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Moderating Effect of Business Environmental Dynamism in the Innovativeness—Company Performance Relationship of Congolese Manufacturing Companies

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Abstract: Research has shown that innovativeness is a key factor in business performance. However, the link between innovativeness and organisational performance and the role of environmental dynamism are still being debated. This study thus sought to analyse the moderating effect of the dynamism of the business environment in the relationship between innovativeness and performance of manufacturing companies. In order to do this, a questionnaire was distributed to 344 owners and managers of manufacturing companies operating in the north-eastern Democratic Republic of Congo. One hundred and seventy-eight of these questionnaires were returned and used to test the study's hypotheses. The study used an ordinary least squares (OLS) regression under the hierarchical regression analysis approach. The results confirm the positive and significant effect of innovativeness on company performance. On the other hand, results indicate that business environmental dynamism has a direct positive and significant effect on company performance. However, the dynamism of the business environment negatively influences the relationship between innovativeness and company performance. Based on these results, recommendations and further research perspectives are suggested.

Keywords: company performance; north-eastern Democratic Republic of Congo; environmental dynamism; innovativeness; manufacturing companies

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1. Introduction

Innovativeness (INN) is one of the main components of company strategic orientation (Gomes et al. 2022; Ruba et al. 2021). Strategic orientation is the set of specific "paths" or principles of strategic management that determine the internal processes of a company to help it adapt to environmental conditions in order to improve its performance (Bubenik et al. 2022). Such paths can be met through INN. INN is defined as the receptivity and inclination of an organisation to adopt new ideas leading to the development and launch of new products and services in order to increase customer satisfaction, as well as to create a competitive advantage for the company (Lumpkin and Dess 1996; Rubera and Kirca 2012). INN is an organisation's propensity to innovate. Embracing innovation contributes to building the company's competitive advantage and increases firm performance.

From a strategic perspective as recognised by Fu et al. (2021), performance is a function of the internal capabilities of the company but also the behaviour of the external environment, such as the environmental dynamism in which the company operates. For example, it is widely recognised that factors such as political stability, the constant change in market supply and demand, unpredictable competitor behaviour, and technological change significantly affect the firm's internal capabilities, which in turn influences its performance.

Since the 1980s, developing countries have adopted policies to improve the efficiency of their markets. Led by institutions, such as the World Bank and the International Monetary Fund, their reforms aimed, among other things, at harmonising the business climate and developing competitiveness to improve the efficiency of domestic firms (Olanrewaju et al. 2019). However, in some developing countries, such as the Democratic Republic of Congo (DRC), these structural reforms and business climate harmonisation policies appear to have had limited or even negative effects on firm performance (Saul and Adeline 2018). However, previous studies have found conflicting results regarding the links between innovation, business environment instability, and firm performance. For instance, Makhmoor et al. (2023) failed to confirm the moderating role of environmental turbulence in the relationship between innovation and business.

Moreover, scholars such as Kraus et al. (2012) and Palazzeschi et al. (2018), have reported that, in turbulent environments, companies do innovate and perform better, since uncertain business environments act as a catalyst that pushes companies to engage more in innovation. However, other scholars (Agyapong et al. 2021; Taghizadeh et al. 2021) have reached opposing conclusions, stating that an unstable business environment is an obstacle that deters company innovativeness. In the case of the DRC, there is a significant absence of studies analysing the impact of the business environment on the link between innovation and firm performance in the country's manufacturing industry.

These limitations have shed little light on the overall effect of how the intensity of an unstable external business environment can influence the relationship between innovation and company performance. In order to contribute to the understanding of this phenomenon, the present study is interested in analysing the moderating effect of environmental dynamism in the innovation–performance relationship of manufacturing companies.

It is therefore crucial to understand how the dynamism of the business environment affects the links between innovative capacity and firm performance in developing countries. Therefore, this study explicitly examines this relationship among manufacturing firms operating in the north-eastern part of the DRC. These firms face a large wave of imports of the same locally produced products from the East African Community countries, which undermines the competitiveness of Congolese products. Therefore, the study empirically examines the adoption of innovation as an integral component of strategic orientation by micro, small, and medium manufacturing enterprises (MSMEs) in the region comprising Ituri and North Kivu provinces.

The results of this study contribute to the literature on strategic orientation and the behaviour of the external business environment. This study has shown that internal innovation capabilities significantly influence company performance. In addition, the study empirically revealed the deterrent effect of an unstable business environment on the relationship between internal innovation capabilities and the performance of manufacturing companies. This contribution provides information about and insight into manufacturing stakeholders, including policy makers and managers of manufacturing companies, in developing countries operating in unstable business environments. The study recommends improving the performance of MSMEs by improving the business environment in which these manufacturing companies operate. Otherwise, an unstable business environment is still a risk factor that can jeopardise the company's performance externally, but also internally, for example by compromising internal innovation efforts.

2. Literature Review and Theoretical Framework

2.1. Innovativeness

The company's INN is one of the key components of an organisation's strategic orientation (Hernández-Perlines et al. 2020). It is the propensity of companies to come up with newness in their products and services (Nair et al. 2015). INN demonstrates the tendency of being creative and constantly testing new ideas in order to bring to the market new products, new services, new production methods, or finding new markets in order to

improve the consumer's experience and the company's survival (Covin and Wales 2012; Meissner and Kotsemir 2016).

The notion of innovation in entrepreneurship was popularised by Joseph Schumpeter (Singh and Hanafi 2020). Schumpeter (1934) defined innovation as the "creative destruction" mechanism by which companies create wealth by converting resources. This resource conversion can lead to the creation of new products, new processes, or new technologies (Alharbi et al. 2019). According to Vyas (2009), such INN within companies can be exhibited in five ways, namely through the (1) creation of new products or qualitative improvements in existing products, (2) use of a new industrial process, (3) new market openings, (4) development of new raw-material sources or other new inputs, and (5) new forms of industrial organisation.

Product and service innovation is the creation of different new products and services by upgrading the quality of current products and services in order to improve customer experience and customer satisfaction (Lumpkin and Dess 1996; Singh and Hanafi 2020; Ruba et al. 2021). Moreover, technology innovativeness is defined as the company's orientation towards embracing new working techniques, processes, tools, and skills (Covin and Wales 2012; Lechner and Gudmundsson 2014; Rauch et al. 2009). This leads to competitive advantage improvement, since it enhances the quality of the products and the nature of the services delivered to the consumer (Garvin 1987; Singh and Hanafi 2020). Innovation is also exhibited through the creation of new markets (Wan et al. 2005; Singh and Hanafi 2020). New market creation is a process through which a company looks for new markets and new customers for its products and services beyond the market in which it already operates. From this perspective, the company can design new products and services to attract more new clients. This leads to an increase in their market share with subsequent consequences on performance.

The literature recognises the presence of several barriers, such as weak enabling factors, lack of innovation leadership at all levels within the company, limited knowledge of innovation processes and methods., as factors that hinder INN within companies (Bocken and Geradts 2020; Van der Westhuizen 2019). Consequently, businesses that need to increase performance have the burden of overcoming those barriers that hinder their innovation capabilities.

Innovative companies back up and encourage their employees to create new ideas, to bring in new changes in their ways of designing products, services, and processes (Khaleel et al. 2017). Innovative companies favour a strong emphasis on R&D, technology leadership and innovation in industry. That is why, as confirmed by previous studies (Atalaya and Sarvan 2013; Chen et al. 2022; Zand and Rezaei 2020), innovation positively impacts the business performance. Therefore, the following hypothesis was formulated:

H1. *Innovativeness has a significant positive effect on a company's performance.*

2.2. Environmental Dynamism

Environmental dynamism (ED) is one of three dimensions of the business environment proposed by scholars (Dess and Beard 1984; McArthur and Nystrom 1991; Lumpkin and Dess 2001) in strategic management. These scholars have suggested three dimensions of the environment, namely environmental munificence, complexity and environmental dynamism, which may affect the link between strategies and company performance. Environmental munificence expresses the extent to which the environment supports the growth of the firm by providing the resources necessary for it (Dess and Beard 1984; McArthur and Nystrom 1991; Lumpkin and Dess 2001). Environmental complexity refers, for example, to the number and diversity of environmental factors interposed in front of the company, such as competition or the multiplicity of players. However, ED demonstrates the level of change and volatility observed in a business environment (Li and Liu 2014; Petrus 2019). Such unpredictability, variations and volatility are usually constant in the business environment (Goll and Rasheed 2004, p. 44). Scholars (Feyen et al. 2021; Gazzola et al. 2020; Thai 2015)

have revealed different factors that act as sources of environmental dynamism. These may include the extent of the shifts that occur when a company adopts new technology, the advent of advanced technologies in the industry, the changes in culture and consumers' tastes, economic factors, unpredictability of the actions of competitors, shifts in political and security instability or government policy and other factors of a similar nature (Li and Liu 2014; Petrus 2019; Rezai et al. 2020). ED is also observed through the high rate of companies coming in and exiting the industry (Li and Liu 2014; Petrus 2019). These factors can make an industry's environment unstable and even create enormous difficulties for the industry in making predictions.

2.2.1. Economic Factors

Economic factors are fundamentals that derive from the business environment and that affect the value of businesses or investments. These dynamics include factors such as the size of the economy, risks withing the country, labour costs, and openness to international trade (Janicki and Wunnava 2004). These economic factors are grouped into two broad sets, namely microeconomic and macroeconomic factors. Macroeconomic factors are broad economic factors that affect the entire economy and all of its participants. These include the fluctuations in the country's gross domestic product (GDP). A high and constant growth rate of GDP reflects the country's economic performance. It provides forecasts for companies concerning future demand, and since the GDP per capita reflects the population's living standards, it also affects their purchasing power, and it also determines the country's attractiveness (Liu et al. 2017; Shah et al. 2019). ED is also influenced by unemployment rates and inflation. Inflation is observed through the generalisation of the evolution of prices of goods and services (Estival 2018). This reduces the value of the national currency as a result of multiple price revisions and the uncertainty that this entails. Countries experiencing strong economic instability see their currencies lose their value. In turn, such exchange rate volatility will affect the country's financial stability (Chen 2022). For example, between 2016 and the end of the first quarter of 2023, the exchange rate of the USD to the Congolese franc (CDF) fell from 920 CDF to 2320 CDF per USD, a depreciation of 150% against the USD.

2.2.2. Government Policies

Economic dynamism results also from transformations in the government policies towards the business environment. Government policies have a decisive effect on company development (Surya et al. 2021). These changes in government policies can be variations in government fiscal policy directed to favour or not companies' competitiveness and performance. Such changes can also result from the instabilities perceived in the country's economy. For example, when a country's economy goes through economic downturns, prices increase, currencies are devalued, etc., resulting in companies possibly having to change the way in which they operate. In such business environments, it becomes difficult to predict even the immediate future of economic developments.

2.2.3. Arrival and Exit of Companies to and from the Industry

The dynamism of the business environment is also observed through the arrival and exit of new business competitors. A competitive business environment forces companies to be innovative (Marshall and Parra 2019). The competitive business environment encourages innovation and business growth. Competition drives down prices in the industry, while at the same time imposing better quality goods and services and a wider range of varieties through innovation. As a result, only new entrants with higher quality products or more efficient processes are able to enter, grow, and win a market share in the industry, while the inefficient companies eventually exit the market (OECD 2018). These company arrival and exit movements are due to the fact that, in an unstable environment, companies are unlikely to survive due to multiple factors that change dramatically, often to the detriment of the company. Thus, companies that enter an industry eventually leave it because they are not

able to endure the pressure due to either competition, lack of environmental munificence, or the deterioration of working conditions in such an environment.

2.2.4. Constant Technological Changes and Adoption

Constant technological changes and their adoption by firms further affect the business environment (Ting et al. 2012, p. 518). Adeoye (2013) considers technology as the use of scientific principles and mechanical arts in the performance of various tasks in a business. However, in this era, the rate of technological change is very high, but the access to the best technologies is also costly for companies with such a high rate of attrition, so it becomes difficult for them to adapt to it, especially for small and low-income companies. The use of technology builds the competitive advantage of the firms that adopt it. Companies that are able to adopt new technologies are more likely to be offered a competitive advantage over their competitors (Blichfeldt and Faullant 2021). This is because new technologies have the capacity to reduce production costs, improve output quality, achieve economies of scale, and facilitate communication and access to customers. Hence, it has a central place in building a competitive advantage.

2.2.5. Political and Security Stability

The dynamism of the business environment is also observed through political and security stability. This refers to the changes in political events, such as insecurity and conflict, the adoption or rejection of laws and rules by a regime, or simply when government policies are not stable enough to maintain a stable business environment. This can lead to market instability and discourage investment. In addition to political stability, law and order and the quality of administrative processes may also significantly impact a country's business environment, as well as a company's productivity (Volberda et al. 2012). Considering the context of the DRC, particularly in the eastern part of the country, the business environment is highly unstable due to the high level of insecurity sustained by a multitude of armed groups and the inability of the Congolese state to eradicate them. However, the region, like the whole country, is characterised by a very high level of harassment by state agents, who make use of intimidation, corruption, and misappropriation of public funds that they collect in the form of taxes and fees due to public institutions, instead of serving as bodies for informing and educating the taxpayers. The country's business environment is also characterised by a high level of change that often works against the success of Congolese businesses. This makes the DRC one of the most difficult countries in the world in which to do business (CENFRI 2016, p. 34). Hence, the World Bank ranked the DRC 184th out of 189 countries in 2016, and 183rd in 2020. Even at the African level, the 2020 report ranks the DRC 49th out of 55 countries (World Bank 2016, 2020). In addition, companies in the region are being squeezed in the market by the quality of products from the East African Community sub-region, especially Uganda, Kenya, Rwanda, and Tanzania, which are flooding the local market to the detriment of local companies with a low level of technological adoption. These products imported from the sub-region are, for the most part, those of the flagship manufacturing industry of these countries, made using more advanced technologies that Congolese companies in the East of the country possess. In general, this complicated business climate increases risk, and makes it more expensive and time-consuming for companies to obtain services (CENFRI 2016, p. 34). Therefore, the following hypothesis was formulated:

H2. *Environmental dynamism has a negative significant effect on company performance.*

2.3. Moderating Effect of Environmental Dynamism

The business environment through its specific dimension interacts significantly with strategies to affect corporate performance (McArthur and Nystrom 1991). In other words, a dynamic business environment plays a vital role in influencing the effect of INN undertaken by organisations in enhancing company performance (Tajeddini et al. 2020; Tajeddini and

Mueller 2018). From a contingency perspective, the dynamism and stability of the business environment are decisive elements that determine the company's performance. For instance, Chemma (2021) and Lumpkin and Dess (2001) reported that competitive dynamics exert pressure on companies to be innovative in order to survive and grow. This means that in a highly changing and unpredictable environment, the best way for companies to survive is to develop a strong entrepreneurial posture, especially via innovativeness.

Kraus et al. (2012) reported that innovative companies do perform better in turbulent environments. Thus, an uncertain business environment acts as a catalyst that pushes companies to engage more in innovation. Such INN leads them to gain a competitive advantage by offering goods and services that are adapted to the customers' needs and expectations (Palazzeschi et al. 2018, p. 1). Hence, through innovations, companies are able to produce and sell goods that meet consumer expectations. As they continue to innovate out of fear of environmental uncertainty, companies build a better position to expand their market by gaining a greater market share, selling more, and consistently satisfying their customers. Therefore, the environmental uncertainty manifested through ED plays a crucial role in the development of firm internal innovation capabilities, which in turn leads to the sustainable achievement of the company's performance.

A dynamic environment, given its uncertainties, forces companies working in such a context to make greater efforts in terms of INN to balance the discrepancy brought about by an unstable environment (Prajogo 2016; Zehir and Balak 2018). Thus, innovation acts as a reducer of environmental uncertainties as it endows the company with a certain monopoly power over the market, albeit usually temporary (Boutillier and Uzunidis 2014). In other words, as a strategic tool, companies operating in competitive environments rely on INN in order to improve their performance by gaining competitive advantage.

However, some scholars have reported opposing conclusions. For instance, Agyapong et al. (2021) and Taghizadeh et al. (2021) stated that an ever-changing business environment weakens the effect of product innovation on business performance. An unfavourable business environment can become an obstacle that hinders company innovativeness due to the fact that it can increase the cost of innovations within companies (Dunyo and Odei 2023), which means that, in a highly dynamic business environment, taking too many innovation initiatives may lead to counterproductive company performance. From that perspective, it must be admitted that a very unstable business environment creates more constraints than new opportunities for companies, even though they are called upon to react creatively and innovatively (Shah et al. 2022). This leads companies to experience difficult working conditions. These diverging opinions raise the existence of discrepancies in the literature regarding the effect of environmental dynamism on innovation and the performance of companies. Furthermore, there are still contradictions among scholars concerning the role of ED. Li and Liu (2014) consider ED as a driver rather than a moderator, whereas other scholars (Drnevich and Kriauciunas 2011; Petrus 2019) consider ED as moderator rather than a driver. From these ambiguities in the literature, as posited in Figure 1, the following hypothesis was formulated:

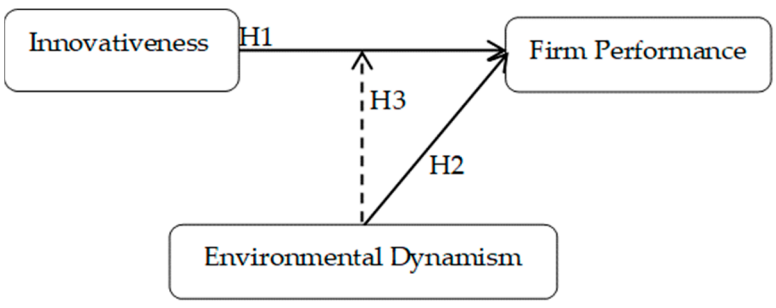

Figure 1. Analysis Model.

H3. *Environmental dynamism has a significant negative effect on the relationship between innovativeness and company performance.*

3. Methodology

This study used a cross-sectional research design involving a questionnaire that was distributed to the owners and managers of Congolese micro, small, and medium-sized manufacturing enterprises operating in the north-eastern DRC. These respondents were owners or senior managers, including CEOs, production managers, marketing managers, financial managers and others with similar responsibilities. These respondents served as the target group for our study because of their knowledge of the study topic and their experience in their companies. A total of 344 questionnaires were issued, but only 178 were returned and usable for analysis, giving a response rate of 51.7%, which is adequate in relation to the literature. The literature recognises that the survey of company managers generally leads to a low response rate of around 30% (Cycyota and Harrison 2006; Baruch and Holtom 2008). From the same perspective, Geyer et al. (2020) stated that a response rate above 30% is necessary as it minimises the non-response bias risk in a survey.

The research location for this study is the north-eastern region of the DRC, consisting of the provinces of Ituri and North Kivu. The study units of analysis, i.e., the whole units that are studied (Kumar 2018), are the manufacturing companies operating in the north-eastern DRC: whereas the study units of observation, meaning the individuals from whom the data were collected, are the owners and managers of manufacturing enterprises operating in the region. The study used multiple respondents per company in order to reduce the risk of bias due to the consideration of a single perspective. This approach provided much more precision in the respondents' answers. It avoids biases linked to the use of a single respondent's desired perspective (Ried et al. 2022, p. 5). Self-reported items by a single respondent may be affected by bias (Kreitchmann et al. 2019, p. 2). The collected data were analysed using SPSS 25 to test the study hypotheses.

The questionnaire (Appendix A) used for data collection consisted of four sections. The first section presented the demographic data of the respondents, the second section dealt with the independent variable (INN), the third section was based on the moderator variable (ED), and the fourth section collected information on company performance. It was adapted from previous works. The questions relating to INN were taken from the work of Covin and Slevin (1989), Lumpkin and Dess (2001). The ED questions were drawn from Kraus et al. (2012) and Miller and Friesen (1982). Finally, the performance questions were drawn from Miller and Friesen (1982). The questionnaire was constructed using a 5 point Likert scale that ranged from 1 = "strongly disagree" to 5 = "strongly agree". The questionnaire was handed directly to the respondents at their workplace.

To ensure the quality of the research tool, the reliability of the internal consistency of the scale was checked using Cronbach's alpha. This guaranteed that the same latent trait was measured on the same scale (Taber 2018). Cronbach's alpha coefficient of the three constructs ranged from 0.712 to 0.862 (innovativeness 0.808, environmental dynamism 0.712, company performance 0.862) which confirmed that the questionnaire was sufficient (Ponterotto and Ruckdeschel 2007; Crutzen and Peters 2017). In regard to the data analysis, the study made recourse to the ordinary least squares regression approach and descriptive statistics. To perform the hierarchical regression analysis, the independent variable (INN) and the moderator variable (ED) were centred in order to reduce the probability of multicollinearity in the model (Kim 2019). Multicollinearity leads to the estimation of coefficients with higher standard errors. This leads to greater uncertainty in the model. Centering on the mean was carried out in order to reduce multicollinearity. The analysis generated two models. The first model tested the control variables (location, age of firm, firm and size), as well as the main effects (INN and ED). The second model, on the other hand, included the interaction term, i.e., the product of INN and ED (INN*ED). The study's detailed results are depicted in the following paragraphs.

4. Results

4.1. Descriptive Statistics

The study results show that 9.6% of the respondents were owners of the surveyed companies, and the remaining 84% were managers or equivalent. Only 1.7% of respondents had a Master's degree as the highest educational qualification; 78.7% of the respondents were male and 21.3% were female.

The results concerning the relation between INN and firm performance and the moderating effect of ED in the INN–firm performance relationship are summarised by the two models in Table 1.

Table 1. Results of the multiple regression analyses.

Model	**Model 1**		**Model 2**	
Variable	β	**t**	β	**t**
Control var.				
Location	0.571 ***	3.991	0.542 ***	3.797
Firm Age	−0.020 ***	−4.615	−0.021 ***	−4.615
Firm Size	0.000	0.985	0.000	1.144
Main effects				
INN	0.283 ***	3.572	0.263 **	3.318
ED	0.128 †	1.777	0.154 *	2.107
Interaction				
INN*ED			−0.151 †	−1.315
Constant	3.144 ***	23.867	3.176 ***	24.068
		Model Summary		
R^2	0.291 ***		0.305	
Adj. R^2	0.271 ***		0.281	
ΔR^2	0.291 ***		0.014	
ΔF	14.064 ***		3.372	
F	14.064 ***		12.444 ***	
Durbin-Watson			1.571	

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; † $p < 0.10$.

4.2. Hierarchical Multiple Regression Analysis

Model 1 in Table 1 depicts the results of the multiple regression analysis that examines the main effect of INN on company performance. It includes the moderating factor (ED) and the control variables. As predicted, INN has a positive and significant effect on company performance ($\beta = 0.283$; $p < 0.001$), thus supporting Hypothesis 1. The moderating factor, ED has a positive but weakly significant ($\beta = 0.128$; $p = 0.077$) effect on company performance. Therefore, Hypothesis 2 was rejected; ED exhibits a positive effect on company performance. In relation to the control variables of Model 1, the firm's location has a positive and significant effect ($\beta = 0.571$; $p < 0.001$) on performance, while the firm's age has a negative and significant effect ($\beta = -0.020$; $p < 0.001$) on performance, and the firm's size shows no relationship with company performance.

In Model 2, INN exhibits a significantly positive effect on company performance ($\beta = 0.263$; $p = 0.001$). The interaction term INN*ED shows a negative but weakly significant effect ($\beta = -0.151$; $p = 0.068$) on company performance, thus supporting Hypothesis 3, suggesting that ED has a negative effect in the INN–company performance relationship. Regarding the control variables of Model 1, the firm's location ($\beta = 0.542$; $p < 0.001$) is positively related to company performance, while the firm's age ($\beta = -0.021$; $p < 0.001$) is negatively related to performance, but the firm's size does not relate with company performance.

From Figure 2 (as also determined by Chung et al. 2021), it is observed that lowly innovative companies reach their highest level of performance when environmental dynamism is high. However, moderately innovative companies reach their best level of performance

when environmental dynamism is moderate; nevertheless, when a company is highly innovative, the environmental dynamism does not affect its performance at all.

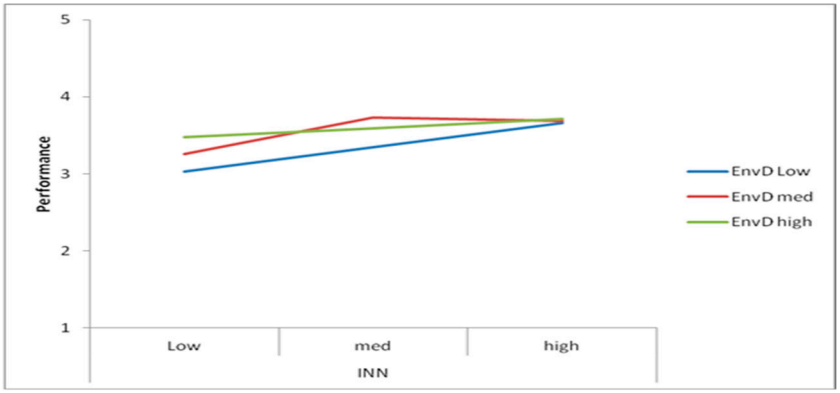

Figure 2. Interaction effect of INN and ED on firm performance.

5. Discussions and Implications

The literature (Chemma 2021; Ramdani et al. 2019) devotes a lot of attention to INN as an inescapable mechanism in building company competitiveness and performance. The study's results suggest that a company's innovativeness significantly influences its performance. These findings are consistent with prior studies (Canh et al. 2019; Fu et al. 2021; Kollmann and Stöckmann 2012) suggesting that embracing innovativeness leads to better business performance.

Concerning the moderating effect of business environmental dynamism in the relationship between INN and company performance, the study results exhibit a negative moderating effect of ED in the INN–company performance relationship. This suggests that the business environment moderates the company's strategy–performance relationships (McArthur and Nystrom 1991). This result is consistent with the findings in some previous works, such as Taghizadeh et al. (2021). These scholars have reported a negative moderating role of ED in the relationship between open innovation and firm operational performance (Taghizadeh et al. 2021, p. 501). From the perspective of industrial organisation (IO) theory, these research findings suggest that, in the context of high market uncertainties that are characterised by the unpredictable behaviour of competitors, the constant and rapid changes in technologies and in industry characteristics, as well as the constant arrivals and exits of competitors to and from the market, and the unpredictability of customers' choices (tastes), can undermine the company's innovation efforts and lead to a poor result.

According to IO theory, the firm's performance in the marketplace is a function of the characteristics of the industry environment in which it competes (Porter 1981, p. 610). In other words, the external business environment exerts pressures and constraints that influence the performance of the firm. This determines the company's strategy. As the company is forced to make significant efforts to survive, it will have to redefine its strategies and resources in order to find a balance, for instance, through innovation, since innovation acts as a relative reducer of uncertainty (Audretsch and Baldwin 2006). However, as depicted in Figure 2, this environmental pressure only influences the performance of lowly and moderately innovative companies, with no effect on highly innovative companies. This result also suggests that, by trying to adapt to the competition pressure, companies can end up making wrong decisions, for example, investing a lot of money in marketing and in the acquisition of new knowledge and technologies, which in the short term can generally generate more poor results for the company, mostly for the lowly and moderately innovative companies.

Nevertheless, these findings are in contradiction with those from previous studies, such as Agyapong et al. (2021), who reported a positive interaction between technological

innovation and company performance. In the same vein, this finding is in contrast with the findings in studies by Rodriguez-Pena (2021) and Fadlilah et al. (2021), who found a significant positive effect of environmental dynamism in the innovation–performance relationship.

The merits and originality of this study can be summarised as follows: in contrast to previous work which considered ED to play an exclusive role either solely as a driver (Li and Liu 2014) or as a moderator (Lumpkin and Dess 2001; Agyapong et al. 2021; Taghizadeh et al. 2021), the present results indicate that ED can play both the role of moderator, as well as driver. However, these results indicate that using the DE as a moderator or driver would lead to a variety of results which may be contradictory. However, the results show that an unstable business environment combined with a low level of INN within firms leads to a negative outcome for the firm, but this was at a low extent ($\beta = -0.151$; $p = 0.068$). Furthermore, these research findings suggest that, for lowly and moderately innovative companies, innovating in an ever-changing business environment is very likely to generate counterproductive results and undermine the company's efforts to save it from market threats. In the resource-based view, this can be explained by the fact that lowly and moderately innovative companies have limited resources to strongly engage in innovation, mostly in an unstable business environment. Thus, it can be deduced that companies are more likely to innovate when they receive significant resources for innovation (Torres-Barreto et al. 2021; Carvache-Franco et al. 2022). However, lowly and moderately innovative companies will innovate less because of a lack of resources, which in a very dynamic environment will drag down their performance. The result would be a deterrent effect of the constantly changing environment.

As the literature acknowledges (Kessler and Chakrabarti 1996), in various industries, especially in the manufacturing sector, the pace of scientific and technological developments remains very high. This brings a wider range of products to the same market while frequently transforming and confirming dominant designs, standards and products. One of the consequences of this technological dynamism is that it offers consumers a greater range of products. This in turn increases the number of available solutions and weakens products or companies with little scope for innovation, often driving them from the market (Kessler and Chakrabarti 1996, p. 1156).

The uncertainty of the environment can also result in constraints created by the government itself by imposing regulations and or abandoning the industry to administrative chaos, or simply through the inability to secure the business environment from diverse factors that can compromise it (UNIDO and GTZ 2008). The lack of government assurance undermines confidence in the business environment.

Incentive intervention by the government can create a significant leverage effect for businesses. Tax facilities, simplification of business administrative procedures, and law enforcement and order, as well as the availability of production infrastructure, would encourage innovation within companies and lead to significant effects on company performance. However, when governments cease carrying out these tasks or act laxly, a hostile business environment arises that discourages internal entrepreneurial posture within companies, with destructive consequences for companies' performance and competitiveness. Although the challenges of the business environment require companies to deploy more resources and coping strategies to survive, too much instability in the business environment can be detrimental to companies. This may condemn companies operating in such contexts to perish or cease operations. The challenges and the exciting constraints should not be more than the opportunities and resources that the environment offers. Otherwise, the business environment becomes stifling for companies and leads to their counterproductive performance, which ultimately opens the door to their withdrawal from the market.

This research has theoretical implications. It provides empirical evidence of the effect of a highly unstable environment on the relationship between companies' internal innovation capabilities and their performance in the context of developing countries, where access to finance and skilled human resources is a major constraint (Herrington and Coduras 2019).

This research confirms that INN is a vector of company performance. INN leads companies to improve their products and services in order to offer consumers a better experience. However, as the use of strategic orientation is not universally beneficial (Ferreras-Méndez et al. 2022), particularly for resource-constrained organisations (Kreiser et al. 2013), we observed that, with the use of INN in the context of a high level of instability, uncertainty and volatility in the business environment, the effects of innovation will vary according to the level of innovation of the company. For companies with low levels of innovation, the highest level of performance is achieved when the dynamism of the environment is also high. In other words, for less entrepreneurial companies, it is the pressure of environmental dynamism that drives them to innovate, seeking to strike a balance in the face of environmental pressure. However, this ED and pressure to take risk through innovation may end up by compromising the outcome for small companies (Kallmuenzer and Peters 2018). On the other hand, for moderately innovative companies, they reach their best level of performance when the dynamism of the environment is moderate. The empirical results of the study show that it is only when a company is highly innovative that the dynamism of the business environment does not affect its performance at all.

In addition, this research has practical implications. Firstly, we confirm that the use of innovation enables a company to build its strategic position in order to maintain its performance in a competitive market. It therefore becomes necessary for the company to invest significant resources in developing new products and services, in R&D, in training human resources and in developing an entrepreneurial spirit and competitiveness in order to be able to produce at the level demanded by the market. Secondly, innovation also raises the need for a high level of access to strategic resources, including finance, technology and human resources (Ferreras-Méndez et al. 2022). This remains a complex requirement for micro, small and medium-sized enterprises, especially in the African context.

6. Conclusions, Limitations and Future Research

Manufacturing companies play a significant role in the economy of countries through employment and economy growth. The managerial effort in terms of innovativeness has significant influence on their performance. However, the poor supporting business environment characterised by high levels of uncertainties and instability where they operate creates damaging effects on their performance as it weakens the innovation efforts. To better escape from the pervasiveness of business environment instability, companies need to adapt their level and strategies for innovation to the nature of their business environment. Business leaders and policy makers are challenged to calibrate the level of their innovation capacity with the nature of the external competition environment, government regulation and consumer incentives, and unpredictability in order to ensure sustainable business performance. A business environment characterised by a very high level of instability and uncertainty is much more insecure for micro and small businesses, as they do not have access to significant resources, yet effective innovation depends first and foremost on the quality and quantity of the resources that the business controls. Managers are therefore called upon to consider innovation as a central factor in building the competitiveness and performance of their companies. Thus, they need to invest heavily in innovation, in employees training and R&D. Otherwise, they are exposed to the destructive effects of a highly unstable environment and their performance will drop as the business environment remains unsteady. In addition, political decision-makers should not ignore their role as organisers and arbiters of the business environment, particularly in the context of developing countries.

This study raises limitations that should be of interest for further research. First, the results of this study are based on subjective measures obtained from the opinions of the owners and managers of the manufacturing companies in the DRC's north-eastern region. Further studies should be carried out using objective measures available as captured in the financial statements of those companies. Secondly, having used a cross-sectional approach to data collection from the companies, this study failed to capture the effect of strategic

changes related to temporary changes in companies in the region. Cross-sectional studies cannot help in understanding how, over time, environmental dynamism influences the relationship between innovation and performance of these companies. Moreover, the data considered in this study only concerned the north-eastern part of the DRC; future studies may look at other regions or at the whole country. Nevertheless, the present research offers a starting point for further studies on innovation under uncertainty to further illuminate the decisions of managers of manufacturing companies and government decision makers in order to improve the quality of the business environment as well as the company performance.

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Appendix A Research Tool

Innovativeness	1	2	3	4	5
Our company has the tendency to engage in and support new ideas, experimentation and creative processes					
Our company encourages new ideas from workers regardless of their position					
Our top management team invests sufficient financial resources on research and development					
Changes in this company's products or service lines are quite high					
Our company emphasizes on utilising new technology					
Our employees are innovative in their way of doing things in production processes and product marketing					
Our firm encourages the staff to come up with new ideas					
Environmental Dynamism	1	2	3	4	5
In the market, customers' choices (tastes) are unpredictable					
Actions of competitors are difficult to predict					
The technology in our industry is changing rapidly					
There is a constant arrival and exit of competitors in the market					
Performance Indicator	1	2	3	4	5
These last 4 years (2016–2019), our firm has seen its sales grow					
These last 4 years (2016–2019), our firm has seen its profits grow					
The profits gained from the business have funded the firm's expansion					
These last 4 years (2016–2019), we have increased our market share					

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