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Article

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Managerial ties, business model innovation & SME performance: Moderating role of environmental turbulence

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ABSTRACT

Despite the surge in academic and non-academic literature on business model innovation (BMI) and its implications on firm performance, research on the antecedents of BMI is still evolving. Building on institutional theory, we empirically advance extant knowledge by proving that managerial ties play a significant role in BMI and firm performance. We also propose that BMI mediates the relationship between managerial ties and firm performance. In addition, we argue that the relationship between managerial ties and firm performance is contingent on the degree of environmental turbulence. Our analysis of 280 Saudi-based small and medium-sized firms highlights that managerial ties have a positive impact on firm performance. The mediation tests indicated the significance of BMI in the relationship between managerial ties and firm performance. Results, however, do not confirm the moderating role of environmental turbulence. The study brings into perspective that SME owners and managers need to give more attention to managerial ties to support business model innovation.

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Introduction

Studies on business model innovation (BMI) is marked by the steady rise of both theoretical as well as empirical contributions (Clauss et al., 2021; Foss & Saebi, 2017; Massa, Tucci & Afuah, 2017; Bashir & Verma, 2019). Top international consulting firms suggest that in times of continuous change, BMI may provide sources of ongoing competitive advantage (Vermuelen, 2018). Researchers have made several attempts to characterize BMI through a process-based lens (see for example Frankerberger et al., 2013), and have focused on its interrelation with strategy (Lanzolla & Markides, 2021), on typology development (Johnson, Christensen & Kagermann, 2008), and on performance (Amit & Zott, 2008; Bashir & Verma, 2019; Clauss et al., 2021). Despite extensive contributions to the BMI literature on its evolution, impacts upon firm performance and strategies, there is little work on the antecedents of BMI. After reviewing more than two decades of studies examining BMI, Foss and Saebi (2017) argue that present literature has mostly ignored internal BMI drivers. There is limited research on whether and how managerial ties to management in different firms, universities and governmental organizations influence BMI. There is a dearth of studies on BMI among SMEs. SMEs

differ from normal firms in terms of their size, networks, access to capital, resources and employees. This study examines managerial links in terms of how they relate to BMI, environmental turbulence and firm performance, using a unique dataset based on surveying 280 small- and medium-sized enterprises (SMEs).

Managerial ties have been considered key drivers of firm innovation (Gao et al., 2008; Wang & Chung, 2013), and enable firms to develop dynamic capabilities (Blyler & Coff, 2003) through the acquisition of rare resources (Bouty, 2000). This study draws on the strategic management literature and conceptualizes managerial ties as links to managers in different companies, to universities and to officers of government. We draw from institutional theory to describe managerial ties and their role in BMI. The institutional environment plays a pivotal role in facilitating or obstructing managerial ties to obtain institutional support that can be crucial for BMI. The study also asserts that environmental turbulence levels influence links between management ties and business performance. More crucially, this research investigates BMI as a factor mediating links connecting management ties and company performance.

Small and medium enterprises (SMEs) today play a huge role in countries' economic development (Subrahmanya & Loganathan, 2021). They are engaged in continuous innovations (Su, Khan, Lew, Park & Choksy, 2020), exports, and employment (Su et al., 2020). SMEs face certain constraints such as limited financial resources;

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poor entrepreneurial and managerial skills, marketing, low levels of technology adaptation and low productivity (Ramadani et al., 2017; Jafari-Sadeghi et al., 2022; Bala Subrahmanya & Loganathan, 2021). SMEs need external support, such as co-operative networks, to overcome such constraints for innovation and performance (Vrontis et al., 2020; Jafari-Sadeghi et al., 2020; Zucchella, 2021; Mahdiraji et al., 2022; Onjewu et al., 2022).

The major contributions made by this study are as follows: Firstly, it contributes to current literature regarding BMI (Foss & Saebi, 2017; Miroshnychenko et al., 2021; Speith et al., 2014). It broadens the scope of BMI research, considering that the field has mostly dealt with BMI's implications for firm performance. This study provides insights into the internal drivers that foster BMI in SMEs. Focusing on managerial ties leads to an exploration of why certain SMEs can innovate in their business models and generate better returns than their rivals. Past BMI research has centered around efficiency and novelty, following the work of Zott and Amit (2007), while ignoring the organizational factors or human resources that either lead to or facilitate BMI. This new focus could help in developing organizational capabilities, consequently leading to improved performance (Latifi et al., 2021). BMI in SMEs can be facilitated through access to managerial social ties, as it helps firms to diversify from established plans as market conditions change: i.e., it helps form flexible capability (Blyler & Coff, 2003). Firms which lack socially-based managerial ties are not connected and are thus unable to utilize resources effectively.

Second, a majority of existing work points to a significant role for managerial ties across various contexts, yet most authors take a very narrow view of managerial ties as a unidimensional construct, failing to provide a comprehensive explanation of how individual dimensions of managerial ties operate (see Table 1). Third, this study adds to the work on BMI through developing a process-based intervention explaining how managerial ties affect firm performance through BMI and applying tests. This model enhances knowledge on BMI's functions, through highlighting processes by which managerial ties achieve superior performance. Mediation results provides further insights on how BMI facilitated by managerial ties in SMEs contributes to higher performance.

Fourth, the study contributes to research on managerial ties and BMI, until recently viewed as two disparate streams. There are several mediating and moderating factors that augment the impact of BMI (Guo et al., 2017), especially including causal relationships that improve decision-making among managers (Methlie & Pedersen, 2008). Therefore, the study tests environmental turbulence as a relationship moderator of the managerial ties - firm performance link. Fifth, despite the fact that SMEs account for over 99% of all businesses worldwide, the majority of the studies on BMI have concentrated on large corporations (Robu, 2013). Thus, studying BMI in the context of SMEs is extremely significant. SMEs have unique capabilities given their small size and specialization in a particular sector or market, as well as their reach (Bianchi et al., 2010). Through BMI, they can innovate as per changing environments to create dynamic capabilities and efficiency (Heider et al., 2021).

The rest of this study is organized into the following sections: a theory-based background, as well as hypothesis development, are covered by the second section, while the third explains the research methods used in this study. The paper then moves on to the findings and their impacts as related to theory and consequences for managers, and then considers the research limitations before setting out further research possibilities.

Literature review

Organizational structures are formed in response to participants and restrictions posed by the external environment. Institutions are "social structures with a high degree of resilience" (Scott, 2001, P.48), while institutionalizing forces create a "social process by which

individuals come to accept a shared definition of social reality" (Scott, 1987, p. 496). Institutions can be natural or engineered. They can be evolutionary; they interact and adapt to promote stability (Selznick, 1957, p.16). For this study, institutional theory is selected to determine the action of managerial ties towards formulating business strategy (Peng, 2003). The institutional environment plays a pivotal role in facilitating or obstructing managerial ties to obtain institutional support (Zhou et al., 2014).

The context of SMEs

SMEs are major contributors of growth in industrial economies across the globe in terms of innovation, production and employment (Memili et al., 2015). In Europe, SMEs provide employment to two-thirds of the workforce (Muller et al., 2018). In China, they employ 75% of the workforce and contribute to 50% of the economy (Ma, 2018). However, they are currently facing difficulties in attaining a competitive advantage due to modernization (Rabetino et al., 2017), digitization (Holmström et al., 2019), big data technology (Zhong et al., 2016), and/or changing government policies regarding Industry 4.0 (Ghadge et al., 2020). Factors like digitization and big data have proven advantageous to large firms, but SMEs lack the resources to utilize them (Müller, 2019). Moreover, they hit a wall while dealing with supply chains that are highly interconnected.

Managerial ties

The theory of social capital states that the company's performance is determined by its relationships (Gabbay & Leenders, 1999). Managerial ties have been considered to include "executives' boundary-spanning activities and their associated interactions with external entities" (Geletkanycz & Hambrick, 1997, p. 654). The quality of firms' strategic decisions depends on managers' qualifications and experience (Child, 1997). Literature segregates social ties into *business* and *political* (Peng & Luo, 2000) but fails to identify how these are formed. Business ties signify managerial social ties with market actors that help in acquiring market resources. They may include informal social connections to clients, supply chain entities and competitors (Sheng, Zhou & Li, 2011; Su & Yang, 2018). Meanwhile, political ties are informal social management links with those involved in different tiers of government, including state-owned banks and tax offices (Li & Zhang, 2007; Peng & Luo, 2000). Managerial ties, including to further organizations, and managers' interpersonal connections, affect organizational activities (Uzzi, 1997), improve performance (Park & Luo, 2001), and can provide competitive advantage (Tsang, 1998). Managerial ties have been considered key drivers of firm innovation (Gao et al., 2008; Wang & Chung, 2013). Such connections help organizational innovation: by building capability (Uzzi, 1997) and skills (Ahuja, 2000); by granting access to information and resources that support innovation (Andersson et al., 2002); and by facilitating learning from competitors (Shu et al., 2012). Another advantage that managerial ties provide is access to non-redundant resources (Wang et al., 2017). Government ties assist businesses in gaining access to scarce resources such as human resources, land, subsidies, and capital. In the case of SMEs, information asymmetry poses a larger threat, and can be resolved through networks or intermediaries. The personal ties of entrepreneurs and/or senior management have also been linked to improved economic performance among SMEs (Vahlne & Johanson, 2017).

Managerial ties and BMI

Managerial ties highlight new and rare opportunities to firms and facilitate inter-unit (Tsai & Ghoshal, 1998) as well as inter-organizational information exchanges (Ahuja, 2000). Social ties facilitate flexible planning and this improved organizational performance (Craig,

Table 1
Significant studies on managerial ties.

Author	Objective	Conceptualization of Managerial Ties	Findings
Peng and Luo (2000)	Examine the role of managerial ties on performance in China	Social context of managerial ties in China. Managers' micro interpersonal ties with executives, and government officials.	Managerial ties were necessary but insufficient for performance. The micro-macro link varied for firms with different ownership types, business sectors, sizes, and industry growth rates.
Li, Poppo and Zhou (2008)	Examine three sources of heterogeneity that affect the value of ties: firm ownership (foreign vs. domestic), competition, and structural uncertainty in China.	Managerial ties in foreign firms.	Though foreign and domestic firms utilize ties at a similar level, performance from such ties varies. Compared to domestic firms, foreign firms gain competitive disadvantage from tie utilization. Managerial ties have a low effect on performance during intense competition.
Gao, Xu and Yang (2008)	Examine the influence of managerial ties and absorptive capacity in China, (in firms with high level of foreign direct investment, and local corporations.)	Business and university ties	Absorptive capacity moderates the effect of managerial ties on firms' innovativeness. Business and university ties have opposite effects.
Zhang and Li (2010)	Explore how managerial ties and firm resources independently and simultaneously affect firm performance in China.	Business ties	Managerial ties may be location-bound as well as non-location-bound. Managerial ties and firm resources - independently and in combination - improve market performance.
Li and Zhou (2010)	To investigate how managerial ties and market orientation affect competitive advantage and firm performance in China.	Managerial ties	Both managerial ties and market orientation lead to success. Market orientation improves firm performance through differentiation and cost advantages. Managerial ties improve performance by helping secure scarce resources and institutional support.
Shu, Page, Gao and Jiang (2012)	Investigate indirect ties and innovation in China.	Two traditional dimensions of managerial ties - business and political	Managerial ties have an indirect effect on firm innovation. Business ties have significant direct impact on knowledge exchange and knowledge combination. Political ties only affect knowledge exchange directly. The role of political ties is declining, while business ties affect firm innovation.
Kotabe, Jiang, & Murray (2011)	Using emerging multinational corporations (MNCs) from China, explore the effects of managerial ties with government officials and foreign MNC partners on knowledge acquisition and investigate how the acquired knowledge affects firms' new product market performance.	Political ties with government officials and business ties with foreign MNCs.	Due to institutional voids and political and cultural heritage, emerging MNCs are found to rely on managerial ties to acquire critical knowledge acquisition.
Wang and Chung (2013)	Investigate the relationship between market orientation, managerial ties and innovation from the Asian perspective.	Managerial and business ties.	Customer orientation and inter-functional coordination have a positive impact on innovation. Managerial ties moderate the market orientation-innovation linkage. Business ties improve the relation between customer orientation and inter-functional coordination and innovation. Business ties and competitor orientation have a negative interaction effect on innovation. Political ties negatively affect the relation between inter-functional coordination and innovation.
Wang et al. (2017)	Analyze how managerial ties impact firm BMI in China.	Managerial ties, organizational learning (explorative and exploitative learning).	Managerial ties impact BMI directly and indirectly.
Jiang et al. (2021)	Investigate the effect of managerial ties on hotels' adoption of proactive environmental practices (PEPs) in Chinese hotels.	Political ties	Political ties inhibit a hotel's adoption of PEPs whereas business ties facilitate PEPs.
Nguyen, Nguyen, & Do (2022)	Investigate the effects of entrepreneurial orientation, social media, and managerial ties on the performance of SMEs in Vietnam.	Entrepreneurial orientation and managerial ties.	Entrepreneurial orientation enhances social media and managerial ties, which determine business performance.
Ji & Yi (2022)	Investigate how enterprises acquire research and development (R&D) capabilities using political ties, in China.	Political ties	Political ties have a positive effect on the acquisition of R&D capabilities. Dysfunctional competition strengthens the relationship between political ties and acquisition of R&D capabilities.
Yi., Chen, & Li (2022)	Examine how ties with stakeholders affect BMI and how the relationship is contingent upon the firm's learning types.	Stakeholder ties	The relationship between intra-industry stakeholder ties and BMI is inverted U-shaped. Extra-industry stakeholder ties have a positive effect on BMI.

Dibrell & Garrett, 2014). Organizations can acquire resources to scale up (Giesen et al., 2010), or provide opportunities for bundling or unbundling services and goods (Heij et al., 2014), and boost revenues by embracing new partnering models. Firms undergoing "fundamental and extensive institutional transformations" require strong managerial relationships (Peng & Luo, 2000). Managerial social ties could facilitate organizations in diverging from their prior strategy and innovating their business and business models. Managerial ties are associated with embeddedness, which helps BMI (Chowdhury et al., 2016). Managerial ties augment BMI in two ways (Wang, Guo & Liu, 2017): first, through organizational learning through experimentation (Sosna et al., 2010), and second, through opportunity recognition (Amit & Zott, 2001; Guo et al., 2017). According to institutional theory, specialized firms with specific goals have a low chance of being institutionalized (Scott, 2001). Institutionalization, being a 'social process', requires support across all levels of management to achieve any goal. Taking a cue from institutional theory, we believe that firms going for BMI require top management support. This support can be in the form of resources, capital, connections or access to R&D. For SMEs, external partners are complementary assets. They may use such managerial ties to gain access to resources, information, industry associations and research organisations. This helps in improving product quality (Kumar & Subrahmanya, 2010). SMEs also gain access to academic expertise and R&D opportunities which will have a positive impact on innovation performance of SMEs (Ali et al., 2020). As such, we infer that managerial ties promote BMI within firms, and propose that:

H₁: Managerial ties show positive effects in facilitating business model innovations for SMEs.

Managerial ties and firm performance

Using ties can positively influence business performance, with consequences arising from different managerial relationships varying. In comparison to other companies, having ties with government officials helps enhance revenues, both monetarily and strategically (Peng & Luo, 2000). Firms cannot rely on government to acquire necessary resources (Luo, 2003; Peng & Zhou, 2005), and business ties involve sharing operational as well as strategic resources. In developing nations, institutional voids including inadequate infrastructure, unsatisfactory legal systems, a lack of financial and human capital and a lack of protection for intellectual property thwart the execution of corporate strategies (Zhou et al., 2017). Firms build on managerial ties to overcome such institutional voids, and gain access to scarce resources (Peng & Luo, 2000; Gu et al., 2008). Both business- and politically-based ties have their own distinctive advantages and roles in improving firm performance. Business ties help in *resource sharing* and *network legitimacy* (Jiang et al., 2021). Resource sharing signifies acquisition of significant market information through knowledge sharing between business partners which is exclusive in nature (Sheng et al., 2011). Network legitimacy is achieved through good business connections, which increases the chance of gaining favorable treatment (Keister, 2001). Especially in markets with institutional voids, managerial ties determine an organization's success. For instance, in the absence of legal development, managerial social ties help in gaining competitive advantage as well as improved performance (Wei et al., 2017). The institutional theory provides a perspective explaining individual and collective action. Hence, the following hypothesis:

H₂: Managerial ties exert direct positive effects upon firm performance in SMEs.

BMI

Business models (BM) signify ways in which the firm "creates, delivers and captures values" (Teece, 2010), and business model

innovation describes any change in a firm's BM (Foss & Saebi, 2017). BMs function by producing and capturing value (Zott & Amit, 2012), by designing cost and revenue structures, and by identifying important resources, process and capabilities (Shafer et al., 2005). BMs could involve the company's implemented strategy (Casadesu-Masanell et al., 2011), or a way of approaching technology commercialization (Chesbrough, 2010). The rate of revolutionary changes in technology, regulations, customers, and competitors poses serious challenges for business managers (Latifi et al., 2021). The increased role of the Internet in business has made BMs and BMIs more significant across managers and academicians (Aspara et al., 2010; Foss & Saebi, 2017). By generating new revenue streams and competitive advantages, a well-designed BM aids in the creation and delivery of value offers in response to changing consumer needs (Teece, 2010). To survive and grow sustainably, firms need to adapt to such external changes (Vukanović, 2016). A firm must reinvent its products, operations, marketing techniques, or BMs to achieve this (Latifi et al., 2021; Hartmann et al., 2013). BMI refers to "conceptualization and adoption of new ways of conducting economic exchanges" (Zott & Amit, 2007, p. 184). Wang et al. (2017, P.781) define BMI as "the creation of novel or reinvention of existing business models by proposing new value proposition, designing novel value-creation system, or building original value-capturing mechanisms". BMI is undertaken for two reasons: external and internal. Opportunities or competition (threat of newcomers, reducing costs, replacers (Demil & Lecocq, 2010) are external factors linked to BMI (Ghezzi et al., 2015; Teece, 2010). At the internal level, BMI can be triggered by the individual traits, decision-making abilities, knowledge base, cognition of managers (Demil & Lecocq, 2010; Sosna et al., 2010), as well as by organizational factors such as flexible strategies (Bock et al., 2012; Ghezzi et al., 2015) and organizational learning (Sosna et al., 2010).

BMI & firm performance

BMI contributes to producing value and competitive advantage, as well as improved business performance (Heikkilä et al., 2018; Karimi & Walter, 2016; Lambert & Davidson, 2013). Firms that want to improve their performance (Bock et al., 2012); grow (Terrenghi et al., 2017); or develop competitive advantage (Afuah, 2000) need to innovate in terms of BMs. BMs also provide innovation (Zott et al., 2011). BMI in firms like Dell, Wal-Mart, Uber, Southwest Airlines and Ola has been proven to improve performance. However, there are instances where BMIs have failed due to improper handling by managers (Chesbrough, 2010; Christensen et al., 2016; Knab & Rohrbeck, 2014). Knowing when to innovate is therefore pertinent for managers (Hartmann et al., 2013). It is only by focusing on efficiency that BMI leads to increased performance (Heikkilä et al., 2018; Zott & Amit, 2007). This can be done through effective utilization of existing resources; reducing production costs (e.g., through outsourcing, alliances etc.) (Chesbrough, 2007); and reducing inventory costs (Wei et al., 2017). For ICT-driven BMI, efficiencies occur by reducing transaction costs with insiders and outsiders (Ladib & Lakhali, 2015). By reducing operational costs, firms can pass such benefits to customers and improve performance. Thus, it is hypothesized that:

H₃: BMI directly positively affects the SME performance.

BMI as a mediator for the relation between managerial ties and firm performance

Literature reveals that managerial ties improve performance (Wei et al., 2017; Danso et al., 2016). The social capital gained in developing social networks and ties enhances a firm's competitive advantage and performance (Burt, 1997; Peng & Luo, 2000). BMI also has an established role in improving performance by providing value (Hacklin et al., 2018), through efficient resource utilization (Braganza et al., 2017), and research and development (Bigdeli et al., 2016;

Cortimiglia et al., 2015). The firm must utilize more resources to achieve BMI compared to those required to innovate its products and processes (Teece, 2018). An individual firm may lack access to such resources for BMI. In SMEs, BMI reduces the information asymmetry between customers (Singh & Sirdeshmukh, 2000) and suppliers (Gaur et al., 2011). Innovation in value propositions makes marketing channels more effective through open communication (Doz & Kosonen, 2010), and reduces transaction costs (Zott & Amit, 2007). BMIs in SMEs therefore help in better information sharing and being more responsive to changing customer needs (Baden-Fuller & Haefliger, 2013). Managerial ties can assist in accessing low-availability resources as well as information with which to innovate, which in turn helps in improving performance (Li et al., 2013; Zhang & Li, 2010). This study argues that managerial ties affect performance both directly, and indirectly (by augmenting BMI, which further leads to improved firm performance). The underlying premise for this argument is that SMEs face high levels of information asymmetry, lack resources and have a low research and development propensity, which can be resolved through networks. Thus, the presence of managerial ties may be a facilitator for BMI. Based on these premises, it is proposed that:

H₄: BMI is a positive mediator of the relation between managerial ties and organizational performance.

Environmental turbulence

Technological and market turbulence have both been examined in relation to environmental turbulence (Eisenhardt & Martin, 2000; Teece, 2007). The rate of technological development is referred to as technological turbulence, while market turbulence relates to variations in client tastes and demand (Jaworski & Kohli, 1993). A turbulent environment leads to competency traps (Zahra & George, 2002), disruption in synergies, and organizational inertia (Leonard-Barton, 1992). During turbulence, being adaptable to environmental change helps in creating competitive advantage (Katikalo et al., 2010). In current market conditions, where customer preferences keep varying, any knowledge possessed by a firm tends to become obsolete (Song et al., 2005). This variation in customer preference and demand is referred to as 'market turbulence' (Jaworski & Kohli, 1993). To sustain competitiveness amidst such turbulent markets, firms need to respond quickly to changes. Flexibility and access to scarce information is a precursor to success during such market turbulence (DeSarbo et al., 2005), which can only be gained through managerial ties. Any business ties (comprising connections to suppliers, customers and collaborators) and political ties (relationship with government officials) compensate for information gaps.

Environmental turbulence as a moderator of managerial ties - firm performance relationship

"The greater the task uncertainty, the greater the amount of information that must be processed among decision makers during task execution in order to achieve a given level of performance" (Galbraith, 1973, p. 4). Industries often are typified by their instability (Calantone et al., 2003), given changes in products, technologies and institutions. These factors have been conceptualized as market turbulence, technological turbulence and regulatory turbulence respectively (Calantone et al., 2003). These turbulences can enhance as well as destroy competences in organizations. Frequent changes in regulations, competitive behavior, business practices etc. make it very difficult for managers to process information and take decisions. Institutional theory can be used to comprehend these uncertainties, as institutional dynamics and risks have a crucial role in the entire process. Institutions play a huge part in supporting and influencing market mechanisms, ascertaining costs and designing strategies and investments (Meyer et al., 2009). Information processing needs

become more intense in turbulent environments, given change in circumstances, customer demands and preferences. These changes require strategic and structural modifications (Galbraith, 1973). When an environment becomes more turbulent, managerial responsibilities become more varied and fragmented (Mintzberg, 1973). As an environment grows more complex, a manager's role becomes crucial. Quality of managerial social ties affects performance, but the relationship may be affected by changing customer, technological or regulatory changes. Environmental turbulence may affect the role of managerial ties on performance. Intuitively, we posit that:

H₅: *Environmental turbulence negatively moderates relationships linking managerial ties with firm performance.*

Research methods

Sampling

Data were collected from SMEs located in Saudi Arabia, for several reasons. A report by the Digital Transformation Program revealed that 99.5% of the companies in Saudi Arabia are SMEs and account for nearly 60% of gross domestic product (GDP) and 80% of the workforce in the Gulf region (PWC, 2016). Second, the ambitious Saudi Vision 2030 aims to raise the contribution of SMEs to GDP from 20% to 35% (Saudi Vision 2030). Additionally, the Vision 2030 provided a huge impetus to growth in the number of SMEs in Saudi Arabia. There was a 68% growth in the number of SMEs in the first quarter of 2022, reaching a total of 752,500. There is huge government support for SMEs, which helps to increase their contribution to the gross domestic product (GDP). It has become easier for SMEs to enter local markets, especially with the establishment of the Small and Medium Enterprises General Authority (Monshaat). SMEs in Saudi Arabia do not need to pay any commerce fees for the first three years (in order to encourage start-ups). In a significant move, Saudi Arabia's Social Development Bank allocated SAR 9 billion (USD 2.4 billion) as aid to SMEs¹ to fund 6000 businesses. All these measures focus on increasing the contribution of SMEs to the development of the country's economy.

Therefore, these factors signify an appropriate research context. a cross-industry sample was used to maximize scope for generalization of findings (Katsikea et al., 2011). Data-gathering activities lasted for two months, from November – December 2021. The sample was taken in two stages, beginning with stratified sampling, which identified distinct service and manufacturing businesses. Next, firms within the manufacturing and service sector were selected based on sampling convenience. From the 800 questionnaires sent out, 290 were received in return, constituting a 36.25% response rate. 10 questionnaires were rejected since over 10% of answers were incomplete (Hair et al., 2010), leaving 280 usable completed questionnaires.

The study recruited only respondents who were involved in a company's strategic orientation. The sample consisted of 34.6% from top management and 65.3% from middle management, in line with other studies on BMI (Clauss, 2017). 67.5% of the SMEs were from the manufacturing sector and 32.5% were service-based. Regarding firm age, 37.5% of firms were up to 10 years old, 27.8% 11–20 years old, 23.9% 21–30 years old and 10.7% 31–40 years old. Moreover, 60% of the SMEs selected had been in business for more than 10 years, and 40% for more than 20 years. 86.7% of the SMEs selected had local market orientation, 8.9% global and 4.2% regional. Ownership structure consisted of 90.7% private, 2.14% government and 7.14% mixed ownership (Table 2).

Measurements

A thorough literature review was conducted to generate items for all latent variables in order to investigate the association between

¹ <https://www.marmoremena.com/en/insights/saudi-arabia-eases-regulation-to-support-smes-and-entrepreneurs/>

Table 2
Sample demographics.

Position	Frequency	Percentage
Top Manager	97	34.6
Middle Manager	183	65.3
Manufacturing SMEs	189	67.5
Service-based SMEs	91	32.5
No. of Employees		
5–50	40	14.2
51–100	52	18.5
101–150	102	36.4
151–200	63	22.5
200–249	23	8.2
Firm Age		
1–10 Years	105	37.5
11–20 Years	78	27.8
21–30 Years	67	23.9
31–40	30	10.7
Market Orientation		
Local	243	86.7
Regional	12	4.2
Global	25	8.9
Ownership Structure		
Private Sector	254	90.7
Government Sector	6	2.14
Mixed Ownership	20	7.14

management ties and SME performance, with environmental turbulence as a moderator, and BMI as a mediating influence on this linkage. Multi-item reflective scales were used to ensure consistency in measuring constructs (Churchill, 1979). All constructs were based on previous work examining managerial ties, BMI, environmental turbulence and SME performance. Table 3 highlights the findings for Cronbach's alpha, CR and AVE from each construct.

Managerial Ties: Taking a cue from seminal works by Peng and Luo (2000), managerial links to management in different companies, and links to government officers were assessed via a 3-item scale. Ties with universities were measured using a three-item scale following Ramos-Vielba et al. (2010), and Naqshbandi and Kaur (2014). A five-point Likert scale was applied to capture responses, set between “very little” and “very extensive”.

BMI: A 9-item scale measuring BMI was adopted from Spieth and Schneider (2016). A sample item is “The product and service offering has changed”. Participants were questioned on how far aspects of BMI had altered over the preceding three years (1 = not at all; 5 = completely).

Environmental Turbulence: A four-item scale was used, following Jaworski and Kohli (1993). This included for example: “The actions of competitors in major markets were changing quite rapidly”.

SME Performance: This was measured in comparison with directly competing firms using a five-item scale based on that of Venkatraman and Ramanujam (1986). Comparisons were made with competitors on financial performance, rise in sales, share of the market, product development, and organizational development. A sample item is “Relative to our competitors our financial performance was

much better”. Each item was assessed via a Likert scale with responses between “extremely declined” and “extremely improved”.

Control Variables: Previous studies have highlighted that business age, industry, ownership and market orientation can affect BMI (Guo, Zhao & Tang, 2013). Firm age was categorized as less than 10 years, 11–20, 21–30, and 31–40 or over (Adomako, Narteh, Danquah & Analoui, 2016). Industry type was measured in terms of manufacturing and service organizations (Adomako et al., 2016). Similarly, ownership was measured in terms of state owned, privately owned and foreign controlled firms (He & Wei, 2011). Measurement of market orientation followed that of Vorhies and Morgan (2005). However, the results did not identify significant variations for path coefficients after the introduction of controls. Therefore, none of controls mentioned above were used for the further analysis.

Non-response and common method bias

To rule out non-response bias, a T-test was used. Comparisons were made with the initial and final 40 responses, with findings not changing significantly across the groups ($p > 0.05$), suggesting an absence of non-response bias in the data. Common method bias was tested for using exploratory factor analysis (EFA). All items were subjected to EFA, and the number of factors was limited to one. The unrotated factor revealed that the single factor obtained was explanatory for less than 50% of variation, suggesting that there was no common method bias (Park & Ghauri, 2011; Podsakoff & Organ, 1986).

Results

Measurement model

We accessed the measurement model by checking the convergent validity, composite reliability (CR), Cronbach's alpha and AVE (average variance extracted). Table 3 highlights Cronbach's alpha values as exceeding 0.7, which suggests constructs are reliable (Nunnally, 1978). The composite reliability values above the minimum boundary criterion of 0.7 (Chin, 1998). The AVE was also greater than the 0.50 permissible boundary, suggesting evidence for convergent validity (Hair et al., 2010). Furthermore, this suggests that indicators were explanatory for the latent construct (Hair et al., 2006).

Next, discriminant validity was accessed using two methods. As seen in Table 4, the square root for each construct's AVE (diagonal values) is greater than the associated correlation coefficient values, implying evidence of discriminant validity as set out by Fornell and Larcker (1981). However, recently, this method for accessing discriminant validity has been criticized, as it does offer reliable identification of the absence of discriminant validity across frequently-found research conditions (Henseler, Ringle & Sarstedt, 2015). Thus, to enhance robustness in the measures used, this study also employed another method derived from the multi-trait-multi-method matrix for discriminant validity assessment: a heterotrait-monotrait (HTMT) correlation ratio (Henseler et al., 2015). With a threshold of 0.85, researchers believe HTMT to be superior to the classic technique (Henseler et al., 2015). Data in Table 5 suggests that the HTMT values

Table 3
Cronbach's Alpha, Composite Reliability (CR) and Average Variance Extracted (AVE).

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
BMI	0.873	0.898	0.696
ET	0.694	0.798	0.506
FP	0.865	0.901	0.646
MT	0.815	0.86	0.613
TGO	0.734	0.849	0.653
TWM	0.719	0.842	0.641
TWU	0.745	0.857	0.669

Table 4
Discriminant validity.

	BMI	ET	FP	MT	TGO	TWM	TWU
BMI	0.834						
ET	0.263	0.711					
FP	0.434	0.268	0.804				
MT	0.396	0.164	0.409	0.782			
TGO	0.28	0.097	0.294	0.872	0.808		
TWM	0.41	0.299	0.387	0.628	0.328	0.800	
TWU	0.28	0.037	0.315	0.864	0.68	0.302	0.818

Table 5
HTMT.

	BMI	ET	FP	MT	TGO	TWM	TWU
BMI							
ET	0.321						
FP	0.474	0.296					
MT	0.475	0.279	0.483				
TGO	0.335	0.134	0.358	0.841			
TWM	0.522	0.408	0.464	0.888	0.436		
TWU	0.328	0.157	0.381	.0711	0.805	0.399	

for each construct pair are below the 0.85 parameter set, suggesting that discriminant validity is satisfied (Henseler et al., 2015).

Structural model

Before hypothesis testing, standardized root mean square (SRMR) residual value was measured as 0.045, pointing to satisfactory fit adjustment. In order to identify any multi-collinearity among the constructs, variance inflation factor (VIF) was calculated, and identified as lower than 0.50, suggesting a lack of multi-collinearity (Hair, Ringle & Sarstedt, 2012). Next, bootstrapping procedure was used with 5000 samples, testing path values (Ringle et al., 2015). For PLS-SEM, to determine the model's explanatory power, R^2 values were applied for all endogenous constructs, because this technique cannot produce classic index types for model fit as do covariance-derived SEM approaches (Wasko & Faraj, 2005). Therefore, overall goodness of fit (GOF) was applied for model assessment (Tenenhaus et al., 2005), whereby geometric means were calculated for average communality; moreover, averaged R^2 (endogenous constructs) was taken to calculate GOF. The process for this is highlighted in Table 6. The result, at 0.370, suggests a satisfactory fit (Hoffmann & Birnbroich, 2012). After testing the requirements of model validity measures, hypotheses for relationships were then assessed.

The first hypothesis predicted that managerial ties would relate positively to BMI, and results confirmed this, with significant levels of impact ($\beta=0.396$, $t = 6.837$, p value= 0.00). Hypothesis 2 predicted that managerial ties would relate positively to organizational performance. Results shown in Table 7 again confirm this hypothesis, at a level of statistical significance ($\beta=0.139$, $t = 2.6$, p value= 0.009). Hypothesis 3 predicted that BMI would relate positively to SME performance, and this was also confirmed with statistical significance found for this influence ($\beta=0.28$, $t = 3.696$, p value= 0.00).

Mediation analysis

To evaluate the mediating effect, T-statistics, estimates and 95% bias-corrected confidence intervals were used to consider total and indirect impacts (Zhao, Lynch & Chen, 2010). Where bias-corrected confidence intervals deviate from zero, mediation is significant (Hayes & Scharkow, 2013; Zhao et al., 2010). Findings point to a significant and positive indirect effect linking managerial ties with SME

Table 6
Goodness of fit index.

Variables	AVE	R^2
BMI	0.696	0.156
ET	0.506	
FP	0.646	.278
MT	0.613	
TGO	0.653	
TWM	0.64	
TWU	0.669	
Average Score	.632	.217
Average of AVE x R^2	.137	
√Average of AVE x R^2	.370	

Table 7
Hypothesis testing.

Paths	Beta	T Statistics	P Values	Decision
MT → FP	0.263	3.923	0	Supported
MT → BMI	0.396	6.837	0	Supported
BMI → FP	0.281	3.696	0	Supported

performance ($\beta=0.111$, T-statistic=3.49). As well as a positive, significant total effect of managerial ties and SME performance ($\beta=0.374$, T-statistic=6.16) (Table 8). Therefore, it is concluded that BMI mediates the managerial ties - SME performance link.

Moderation analysis

Research suggests that PLS gives more accurate estimates of moderation, because it accounts for errors that attenuate the estimates of relationships and thereby improves the ability to validate theory (Henseler & Fassott, 2010). Testing of moderating effects from environmental turbulence was carried out by multiplying predictor by moderator, producing an interaction construct (Managerial ties x Environmental turbulence). The results highlight that the path coefficients for the moderator for SME performance were insignificant ($\beta=-0.042$, $T = 0.815$, $p = 0.415$). Therefore, it is concluded that environmental turbulence has no moderating effect on interactions linking managerial ties and SME performance.

Discussion

This study looked into the direct and indirect effects of managerial links on SME performance. We also looked into the underlying processes of these relationships by looking at the mediating role of BMI, which is a fresh addition. Institutional theory also recognizes the pivotal role of institutional environment in facilitating or obstructing managerial ties to obtain institutional support (Zhou et al., 2014). However, recent research has shown that firms which focus on BMI outperform companies which focus on product and process innovation (Amit & Zott, 2012; Bashir, Naqshbandi, & Farooq, 2020). Therefore, this study accessed the proposed model empirically to shed light on the links between managerial ties, BMI, SME performance and environmental turbulence. Findings from the PLS-SEM analysis appear in Fig. 1.

The first hypothesis predicted a positively-oriented managerial ties – BMI association, and this was supported, meaning that SMEs whose managers have better ties may be able to innovate their models to capture new opportunities in the market. These findings are consistent with past research (i.e. Wang, Guo & Liu, 2017) finding an impact from managerial ties on opportunity recognition. The availability of managerial social ties might facilitate organizational divergence from previously-set planning and innovation in business

Table 8
Mediation analysis.

Parameter	Standardized coefficients	T Value	p-value
Structural Model			
Direct effects			
MT → BMI	.396	6.837	0.0
BMI → FP	.281	3.696	0.0
MT → FP	.263	3.923	
Indirect Effect			
MT → BMI → FP	.111	3.49	.001
Total Effect (Indirect + direct effects)			
MT → FP	.374	6.16	0.0
Moderating Effect 1 → FP	−0.042	0.815	0.415

Note: $p < 0.005$; **Insignificant, * Sig at 5% Level.

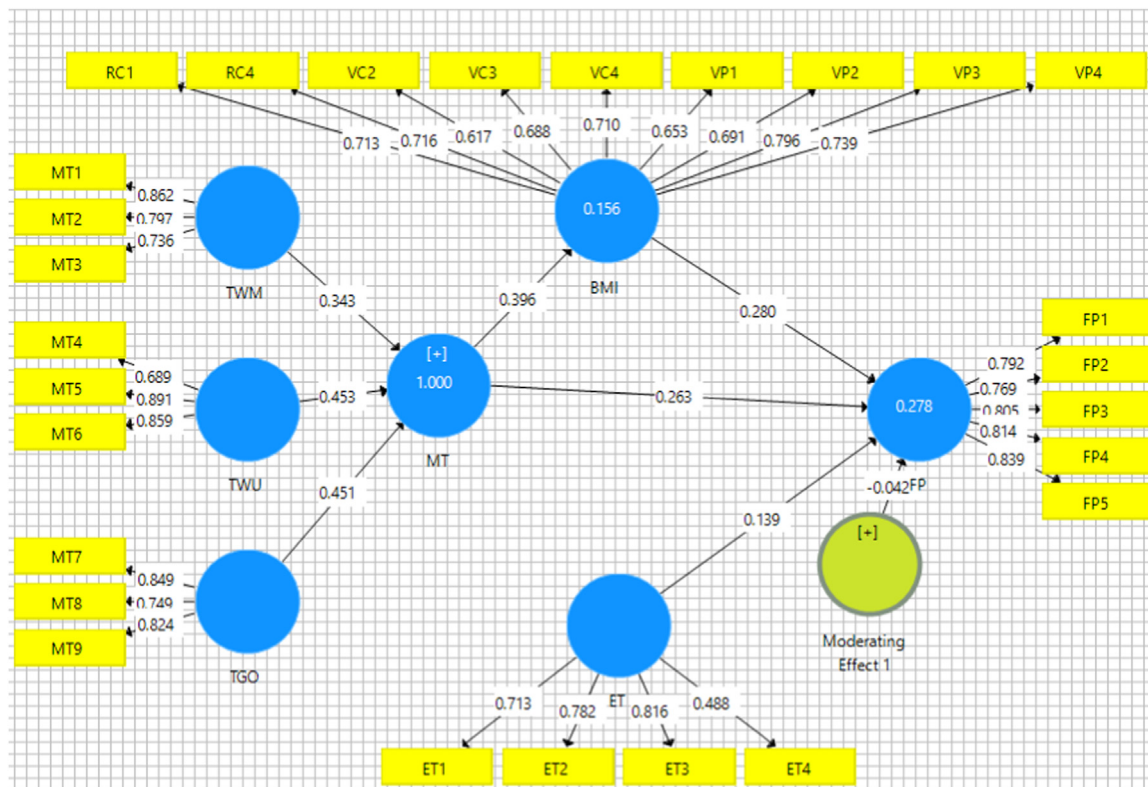


Fig. 1. Structural model.

models. Managerial ties help in BMI, due to their embeddedness (Chowdhury et al., 2016). Ties with managers, universities and government officials, particularly in emerging markets, can enable firms to develop dynamic capabilities through the acquisition of rare resources like human resources, land, subsidies, funding etc.

Second hypothesis suggested positive effects for SME performance exerted by managerial ties, and support was found for the hypothesis, suggesting that SME managers with ties to outside entities (including individuals in different organizations, government institutions and university settings) can help source new knowledge, thereby enhancing SME performance. These findings support those of earlier research suggesting an impact from managerial ties for better performance (Jiang et al., 2021; Wei, Song & Wang, 2017). Especially in markets with institutional voids, managerial ties determine an organization's success. For instance, in the absence of legal development, managerial social ties help to gain competitive advantage, enhancing performance (Wei et al., 2017).

The third hypothesis predicted positively-felt impacts from BMI for the performance of SMEs. This study's findings support this, suggesting that SMEs which focus more on BMI have better performance. Previous studies focused on large corporations and listed companies. BMI can help firms to: utilize existing resources; reduce production costs (e.g. through outsourcing, alliances etc.) (Chesbrough, 2007); and reduce inventory costs (Wei et al., 2017). It is suggested here that BMI can also help firms reconfigure single or multiple business model components with changes in external conditions (Chesbrough, 2010; Sosna et al., 2010). The current research offers fresh insights on BMI for SMEs. This setting is particularly important in emerging economies, and in particular for the Gulf region, as SMEs are the private sector's foundation in the Gulf, responsible for 90% of overall commercial activity (Rettab & Azzam, 2011).

Fourth, it was posited that BMI would mediate relations linking managerial ties with SME performance. The findings supported this, suggesting that BMI provides a mechanism to link managerial ties with organizational performance. These findings confirm the work of

Wang et al. (2017). Thus, the study suggests that managers who have strong ties with buyers, suppliers, universities and even competitors promote BMI. However, the role of ties becomes especially significant for Saudi Arabia, with its different cultural and institutional setting compared with other countries. This is because regimes of appropriability are weaker for developing nations as opposed to developed ones (Naqshbani & Kaur, 2011). The study adds to earlier research by demonstrating that management links alone may not be sufficient to boost SME performance unless they are channelized through BMI, which improves SME performance.

The current work was unable to find evidence for the hypothesized contribution of environmental turbulence as a moderator of the relationship linking managerial ties and SME performance. Previous studies have highlighted that information processing needs become more intense in turbulent environments, given change in circumstances, customer demands and preferences. These changes require strategic and structural modifications (Galbraith, 1973). It was not possible to compare this finding to other studies because there are no studies specifically examining a moderating influence from environmental instability for links between management relationships and SME performance. However, we ran extra sub-group analysis to investigate this further. It is interesting to note that we only discovered that environmental turbulence has an effect in the high technology sub-sample. This seems reasonable, given that high-technology businesses need to be extremely innovative, which promotes product and process development and research, as well as technical expertise and industry knowledge (Lumpkin & Dess, 1996). This knowledge helps businesses continuously introduce new, technologically advanced products meant to meet rapidly changing customer needs and thereby improve performance. The moderating effect of environmental turbulence may thus depend on the type of industry, as this additional sub-group analysis seems to emphasize. Previous studies in the context of innovation have highlighted that the degree of environmental turbulence is different across industries (Tsai & Yang, 2014).

Implications for theory

This study adds to previous work across four general topics: managerial ties, BMI, environmental turbulence, and firm performance, within an SME context. There is little previous work identifying relationships linking the aforementioned four subjects. First, this study extends institutional theory by providing systematically and empirically validated insights into drivers for BMI. Instead of trial and error, including ties with managers, universities, and government officials as a systematic and planned procedure will increase understanding of BMI (Sonsa et al., 2010).

Second, the function of BMI to mediate the link from managerial ties to business performance, which is not well understood, is considered. The research adds to earlier works through its finding that management links in and of themselves may not be sufficient to increase SME performance unless they are channelled through BMI. As far as can be ascertained, little emphasis has previously extended to BMI as a mediator of the connection linking management ties with SME performance.

Third, the study has established a link between BMI and SME performance. Numerous studies have highlighted the influence of BMI on firm performance (Bashir et al., 2022; Clauss et al., 2021; Heikkilä et al., 2018; Zott & Amit, 2007). At a more fundamental level, researchers and practitioners concur that the BM is essential for organizations to succeed, especially those that want to expand (Teece, 2010), gain a competitive advantage (Afuah, 2000), improve their long-term performance (Bock et al., 2012), or act as a new source of innovation (Zott et al., 2011). However, this study's context is unique in that it takes the discussion from large corporations to SMEs.

Managerial implications

SMEs in emerging markets face resource constraints; therefore, it is suggested here that SME managers should focus more on building inter-firm collaboration and managerial ties to enhance performance. To overcome resource shortages, ties to managers in different companies, to university settings and to governmental officials may be helpful. Second, in view of the growing importance of BMI in organizational outcomes, the findings suggests that managerial ties positively impact upon BMI. Therefore, this study recommends SME owners promote the development of ties with other managers, university staff and officers of government that will capture new opportunities through BMI. Earlier studies also highlight the significance of managerial ties to facilitate innovation through better information flows about the business environment, which can help firms to capture novel ways of creating and capturing value (Naqshbandi, 2016).

Third, the existence of management links in and of itself may not be sufficient to increase SME performance unless they are channelled through BMI, which has an impact on SME performance. Previous studies have highlighted the perks of BMI for large corporations (EIU, 2012). It is argued here that these perks exist regardless of firm size. SMEs usually face turbulent business environments and unsound organizational surroundings (Kreiser et al., 2010). Furthermore, SMEs have neither the financial muscle nor the intellectual capital of big corporations to stay competitive. SMEs can therefore turn to BMI to stay more competitive and enhance their performance. Research has shown that companies which focus on BMI outperform those emphasizing innovations of product and process (Amit & Zott, 2012).

Limitations and scope for future research

The research presented contains certain limitations, which demand attention. Firstly, as with data being collected in Saudi Arabia, the findings should be viewed with caution in different settings. Therefore, further studies could apply this model across different

backgrounds to test variations. Second, cross-sectional data were employed, which can be problematic since cross-sectional data can be mismatched with study questions that deal with change causality. It is recommended that future researchers collect data in a longitudinal manner, as this will aid in capturing causality (Bono & McNamara, 2011). Third, BMI research is still at a budding stage, particularly in the Middle East. The current work has assessed BMI's influence on performance, which allows future work to explore impacts from BMI on different organizational units. Fourth, the findings from this study suggest that future research should investigate the influence of environmental turbulence, by taking a broad sample across high-tech and low-tech industries, to determine whether environmental turbulence is really contingent on industry type. Finally, the mediating and moderating roles of various variables like organizational culture, dynamic capabilities, absorptive capacity, strategic agility etc. could be further tested.

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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