ETxSM)	-	-	-	0.23** [0.06, 0.40]	0.32* [0.04, 0.59]
R <sup>2</sup>	0.04	0.28	0.38	0.61	0.42
MSE	0.81	0.37	0.52	0.20	0.50
F	7.09	66.89	52.78	89.51	30.05
(df1, df2)	(1, 172)	(1, 172)	(2, 171)	(3, 170)	(4, 169)
P	0.00	0.00	0.00	0.00	0.00
Index of Moderated-Mediation:	SM	Index	BootSE	BootLLCI	BootULCI
		0.15	0.05	0.05	0.27

Notes: \* $p < 0.05$ , \*\* $p < 0.01$ . Abbreviations: BMI=Business Model Innovation, ET=Environmental Turbulence, OCA=Organizational Competitive Advantage, SM=Strategic Maneuverability, values in square brackets indicate lower and upper-level confidence intervals

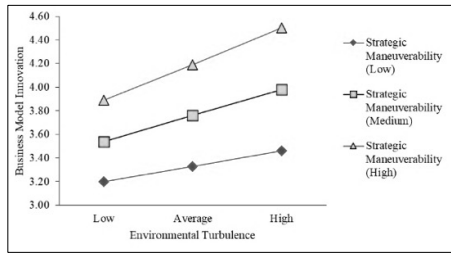


Figure 4A

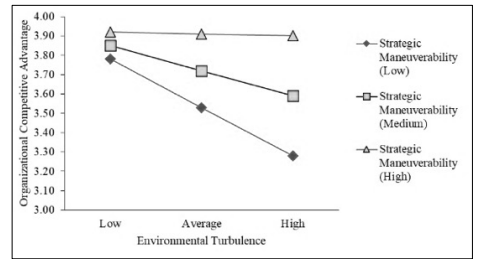


Figure 4B

**Figure 2.** Interaction plots on moderating effect of strategic maneuverability

*Table 4: Total, Direct, Indirect, and Conditional Effects*

Path	Effects	Hypotheses	Outcomes
<b>Mediation Model</b>			
Total: ET → OCA	0.32**[0.08, 0.55]	H1	Supported
Direct: ET → CA	-0.26**[-0.49, -0.04]		
Indirect → BMA → OCA	0.58**[0.41, 0.76]	H2	Supported
<b>Moderated Mediation Model:</b>			
SM → BMI	0.65**[0.54, 0.74]		
SMxET → BMI	0.23**[0.06, 0.40]	H3a	Supported
SM → OCA	0.29**[0.05, 0.52]		
SMxET → OCA	0.32**[0.04, 0.59]	H4	Supported
<b>Conditional direct effects of X on Mediator (ET → BMI) at values of the moderator (SM)</b>			
SM = -0.66	0.23**[0.06, 0.39]	H3a	Supported
SM = 0.00	0.38**[0.25, 0.51]		
SM = 0.66	0.53**[0.36, 0.71]		
<b>Conditional indirect effects of X on Y (ET → BMI → OCA) at values of moderator (SM)</b>			
SM = -0.66	0.15**[0.04, 0.31]	H3b	Supported
SM = 0.00	0.25**[0.15, 0.38]		
SM = 0.66	0.35**[0.23, 0.50]		
<b>Conditional direct effects of X on Y (ET → OCA) at values of the moderator (SM)</b>			
SM = -0.66	-0.44**[-0.70, -0.17]	H4	Supported
SM = 0.00	-0.23*[-0.45, -0.01]		
SM = 0.66	-0.02ns[-0.32, 0.29]		

Notes: \*p<0.05, \*\*p<0.01. Abbreviations: BMI=Business Model Innovation, ET=Environmental Turbulence, OCA=Organizational Competitive Advantage, SM=Strategic Maneuverability, values in square brackets indicate lower and upper-level confidence intervals.

## DISCUSSION

*The first hypothesis* predicted that environmental turbulence is associated with an organizational competitive advantage. This relationship could be positive or negative, subject to the mechanism(s) and the conditions that explain this relationship. The total effect model supported that overall environmental turbulence positively correlates with the organizational competitive advantage. However, the mediation results revealed that the positive relationship between environmental turbulence and competitive advantage is due to business model innovation. Otherwise, environmental turbulence has a direct negative effect on competitive advantage. *The second hypothesis* proposed that the relationship between environmental turbulence and organizational competitive advantage is positively mediated by business model innovation. It was substantiated by the indirect impact in the mediation model and the conditional indirect effects in the moderated-mediation models that business model innovation explains the positive association between environmental turbulence and organizational competitive advantage. According to the *third hypothesis*, business model innovation improves the indirect positive association between environmental turbulence and competitive advantage. According to the results of the moderated mediation, strategic maneuverability strengthened the link between environmental turbulence and business model innovation. The indirect positive association between environmental turbulence and competitive advantage through business model innovation was also strengthened by strategic maneuverability. *The fourth hypothesis* assumed that strategic maneuverability would transform the strong direct negative association between environmental turbulence and competitive advantage into an insignificant relationship. Results confirmed this opinion. Overall, the findings support the idea that businesses who explore the opportunities presented by environmental turbulence and use innovation to take advantage of those opportunities would be able to establish and maintain a competitive advantage. Further, firms with higher levels of strategic maneuverability can better find opportunities and innovate to mitigate the impact of threats and benefit more from the opportunities that environmental turbulence may offer for organizational competitive advantage.

### *Theoretical implications*

Innovation is not enough to remain competitive; firms need to innovate more quickly than their competitors. Thus, they face multiple challenges in deriving new knowledge from the ideas that are validated outside their organizations. One such challenge is environmental turbulence, which influences an organization's innovation velocity and, thereby, its competitive advantage (Ojha et al., 2021). The frequency and speed of change vary from industry to industry and business to business (Seimon & Endagamage, 2022). Innovation velocity indicates how fast a firm can innovate and



supports organizational learning and competitive advantage in dynamic and ambiguous operational environments (Vlas et al., 2019). An increasing corpus of research emphasizes the value of developing dynamic capabilities as well as the unexpected events that may have an impact on organizational development. However, the demands of today's dynamic, unpredictable, and ambiguous international marketplaces receive little attention from previous studies. Consumer needs in a volatile economy are changing quickly, creating a dynamic, uncertain, complex, and confusing situation. Companies must create and effectively use dynamic capabilities to attain evolutionary fitness, adapt, and successfully take advantage of opportunities and neutralize threats as a result of the realities and circumstances of the global business environment (Zahra et al., 2022). Our findings contribute to management and innovation research and practice by providing insights into the role of strategic maneuverability (Kornelius, Bernarto, et al., 2021; Kornelius et al., 2020; Kornelius, Supratikno et al., 2021) in introducing business model innovations and developing organizational competitive advantage in turbulent operating environments. Strategic maneuverability is an organization's action-oriented knowledge-based dynamic capability which allows it to be flexible in its decision-making, agile in making timely decisions, and responsive to the emerging needs of its operational environment. It would enable organizations to make timely strategic decisions regarding when and how to innovate their business models, products, services, processes, organization, and the market. Organizations lacking strategic maneuverability may fail to benefit from the opportunities; instead, they may lose amid environmental turbulence and uncertainty risks.

### *Practical implications*

Competitive advantage depends largely on organizational decision making which depends on managerial attention and action-based capabilities. The current business climate has become riskier than ever before, where traditional ways to operate limit organizational success. The root cause of a crisis may not be that wrong things are done, or the right things are done poorly. It may be that the right things are done fruitlessly without a good fit with reality. Possessing and leveraging strong dynamic capabilities to innovate new products, services, processes, and business models has become inevitable (Schoemaker et al., 2018). Strong dynamic capabilities are needed to manage uncertainty and pick the right path through the fog of environmental turbulence (Schoemaker et al., 2018). These high-level activities enable firms to produce what is or are likely in high demand. These capabilities facilitate firms to develop, integrate, and reconfigure their internal and external resources to adapt to and sustain in rapidly changing business environments (Teece, 2007; Teece & Leih, 2016). The competitive strategies to act early or act later under uncertainty have different outcomes and tradeoffs for the firms (Wernerfelt & Karnani, 1987). Some key management concerns are for whom to do, what to do, when, and how to do it. Business success occurs when a suitable match exists between the organization's environment, mission, and core competencies. Firms that go for innovation become

role models for other firms, which may take the lead once they follow the path and threaten their competitiveness. Thus, firms need action-based dynamic capabilities, like strategic maneuverability, to consistently strive and sustain their advantages. Strategic maneuverability is a continuous learning capability that firms learn and develop over time through experiential knowledge while dealing with various uncertain situations. It builds a strategic uncertainty management capability, which can help an organization better deal with uncertainty when interacting with its external (turbulent) environment (Cuervo-Cazurra et al., 2018). Our findings support that the action-based dynamic capabilities of flexibility, agility, and responsiveness, collectively recognized as strategic maneuverability, can strengthen the positive effects and weaken the negative effects of environmental turbulence on competitive advantage by improving business model innovation. Accordingly, we suggest that firms constantly scan their operating environment and build resilience through strategic maneuverability against environmental odds to engage in innovations that could sustain their competitive advantage (YahiaMarzouk & Jin, 2022).

#### *Limitations and Future Research*

While the aim of the study is to reinvigorate the literature on uncertainty and competitive ecosystem management within the context of strategic management, the findings may be interpreted keeping in view limitations inherent to the scope and design of the study. *First*, the data which relies on managers' feedback from the consumer staples industry may not be fully generalizable to other small, medium, and large-scale enterprises. To provide more robust and generalizable findings, we suggest that a larger sample from manufacturing and service industries should be examined. *Second*, the study revealed that firm age and size appeared to play an insignificant role in influencing the response to environmental turbulence; future research should consider alternative objective measures of these variables to examine how older vs. new and larger vs. smaller firms respond to environmental turbulence in the context of the proposed model. *Third*, a significant direct negative relationship between environmental turbulence and competitive advantage has been observed, which need to be explained by studying other possible mediators and moderators. This will provide a better understanding of the potential threat so as to find possible solutions. We also suggest examining various team-level dynamics as the mechanisms and conditions which could best explain the positive association between environmental turbulence and competitive advantage.

## **CONCLUSION**

It is difficult for most firms to survive and compete under high environmental turbulence with little or no certainty. Changes in business models may be helpful to remain competitive. However, it requires strong action-based dynamic capabilities, such as strategic maneuverability – a flexible, agile, and responsive approach to sense, seize, and transform problems into opportunities to maintain the continuity of the firm's life (Fachrudin et al., 2021). Our findings support that environmental

turbulence negatively affects organizational competitive advantage. The indirect relationship between these variables is positive when mediated through a business model innovation. Strategic maneuverability moderates the direct and indirect relationship between environmental turbulence and competitive advantage. It enhances the business model innovation for benefitting more from the opportunities accruing from environmental turbulence in order to gain and sustain a competitive advantage. Strategic maneuverability also has a strong potential to turn threats into opportunities given that the present study found it to transform the negative effect of environmental turbulence into a positive effect on competitive advantage.

## REFERENCES

- Abbas, M. W., & Hassan, M. U. (2017). Moderating impact of environmental turbulence on business innovation and business performance . *Pakistan Journal of Commerce and Social Sciences* , 11(2), 576–596.
- Alfuqaha, O. A., Al-Hammouri, M. M., Rababah, J. A., Alfoqha, B. A., Alfuqaha, O. N., Haha, M. F. F., Musa, S. S., & Matter, A. A. (2022). Psychometric properties of the Arabic version of the Existence Scale. *PLOS ONE*, 17(4), e0267321. <https://doi.org/10.1371/journal.pone.0267321>
- Ali, A., Nawaz, Q., & Awais, A. (2020). Machavilism and work performance. *Journal of Public Affairs*, 25(2), 45–56.
- Anwar, M. (2018). Business model innovation and SMES performance — does competitive advantage mediate? *International Journal of Innovation Management*, 22(07), 1850057. <https://doi.org/10.1142/S1363919618500573>
- Baba, M., Mahmood, R., & Halipah, A. (2017). The moderating role of environmental turbulence on the relationship between organizational learning and firm innovativeness. *International Journal of Management Research and Reviews*, 7(2), 148.
- Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
- Bashir, M., & Verma, R. (2017). Why business model innovation is the new competitive advantage. *IUP Journal of Business Strategy*, 14(1), 7–17.
- Bhatti, S. H., Santoro, G., Khan, J., & Rizzato, F. (2021). Antecedents and consequences of business model innovation in the IT industry. *Journal of Business Research*, 123, 389–400. <https://doi.org/10.1016/j.jbusres.2020.10.003>
- Bodlaj, M., & Čater, B. (2019). The Impact of Environmental Turbulence on the Perceived Importance of Innovation and Innovativeness in SMEs. *Journal of Small Business Management*, 57(sup2), 417–435. <https://doi.org/10.1111/jsbm.12482>

- Boyne, G. A., & Meier, K. J. (2009). Environmental Turbulence, Organizational Stability, and Public Service Performance. *Administration & Society*, 40(8), 799–824. <https://doi.org/10.1177/0095399708326333>
- Calantone, R., Garcia, R., & Droge, C. (2003). The Effects of Environmental Turbulence on New Product Development Strategy Planning. *Journal of Product Innovation Management*, 20(2), 90–103. <https://doi.org/10.1111/1540-5885.2002003>
- Castiaux, A. (2012). Developing dynamic capabilities to meet sustainable development challenges. *International Journal of Innovation Management*, 16(6), 1240013. <https://doi.org/10.1142/S1363919612400130>
- Cruz-Ros, S., Guerrero-Sánchez, D. L., & Miquel-Romero, M.-J. (2021). Absorptive capacity and its impact on innovation and performance: findings from SEM and fsQCA. *Review of Managerial Science*, 15(2), 235–249. <https://doi.org/10.1007/s11846-018-0319-7>
- Cuervo-Cazurra, A., Ciravegna, L., Melgarejo, M., & Lopez, L. (2018). Home country uncertainty and the internationalization-performance relationship: Building an uncertainty management capability. *Journal of World Business*, 53(2), 209–221. <https://doi.org/10.1016/j.jwb.2017.11.002>
- Danneels, E., & Sethi, R. (2011). New Product Exploration Under Environmental Turbulence. *Organization Science*, 22(4), 1026–1039. <https://doi.org/10.1287/orsc.1100.0572>
- Delmas, M., Hoffmann, V. H., & Kuss, M. (2011). Under the Tip of the Iceberg: Absorptive Capacity, Environmental Strategy, and Competitive Advantage. *Business & Society*, 50(1), 116–154. <https://doi.org/10.1177/0007650310394400>
- Dixon, S., Meyer, K., & Day, M. (2014). Building Dynamic Capabilities of Adaptation and Innovation: A Study of Micro-Foundations in a Transition Economy. *Long Range Planning*, 47(4), 186–205. <https://doi.org/10.1016/j.lrp.2013.08.011>
- Dreyer, B., & Grønhaug, K. (2004). Uncertainty, flexibility, and sustained competitive advantage. *Journal of Business Research*, 57(5), 484–494. [https://doi.org/10.1016/S0148-2963\(02\)00315-6](https://doi.org/10.1016/S0148-2963(02)00315-6)
- Drucker, P. F. (1994). The theory of the business. In J. C. Wood & M. C. Wood (Eds.), *Alfred P. Sloan: Critical evaluations in business and management* (Vol. 2, pp. 258–282).
- Dymitrowski, A., & Mielcarek, P. (2021). Business Model Innovation Based on New Technologies and Its Influence on a Company's Competitive Advantage. *Journal of Theoretical and Applied Electronic Commerce Research*, 16(6), 2110–2128. <https://doi.org/10.3390/jtaer16060118>
- Fachrudin, D. H., Rahayu, A., Fattah, N., & Wibowo, L. A. (2021). The Mediating Role of Dynamic Capabilities and Business Model Innovation on the Relationship Between Environment Turbulence and Firm Performance. *3rd Annual International Conference on Public and Business Administration*, 20–25.

- Gemici, E., & Zehir, C. (2021). High-performance work systems, learning orientation and innovativeness: the antecedent role of environmental turbulence. *European Journal of Innovation Management*. <https://doi.org/10.1108/EJIM-05-2021-0243>
- George, D., & Mallery, P. (2018). Descriptive statistics . In *IBM SPSS Statistics 25 Step by Step* (pp. 126–134). Routledge.
- Gomes, L. A. de V., dos Santos, M. G., & Facin, A. L. F. (2022). Uncertainty management in global innovation ecosystems. *Technological Forecasting and Social Change*, *182*, 121787. <https://doi.org/10.1016/j.techfore.2022.121787>
- Gyedu, S., Tang, H., Ntarmah, A. H., & Manu, E. K. (2021). The moderating effect of environmental turbulence on the relationship between innovation capability and business performance. *International Journal of Innovation Science*, *13*(4), 456–476. <https://doi.org/10.1108/IJIS-10-2020-0189>
- Hair, J. F., Black, W., Babin, B., & Anderson, R. (2010). *Multivariate data analysis* (7th ed.). Prentice-Hall, Inc.
- Hair, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, *109*, 101–110. <https://doi.org/10.1016/j.jbusres.2019.11.069>
- Hauser, J., Tellis, G. J., & Griffin, A. (2006). Research on Innovation: A Review and Agenda for *Marketing Science*. *Marketing Science*, *25*(6), 687–717. <https://doi.org/10.1287/mksc.1050.0144>
- Hayes, A. F. (2013). *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*. Guilford Press.
- Hayes, A. F. (2015). *The PROCESS macro for SPSS and SAS*. <http://www.processmacro.org>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Hung, K.-P., & Chou, C. (2013). The impact of open innovation on firm performance: The moderating effects of internal R&D and environmental turbulence. *Technovation*, *33*(10–11), 368–380. <https://doi.org/10.1016/j.technovation.2013.06.006>
- Ilinova, A., Dmitrieva, D., & Kraslawski, A. (2021). Influence of COVID-19 pandemic on fertilizer companies: The role of competitive advantages. *Resources Policy*, *71*, 102019. <https://doi.org/10.1016/j.resourpol.2021.102019>
- Jiménez-Jiménez, D., & Sanz-Valle, R. (2011). Innovation, organizational learning, and performance. *Journal of Business Research*, *64*(4), 408–417. <https://doi.org/10.1016/j.jbusres.2010.09.010>

- Joseph, J., & Gaba, V. (2020a). Organizational Structure, Information Processing, and Decision-Making: A Retrospective and Road Map for Research. *Academy of Management Annals*, 14(1), 267–302. <https://doi.org/10.5465/annals.2017.0103>
- Joseph, J., & Gaba, V. (2020b). Organizational Structure, Information Processing, and Decision-Making: A Retrospective and Road Map for Research. *Academy of Management Annals*, 14(1), 267–302. <https://doi.org/10.5465/annals.2017.0103>
- Joshi, M. (2010). Embracing competitive renaissance by steering innovation velocity. *World Review of Entrepreneurship, Management and Sustainable Development*, 6(1–2), 149–162.
- Khourouh, U., Sudiro, A., Rahayu, M., & Indrawati, N. K. (2020). The mediating effect of entrepreneurial marketing in the relationship between environmental turbulence and dynamic capability with sustainable competitive advantage: An empirical study in Indonesian MSMEs. *Management Science Letters*, 709–720. <https://doi.org/10.5267/j.msl.2019.9.007>
- Kornelius, H., Bernarto, I., & Widjaja, A. W. (2021). Crafting Strategic Maneuverability to Boost Business Performance. *ADI International Conference Series*, 3(1), 776–790.
- Kornelius, H., Supratikno, H., Bernarto, I., & Widjaja, A. W. (2020). Competitive Strategic Maneuverability: The Missing Link Between Strategic Planning and Firm’s Performance. *International Journal of Advanced Science and Technology*, 29(3), 7413–7422.
- Kornelius, H., Supratikno, H., Bernarto, I., & Widjaja, A. W. (2021). Strategic planning and firm performance: The mediating role of strategic maneuverability. *The Journal of Asian Finance, Economics and Business*, 8(1), 479–486.
- Kuankuan, L., & Zhang, L. (2022). Effect of Environmental Turbulence on New Product Development: A Case of Serial Mediation of Strategic Flexibility and Bricolage in High-Tech Industries of Chengdu, China. *Preprints*, 2022060157.
- Laamanen, T. (2019). Dynamic attention-based view of corporate headquarters in MNCs. *Journal of Organization Design*, 8(1), 16. <https://doi.org/10.1186/s41469-019-0056-7>
- Lee, S., & Yoo, J. (2021). Determinants of a Firm’s Sustainable Competitive Advantages: Focused on Korean Small Enterprises. *Sustainability*, 13(1), 346. <https://doi.org/10.3390/su13010346>
- Li, H., & Atuahene-Gima, K. (2001). Product Innovation Strategy and the Performance of New Technology Ventures in China. *Academy of Management Journal*, 44(6), 1123–1134. <https://doi.org/10.5465/3069392>
- Madhavan, M., Sharafuddin, M. A., & Chaichana, T. (2022). Impact of Business Model Innovation on Sustainable Performance of Processed Marine Food Product SMEs in Thailand—A PLS-SEM Approach. *Sustainability*, 14(15), 9673. <https://doi.org/10.3390/su14159673>

- Madhok, A., & Marques, R. (2014). Towards an action-based perspective on firm competitiveness. *BRQ Business Research Quarterly*, 17(2), 77–81. <https://doi.org/10.1016/j.brq.2014.03.002>
- Meng, M., Lei, J., Jiao, J., & Tao, Q. (2020). How does strategic flexibility affect bricolage: The moderating role of environmental turbulence. *PLOS ONE*, 15(8), e0238030. <https://doi.org/10.1371/journal.pone.0238030>
- Miller, D., & Friesen, P. H. (1983). Strategy-making and environment: The third link. *Strategic Management Journal*, 4(3), 221–235. <https://doi.org/10.1002/smj.4250040304>
- Mitchell, D., & Coles, C. (2003). The ultimate competitive advantage of continuing business model innovation. *Journal of Business Strategy*, 24(5), 15–21. <https://doi.org/10.1108/02756660310504924>
- Murphy, R., & Seriki, O. (2021). The impact of environmental turbulence on the strategic decision-making process in Irish quantity surveying (QS) professional service firms (PSFs). *Construction Management and Economics*, 39(9), 739–758. <https://doi.org/10.1080/01446193.2021.1952632>
- Ocasio, W. (1997). Towards an attention-based view of the firm. *Strategic Management Journal*, 18(S1), 187–206.
- Ojha, D., Struckell, E., Acharya, C., & Patel, P. C. (2021). Managing environmental turbulence through innovation speed and operational flexibility in B2B service organizations. *Journal of Business & Industrial Marketing*, 36(9), 1627–1645. <https://doi.org/10.1108/JBIM-01-2020-0026>
- Olavarrieta, S., & Friedmann, R. (2008). Market orientation, knowledge-related resources and firm performance. *Journal of Business Research*, 61(6), 623–630. <https://doi.org/10.1016/j.jbusres.2007.06.037>
- Pandit, D., Joshi, M. P., Sahay, A., & Gupta, R. K. (2018). Disruptive innovation and dynamic capabilities in emerging economies: Evidence from the Indian automotive sector. *Technological Forecasting and Social Change*, 129, 323–329. <https://doi.org/10.1016/j.techfore.2017.09.035>
- Piening, E. P., & Salge, T. O. (2015). Understanding the Antecedents, Contingencies, and Performance Implications of Process Innovation: A Dynamic Capabilities Perspective. *Journal of Product Innovation Management*, 32(1), 80–97. <https://doi.org/10.1111/jpim.12225>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903.
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of Method Bias in Social Science Research and Recommendations on How to Control It. *Annual Review of Psychology*, 63(1), 539–569. <https://doi.org/10.1146/annurev-psych-120710-100452>

- Pratono, A. H., & Mahmood, R. (2014). Social capital and firm performance: moderating effect of environmental turbulence. *Asian Social Science, 10*(19).
- Reed, J. H. (2022). Operational and strategic change during temporary turbulence: evidence from the COVID-19 pandemic. *Operations Management Research, 15*(1–2), 589–608. <https://doi.org/10.1007/s12063-021-00239-3>
- Schneckenberg, D., Velamuri, V. K., Comberg, C., & Spieth, P. (2017). Business model innovation and decision making: uncovering mechanisms for coping with uncertainty. *R&D Management, 47*(3), 404–419. <https://doi.org/10.1111/radm.12205>
- Schoemaker, P. J. H., Heaton, S., & Teece, D. J. (2018). Innovation, Dynamic Capabilities, and Leadership. *California Management Review, 61*(1), 15–42. <https://doi.org/10.1177/0008125618790246>
- Scoblic, J. P. (2020). *Strategic foresight as dynamic capability: A new lens on Knightian uncertainty*.
- Seimon, A. T. M., & Endagamage, D. M. (2022). Is Organizational Ambidexterity a Good Booster to Supply Chain Flexibility in the Textile and Apparel Industry? *International Journal of Multidisciplinary: Applied Business and Education Research, 3*(6), 1043–1059. <https://doi.org/10.11594/ijmaber.03.06.09>
- Shabbir, S., Danish, R. Q., Rehman, M., Hasnain, M., & Asad, H. (2021). An Empirical Investigation of Environmental Turbulence and Fear in Predicting Entrepreneurial Improvisation. *Journal of Open Innovation: Technology, Market, and Complexity, 7*(2), 157. <https://doi.org/10.3390/joitmc7020157>
- Song, S., Hossin, M. A., Yin, X., & Hosain, M. S. (2021). Accelerating Green Innovation Performance from the Relations of Network Potential, Absorptive Capacity, and Environmental Turbulence. *Sustainability, 13*(14), 7765. <https://doi.org/10.3390/su13147765>
- Teece, D. J. (2007). Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance. *Strategic Management Journal, 1350*(August), 1319–1350. <https://doi.org/10.1002/smj>
- Teece, D. J. (2012). Dynamic Capabilities: Routines versus Entrepreneurial Action. *Journal of Management Studies, 49*(8), 1395–1401. <https://doi.org/10.1111/j.1467-6486.2012.01080.x>
- Teece, D. J. (2019). Strategic renewal and dynamic capabilities: managing uncertainty, irreversibilities, and congruence. In *Strategic Renewal* (pp. 21–51). Routledge.
- Teece, D. J., & Leih, S. (2016). Uncertainty, Innovation, and Dynamic Capabilities: An Introduction. *California Management Review, 58*(4), 5–12. <https://doi.org/10.1525/cmr.2016.58.4.5>
- Tehseen, S., Ramayah, T., & Sajilan, S. (2017). Testing and Controlling for Common Method Variance: A Review of Available Methods. *Journal of Management Sciences, 4*(2), 142–168. <https://doi.org/10.20547/jms.2014.1704202>



- Turulja, L., & Bajgoric, N. (2019). Innovation, firms' performance and environmental turbulence: is there a moderator or mediator? *European Journal of Innovation Management*, 22(1), 213–232. <https://doi.org/10.1108/EJIM-03-2018-0064>
- Vlas, C. O., Vlas, R., Garg, G., & Liu, A. (2019). Ambiguity-based antecedents of innovation velocity: A congruence perspective. *Academy of Management Proceedings*, 2019(1), 11209. <https://doi.org/10.5465/AMBPP.2019.11209abstract>
- Wang, C., Qureshi, I., Guo, F., & Zhang, Q. (2022). Corporate social responsibility and disruptive innovation: The moderating effects of environmental turbulence. *Journal of Business Research*, 139, 1435–1450. <https://doi.org/10.1016/j.jbusres.2021.10.046>
- Wang, M.-C., Chen, P.-C., & Fang, S.-C. (2021). How environmental turbulence influences firms' entrepreneurial orientation: the moderating role of network relationships and organizational inertia. *Journal of Business & Industrial Marketing*, 36(1), 48–59. <https://doi.org/10.1108/JBIM-05-2019-0170>
- Wernerfelt, B., & Karnani, A. (1987). Competitive strategy under uncertainty. *Strategic Management Journal*, 8(2), 187–194. <https://doi.org/10.1002/smj.4250080209>
- Witschel, D., Baumann, D., & Voigt, K.-I. (2022). How manufacturing firms navigate through stormy waters of digitalization: the role of dynamic capabilities, organizational factors and environmental turbulence for business model innovation. *Journal of Management & Organization*, 28(3), 681–714. <https://doi.org/10.1017/jmo.2022.44>
- Wright, R. E., Palmer, J. C., & Perkins, D. (2004). Types of Product Innovations and Small Business Performance in Hostile and Benign Environments. *Journal of Small Business Strategy*, 15(2), 33–44.
- YahiaMarzouk, Y., & Jin, J. (2022). Impact of environmental scanning on organizational resilience and competitive advantage: a study of Egyptian SMEs. *Continuity & Resilience Review*, 4(2), 192–223. <https://doi.org/10.1108/CRR-10-2021-0037>
- Yaniv, E. (2011). ORGANIZATIONAL ATTENTION: A METAPHOR FOR A CORE COGNITIVE PROCESS. *International Journal of Organization Theory & Behavior*, 14(3), 329–353. <https://doi.org/10.1108/IJOTB-14-03-2011-B002>
- Zahra, S. A., Petricevic, O., & Luo, Y. (2022). Toward an action-based view of dynamic capabilities for international business. *Journal of International Business Studies*, 53(4), 583–600. <https://doi.org/10.1057/s41267-021-00487-2>