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The Role of SMEs' Dynamic Capabilities on their Entrepreneurial Capabilities and Competitiveness

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ABSTRACT

The empirical evidence regarding the mediating role of dynamic capabilities in the relationship between entrepreneurial capabilities and SMEs' competitiveness from an emerging economy perspective is limited. This research aims to examine the impact of entrepreneurial capabilities on SMEs' competitiveness and the mediating role of dynamic capabilities in this relationship. Structural equation modeling was utilized to test the hypotheses on a sample of 459 manufacturing SMEs in Tigray, Ethiopia based on data collected through a structured questionnaire. Proportional stratified sampling was used to ensure a representation of SMEs from each city, followed by simple random sampling to select SMEs for inclusion in the sample. The empirical results of the study reveal that both entrepreneurial and dynamic capabilities have a positive and significant influence on SMEs' competitiveness. Furthermore, entrepreneurial capabilities can positively and significantly impact SMEs' competitiveness when mediated by dynamic capabilities. The R^2 value for SMEs' competitiveness is 0.686 (68.6%), indicating that 68.6% of the variations in SMEs' sustainable competitiveness can be explained by entrepreneurial and dynamic capabilities. Similarly, the R^2 value for dynamic capabilities is 0.498 (49.8%), suggesting that entrepreneurial capabilities can explain over 49.8 % of the variation in SMEs' dynamic capabilities. This research contributes theoretically by integrating four entrepreneurial capabilities (autonomy, risk-taking, pro-activeness, and innovativeness) into a single framework based on the dynamic resource-based view of competitiveness (asset, process, and performance). The findings address a research gap by providing empirical evidence of the mediating role of dynamic capabilities in the relationship between entrepreneurial resources and SMEs' competitiveness from an emerging economy perspective. The study can help SME managers/owners and decision-makers enhance the utilization of entrepreneurial and dynamic capabilities to achieve greater competitiveness.

Keywords: Entrepreneurial capabilities, Dynamic capabilities, Competitiveness, SMEs.

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1. INTRODUCTION

When small and medium enterprises (SMEs) are competing in a volatile and dynamic business environment, having the entrepreneurial capability is key to sustaining their success (Vu, 2020). These firms' capability is related to their leadership abilities to exploit available opportunities before their rivals (Sandybayev, 2019) to sustain their competitiveness. Researcher findings (Adjabeng et al., 2022; Chen, 2018; Hu et al., 2022; Vu, 2020) indicate that entrepreneurial capability is crucial for SMEs' performance and competitiveness. However, having entrepreneurial intention or capabilities does not guarantee sustainable competitiveness from the firm (Abbas et al., 2019; Woldesenbet et al., 2012). Not all firms equipped with entrepreneurial capabilities (EC) have been able to sustain their business properly. For example, a firm's EC has been shown to have a positive and significant effect on its competitiveness (Gupta and Batra, 2016; Simiyu et al., 2016), while in contrast, the EC has been found to have an insignificant effect (Affendy et al., 2015; Wu, 2007). Additionally, the impact of entrepreneurial networks on SMEs' performance has been deemed insignificant (Abbas et al., 2019). This suggests that EC's influence on firms' competitiveness is not linear (Sciascia et al., 2014; Wiklund and Shepherd, 2011), but rather varies depending on growth phases, financial crises, or market turmoil (Fuentes-Fuentes et al., 2014; Jones et al., 2011). Therefore, it is not possible to conclude that all SMEs have the same EC and utilize it in the same way towards their competitiveness (Kanapathipillai et al., 2022). This is why several researchers (Adjabeng et al., 2022; Chen, 2018; Hu et al., 2022; Vu, 2020) recommend that future studies expand the research on different industries and countries in this relationship.

However, having only entrepreneurial capabilities is not definitive for firms' sustainable competitiveness. The capability to sense the environment and reconfigure resources depending on changes is very important for their success (Abbas et al., 2019; Woldesenbet et al., 2012). Firms' entrepreneurial capabilities have a significant and positive impact on their performance when mediated by Dynamic capabilities (DC) (Fitriati et al., 2020; Wu, 2007). Dynamic capabilities are organizational abilities that allow businesses to adapt and thrive in changing environments (Gupta et al., 2024; Reviews and Deyassa, 2023). For SMEs, which often face resource constraints and volatile markets, developing these capabilities is crucial for staying competitive (Dejardin et al., 2023). Firms that can deploy their resources through their organizational capabilities are better positioned for sustainable competitiveness than firms that do not (Jeng and Pak, 2016). The sensing capability of firms enables them to promptly identify emerging trends, customer needs, and competitor actions allowing them to react quickly and capitalize on new opportunities before rival firms can

(Prabowo et al., 2021). Additionally, dynamic capabilities allow SMEs to reconfigure their resources (human, financial, technological) as needed (Ferreira et al., 2021; Zhou et al., 2021), enabling them to effectively respond to external changes like economic downturns or technological advancements. Hernández-Linares et al. (2021) argue that SMEs with strong dynamic capabilities can adjust their processes, structures, and strategies readily, making them more resilient in the face of unexpected challenges. Dynamic capabilities allow SMEs to actively learn from internal and external sources, including gathering customer feedback, analyzing competitor strategies, and staying updated on industry trends. This learning needs to be effectively disseminated and applied throughout the organization to ensure continuous improvement (Hernández-Linares et al., 2021; Prabowo et al., 2021). In contrast to the above findings, a study by Sijabat et al. (2021) shows that the impact of DC on firms' competitiveness is positive but not significant.

To address the gaps in the literature, there has been no research conducted focusing on this topic in our country. Therefore, researching the impact of entrepreneurial and dynamic capabilities on SMEs' competitiveness is crucial for their sustainability and provides important evidence for policymakers while minimizing the gap in the literature. This research was carried out using SPSS for descriptive analysis. Structural equation modeling (SEM) of Analysis of Moment Structural (Amos), a multivariate statistical technique, was used to analyze the results and test the hypotheses that were set.

2. LITERATURE AND HYPOTHESIS DEVELOPMENT

2.1. Impact of Entrepreneurial Capability and SME Competitiveness

Entrepreneurial capability (EC) is an individual capability, skill, or experience of the entrepreneur that helps to identify and seize entrepreneurial opportunities to successfully achieve entrepreneurial goals by creating business value (Xie and Huang, 2014). In the highly volatile and dynamic market, entrepreneurial capability has the potential to change the competitive landscape of a firm (Vu, 2020a). Additionally, entrepreneurial capability is crucial for the performance and competitiveness of SMEs (Adjabeng et al., 2022; Chen, 2018; Hu et al., 2022; Vu, 2020).

While the relationship between EC and business performance has been studied in the literature, the influence of EC on a firm’s competitiveness is not consistent (positive or negative), but rather situation or event-driven (Sciascia et al., 2014; Wiklund and Shepherd, 2011). Its impact varies depending on growth phases, financial crises, or market turbulence (Fuentes-Fuentes et al., 2014; Jones et al., 2011). EC has a positive and significant influence,

on firms' competitiveness (Adjabeng et al., 2022; Fan et al., 2021; Gupta and Batra, 2016; Simiyu et al., 2016). On the other hand, the effect of EC on SMEs' competitiveness is insignificant (Affendy et al., 2015; Wu, 2007). Additionally, the impact of entrepreneurial networks on SMEs' performance is also insignificant (Abbas et al., 2019).

Therefore, it cannot be assumed that all SMEs have similar entrepreneurial capabilities and utilize them similarly due to factors such as age and exposure to education that influence their competitiveness (Kanapathipillai et al., 2022). Furthermore, some researchers (Adjabeng et al., 2022; Chen, 2018; Hu et al., 2022; Vu, 2020) recommend that future studies expand the research to different industries and countries. In this regard, there was minimal literature found on the Ethiopian context and globally. Based on this, the following hypothesis has been developed:

H1: Entrepreneurial capability has a significant impact on SMEs' competitiveness.

2.2. Dynamic Capabilities and SMEs' Competitiveness

Dynamic capability is a crucial part of the management process that helps to leverage a resource-based view (RBV) to enhance the competitiveness and performance of SMEs (Chumphong et al., 2020). Scholars have conducted various studies on the relationship between dynamic capability (DC) and SMEs' competitiveness. DC is a critical tool for fostering performance and developing sustainable competitiveness among SMEs (Jeng and Pak, 2016; Mansouri et al., 2022). The competitiveness and performance of SMEs are directly and positively influenced by their DC (Breznik and Lahovnik, 2016; Chumphong et al., 2020; Ferreira and Coelho, 2020; Hernández-Linares et al., 2021; Jantunen et al., 2005; Jeng and Pak, 2016; Khalil and Belitski, 2020; Fitriati et al., 2020; Mansouri et al., 2022).

DC consists of various interconnected components, each with different levels of importance for SMEs' competitiveness (Hernández-Linares et al., 2021). Therefore, implementing only one aspect of DC may hurt a firm competitiveness since they are intertwined and interwoven with each other (Breznik and Lahovnik, 2016). Additionally, Sijabat et al., (2021) found that while DC does impact SMEs' competitiveness, the effect is not significant. The relationship between DC and SMEs' competitiveness is still evolving and lacks a definitive conclusion (Ferreira et al., 2018; Vu, 2020). Moreover, Jeng and Pak, (2016), Jurksiene and Asta, (2016), and Vu, (2020) suggest that the relationship between DC and SMEs' competitiveness should be empirically tested across various sectors. Other researchers have studied the effect of DC on SMEs' competitiveness (Ashiru et al., 2022; Battaglia and Neirotti, 2022; Ferreira et al., 2018; Ferreira and Coelho, 2020; Hernández-

Linares et al., 2021; Mudalige et al., 2019) and recommend further research in different countries due to limited empirical investigations (Jurksiene and Asta, 2016; Vu, 2020). Given these gaps in the literature, there is a lack of research specifically focused on this topic in Ethiopia, particularly in Tigray. Based on these considerations, we have formulated the following hypothesis:

H2: Dynamic capability has a significant impact on SMEs' competitiveness.

2.3. The Role of Entrepreneurial Capabilities on SMEs' Dynamic Capabilities

SMEs are continuously eager to identify key capabilities and factors that have a significant effect on their sustainable competitiveness for survival (Sijabat et al., 2021). SMEs equipped with better entrepreneurial capabilities have a significant and positive impact on their DC (Abbas et al., 2019; Fitriati et al., 2020; Wu, 2007). The SMEs' ability of. Innovativeness and autonomy help them to easily sense the business environment and reconfigure internal and external resources for sustainable competitiveness (Abu-rumman et al., 2021; Fitriati et al., 2020; Yi et al., 2021). The relationship between EC and DC is not properly studied, especially from the perspective of developing countries (Bii and Onyango, 2018). Therefore, further empirical testing and investigation are needed (Farkas, 2022; Indika et al., 2021). Additionally, researchers have recommended empirically testing this type of research on other countries (Abbas et al., 2019; Khouroh et al., 2020) to deepen the literature. Finding papers in this area in the African context in general and in the Ethiopian context was minimal. Based on this, we have developed the following hypothesis:

H3: Entrepreneurial capabilities have a significant impact on SMEs' dynamic capabilities.

2.4. The role of Entrepreneurial Capabilities on SMEs' competitiveness: Mediating by Dynamic Capabilities

SMEs' entrepreneurial capabilities provide them with skills, experience, and knowledge that help them identify and capitalize on upcoming and existing business opportunities (Baumol, 1993; Ray et al., 2004). based on the RBV theory, resources have a positive impact on a firm's performance (Ray et al., 2004). However, firms with high entrepreneurial resources have not shown a significant impact on their performance (Wu, 2007) as the RBV theory does not account for dynamic markets, where changes are unpredictable and nonlinear (Eisenhardt and Martin, 2000; Teece et al., 1997). Merely possessing entrepreneurial intentions or capabilities does not guarantee a firm's sustainable competitiveness. It must also have the ability to sense the environment and adapt its resources accordingly (Abbas et al., 2019; Woldesenbet et al., 2012). Firms' entrepreneurial capabilities have a positive and

significant effect on their performance when mediated by DC (Fitriati et al., 2020; Wu, 2007) but no significant impact without DC (Wu, 2007). SMEs' entrepreneurial capabilities vary based on factors such as age, level of education, and how they utilize their competitive edge (Kanapathipillai et al., 2022). Indika et al. (2021) developed a conceptual model on the influence of EC on SMEs' competitiveness mediated by DC, which is recommended for empirical testing. Additionally, some researchers (Adjabeng et al., 2022; Chen, 2018; Hu et al., 2022; Vu, 2020) suggest should explore different industries and countries. Moreover, there is a lack of research on the Ethiopian context and limited global studies on this topic. Therefore, the following hypothesis has been formulated:

H4: Dynamic capabilities mediate the relationship between Entrepreneurial capabilities and SMEs' competitiveness.

Therefore, finally, the following conceptual model was developed as shown in figure 1.

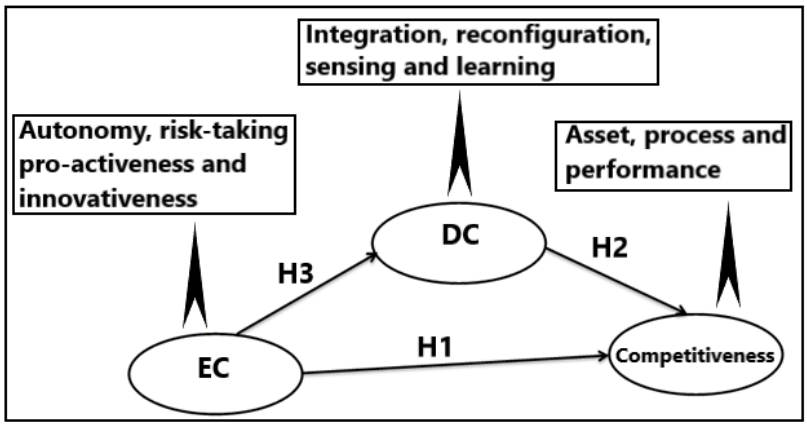

Figure 1. Conceptual framework (developed by the Authors).

2. RESEARCH METHODOLOGY

2.1 Research Context and Measurement

This research was conducted on SMEs operating their business in the manufacturing sector in Tigray, northern Ethiopia. The manufacturing sectors included wood and metal works, textiles, and apparel, construction inputs, chemical and packaging, agro-processing, and mining according to the office category. The focus on this specific sector is not only due to their impact on the region's economic role (Ayalu et al., 2023) but also because there is minimal research depth in this sector in developing countries. The literature primarily consists of case studies surveys and conceptual frameworks as there is a lack of empirical studies on SMEs in this sector. Without a doubt, SMEs in the manufacturing sector require more research to produce robust studies in developing countries.

Through an extensive literature review, all relevant constructs needed to measure were taken from previous studies. However, since the research was conducted in six sectors of the manufacturing industry, minor adjustments and modifications in wording were made to enhance the acceptability and applicability of the measures to manufacturing SMEs.

To quantify dynamic and entrepreneurial capabilities, SME owners and managers were asked to rate the extent to which their firm is dynamically competent to address a rapidly changing environment. In total, 48 questions were provided: 17 for dynamic capability, 17 for entrepreneurial capability, and 19 for competitiveness. The questions related to dynamic capabilities covered sensing, integration, learning, and re-configuration capabilities, drawn from various sources (Hernández-Linares et al., 2021; Pavlou and Sawy, 2006; Shi et al., 2018; Zhou et al., 2019). Additionally, seventeen items focused on the entrepreneurial capabilities of firms in autonomy, pro-activeness, innovativeness, and risk-taking (Karimi and Walter, 2016; Makhloufi et al., 2021; Martínez-Román et al., 2011). Owners and managers were also asked to assess SMEs' competitiveness in terms of process adaptability flexibility, and sector performance. The questionnaire was designed using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The questionnaires were structured to allow SME owners and managers to indicate their level of agreement with statements describing the situation of the SMEs.

2.2 Sampling and Data Collection

The research data was collected from 459 SME owners and managers in the manufacturing sector using a structured questionnaire. Initially, the questionnaire was based on previous studies but underwent grammar and word editing by three scholars from the literature and foreign language department. After this initial editing, the questionnaire was distributed and further refined by two scholars with expertise in the research area, resulting in 70 questions and four additional items related to competitiveness measurement. The final version of the questionnaire was then translated into Tigrigna, the respondents' mother tongue, and further edited by two Tigrigna scholars. To ensure the questionnaire's validity it was pre-tested with six SME owners who were not part of the final data collection.

The study targeted 3262 manufacturing SMEs in selected cities obtained from the regional authority offices' registered list of SMEs. The target population included manufacturing SMEs in six sectors: wood and metal, textile and apparel, mining, chemical and packaging, agro-processing, and construction inputs. The sample size of 459 manufacturing SMEs was determined using the Taro Yamane formula (Uakarn et al., 2021), with a confidence level of 95% a 5% margin of error, and a 29% contingency.

$$n = \frac{N}{1+Ne^2} \quad (1)$$

Where, n = sample size; N = population size; e= error (0.5) confidence interval (reliability) of 95%.

Proportional stratified sampling was used to ensure the representation of SMEs from each city as shown in table 1. Subsequently, simple random sampling was employed to select SMEs from the cities in proportion and include them in the sample. Data was gathered through a structured questionnaire, chosen for its ability to cover a wide range of topics and provide s a substantial amount of information in a short time (Saunders et al., 2019). This method also helps, protect both respondents and researchers from potential bias (Kim et al., 2016). Of the 459 questionnaires distributed, eleven were not returned, five were excluded during data cleaning, and two were removed from the SPSS software due to the standard deviation of zero, leaving 441 valid responses. This resulted in a response rate of 96.1%.

Table 1. The number of sample distributions economies and location-wise.

No.	***Location***	***Business type and the number of samples taken in each specific area***												***Samples to taken***	
		Metal and woodwork		***Textile and apparel***		***Agro-processing***		***Building input***		***Chemical and packaging***		***Mining***			
		S	**M**	**S**	**M**	**S**	**M**	**S**	**M**	**S**	**M**	**S**	**M**	**S**	**M**
1	Shire	6	3	8	1	2	2	3	1	1	1	4	2	24	10
2	Axum	9	7	5	1	3	3	3	2	1	1	4	1	25	15
3	Adwa	7	4	6	3	3	2	3	1	1	1	2	2	22	13
4	Adigrat	15	4	9	2	3	1	9	2	1	1	6	1	43	11
5	Wukro	8	2	7	0	3	1	10	1	1	0	1	1	30	5
6	Mekelle	68	19	31	9	21	4	65	12	7	8	3	1	195	53
7	Maichew	3	1	2	0	1	1	2	1	1	0	1	0	10	3
Total		116	40	68	16	36	14	95	20	13	12	21	8	349	110
														459	

2.3. Measurements of Study Variables

To operationalize the identified variables and factors, an extensive literature review on the subject matter was previously conducted. The selected instruments, variables, and scales used were adopted from existing studies, and translated, into the appropriate language to ensure clarity for the specific respondents. The measurement items were chosen based on their alignment with the conceptual model of the current study (content validity) and their demonstrated reliability in previous research.

Entrepreneurial capabilities (Karimi and Walter, 2016; Makhloufi et al., 2021; Martínez-Román et al., 2011) were assessed using 17 items, Dynamic capabilities (Breznik and Lahovnik, 2016; Hernández-Linares et al., 2021; Lin and Wu, 2014) were measured with

17 items. Competitiveness (Ambastha and Momaya, 2004; Lafuente et al., 2019) was evaluated with 19 items focusing on process (flexibility and adaptability) and performance (productivity and growth) totaling 53 items. However, during the model fit test, variables with factor loading below 0.7 were removed (Hair et al., 2011). This resulted in 24 remaining items as indicated in table 2. Due to the high number of factors and items, the model fit encountered challenges, leading to the elimination of certain items and factors (Castillo et al., 2022; Kenny et al., 2003).

3. RESULTS AND DISCUSSION

3.1. Results

During the examination of careful measurements, it is necessary to assess the internal consistency, discriminant validity, and convergent validity (Hair et al., 2020) of the remaining 24 items as shown in table 2.

Table 2. Factor loading.

Factors					***Loadings***
		DC	<---	EC	0.705
		Comp	<---	EC	0.229
		Comp	<---	DC	0.651
	Autonomy		<---	EC	0.74
	Pro-activeness		<---	EC	0.927
	Innovativeness		<---	EC	0.726
	Integration		<---	DC	0.77
	Reconfiguration		<---	DC	0.84
	Sensing		<---	DC	0.893
	Process		<---	Comp	0.897
	Performance		<---	Comp	0.961
Entrepreneurial capability	Autonomy	ECa3	<---	Autonomy	0.811
		ECa2	<---	Autonomy	0.815
		ECa1	<---	Autonomy	0.776
	Pro-activeness	ECp2	<---	Pro	0.774
		ECp1	<---	Pro	0.774
	Innovativeness	ECi1	<---	Inn	0.732
		ECi2	<---	Inn	0.714
Dynamic capabilities	Sensing	DCs3	<---	Sen	0.762
		DCs2	<---	Sen	0.835
		DCs1	<---	Sen	0.808
	Reconfiguration	DCr3	<---	Reco	0.722
		DCr2	<---	Reco	0.741
		DCr1	<---	Reco	0.805

	Integration	DCi4	<---	Inte	0.757
		DCi3	<---	Inte	0.785
Competitiveness	Process	Cpr3	<---	Proc	0.757
		Cpr4	<---	Proc	0.783
	Performance	Cpo1	<---	Perfo	0.706
		Cpo2	<---	Perfo	0.7
		Cpo3	<---	Perfo	0.795
		Cpo4	<---	Perfo	0.741
		Cpo5	<---	Perfo	0.721
		Cpo6	<---	Perfo	0.762
		Cpo9	<---	Perfo	0.697

The sampling adequacy test was conducted using Kaiser-Meyer-Olkin (KMO) to determine the appropriateness for factor analysis. According to Farrukh et al. (2019), the KMO should not be less than 0.5 for the analysis to be valid. Determining the shared variance among the variables is essential to represent internal consistency, which is explained through composite reliability (CR) (Fornell and Larcker, 1981). The recommended threshold value for CR is 0.7 and above, as suggested by Hair et al. (2011). The research results show that all constructs are reliable values, with a minimum of 0.863 as shown in table 3. Convergent validity was assessed using the Average Variance Extracted (AVE) with a threshold value above 0.5 recommended by Fornell and Larcker, (1981). In this analysis, the AVE values range from 0.645 to 0.864, meeting the required criteria as indicated in table 3.

Table 3. Descriptive Statistics.

Construct	***KMO***	***Cronbach's alpha***	***CR***	***(AVE)***
Entrepreneurial capability	0.917	0.933	0.843	0.645
Dynamic capability	0.861	0.863	0.874	0.699
Competitiveness	0.942	0.933	0.927	0.864

The findings of the assessment indicate that all constructs met the expected threshold value, and we have established acceptable construct reliability. Additionally, internal consistency was evaluated using Cronbach's alpha which measures the internal reliability of the latent constructs. The recommended threshold value for Cronbach's alpha is 0.7 (Pundziene and Bouwman, 2020) and our results show that all constructs met this threshold indicating good construct reliability. Furthermore, the degree to which constructs are strongly connected, and how indicators specifically represent individual constructs, were assessed through discriminant validity (Sarstedt et al., 2014) using the criteria outlined by Fornell and Larcker (1981). Discriminant validity was evaluated by examining the square root of the

AVE. In the matrix, the diagonal values are greater than the correlations between constructs (off-diagonal) in the corresponding rows and columns, as shown in table 4. This demonstrates that there are no concerns regarding discriminant validity in our results.

Table 4. Discriminant Validity.

		1	***2***	***3***
1	Entrepreneurial capability	**0.803**		
2	Dynamic capability	0.688	**0.930**	
4	Competitiveness	0.705	0.812	**0.836**

Through data analysis, the model fit was evaluated using the Tucker–Lewis Index (TLI), Incremental Fit Index (IFI), Comparative Fit Index (CFI), CMIN/DF, root mean square residual (RMR), and Root mean square error of approximation (RMSEA). There is no single cut-off-point threshold specified in the literature. However, TLI, IFI, and CFI values above 0.9, CMIN/DF<3, RMR less than 0.05, and RMSEA values less than 0.08 are generally considered indicators of a good model fit (Chang and Chen, 2020). Based on, the analysis results, the CMIN/DF values were 1.64, RMSEA was 038, TLI was 0.967, CFI was 0.971, and IFI scores were 0.972. These values indicate a good model fit.

3.1.1. Structural Model Analysis

This research was conducted using SPSS for descriptive analysis. Structural Equation Modeling (SEM) with Analysis of Moment Structures (Amos), a multivariate statistical technique, was utilized to analyze the results and test the hypotheses we established. The validation of the structural model was assessed through hypothesis testing. The structural model was evaluated with 5000 subgroups using Bootstrap to examine the relationships in figure 1 (research conceptual framework), and the results of direct and indirect hypotheses are presented in table 5.

Table 5. Result summary of Hypothesis testing.

				Std. estimate	***S.E.***	***C.R.***	***P***	***Result***
H1	Comp	<---	EC	0.229	0.081	2.965	0.003	Supported
H3	Comp	<---	DC	0.651	0.106	7.049	***	Supported
H2	DC	<---	EC	0.705	0.073	8.762	***	Supported
H4	EC=>Comp through DC			0.459			0.01	Supported

Note: *** is for P<0.001.

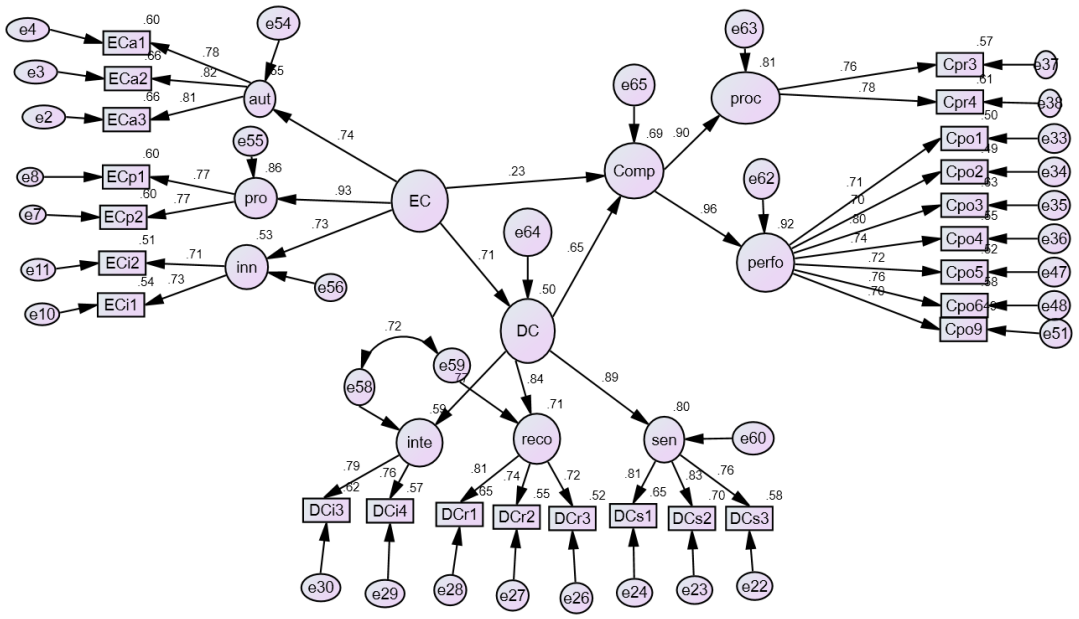

Figure 2. Structural model analysis results.

Primarily, the direct effect analysis confirmed that all three hypotheses as demonstrated in figure 2 were significant. The competitiveness of SMEs was found to be positively and directly linked with their Entrepreneurial capability (EC) (β=0.229, p=0.003) and Dynamic capability (DC) (β=0.651, p<0.001). Moreover, EC was positively related and significant with DC (β=0.705, p<0.001), indicating that EC could be considered a predictor of DC.

Next, the indirect hypotheses indicating the impact of EC on SMEs' competitiveness observed through DC results are shown in table 5. The analysis revealed that EC's role in SMEs' competitiveness through DC is positive and significant (β=0.459, p=0.01), demonstrating that DC partially mediates the role of EC on SMEs' competitiveness.

Additionally, the structural equation modeling has been evaluated with the coefficient of determination (R^2). The threshold value ranges from 0 to 1, with a higher value indicating greater explanatory power (Hair et al., 2019; Ozili, 2023). R^2 values from 0.0 to 0.09 (0% to 9%) are considered too weak for an empirical model and should be rejected (Ozili, 2023). In general, R^2 values of 0.25 are considered weak, 0.5 moderate, and 0.75 considerable (Hair et al., 2019; Ozili, 2023; Sarstedt et al., 2022). Depending on the field of study or if most of the explanatory variables are statistically significant 0.1 or 10% acceptable (Hair et al., 2019; Ozili, 2023). Thus, the R^2 for SMEs' competitiveness is 0.686 (68.6%), meaning that 68.6 % of the variations in SMEs' sustainable competitiveness are explained by Entrepreneurial and

dynamic capabilities. Likewise, the R^2 value for Dynamic capabilities is 0.498 (49.8%), indicating that Entrepreneurial capabilities can explain more than 49.8% of the variation in SMEs' dynamic capabilities.

3.2. Discussion and Implications

3.2.1. Discussion

Grounded in the dynamic resource-based view theory, this research examined the role of entrepreneurial capabilities (EC) in SMEs' sustainable competitiveness and dynamic capabilities, as well as the role of dynamic capabilities (DC) in the path between entrepreneurial capabilities and competitiveness. Merely having an entrepreneurial orientation is insufficient to enhance the competitiveness and performance of SMEs; entrepreneurs must possess the ability to explore more opportunities (Adjabeng et al., 2022). The EC can be categorized as general and international EC (Faroque et al., 2020). However, in this research, the focus was solely on international EC with four constructs: autonomy, innovativeness, risk-taking, and pro-activeness. Despite the recent academic emphasis on researching EC, DC, and competitiveness limited studies have been conducted in this area. This paper contributes to the existing literature by linking EC (autonomy, risk-taking, pro-activeness, and innovativeness) with DC (sensing, reconfiguration, integration, and organizational learning), and competitiveness (asset, performance, process adaptability, and flexibility). The mediating role of DC was assessed specifically from the SMEs' perspective in developing countries. The results of this research enhance existing literature by providing empirical evidence of the significance of EC to DC and SMEs' competitiveness, confirming that EC can be considered as the antecedent of DC.

The research results, as indicated in table 5 with the four hypotheses, were found to be theoretically supported. EC, with its components of autonomy, risk-taking, pro-activeness, and innovativeness, has a significant effect on SMEs' competitiveness and dynamic capabilities, confirming previous findings emphasizing the importance of EC on sustainable SMEs' competitiveness (Adjabeng et al., 2022; Hu et al., 2022; Vu, 2020). Moreover, the findings demonstrated a strong effect of EC on DC in SMEs' competitiveness. Similarly, the results confirmed that DC mediates the relationship between EC and SMEs' competitiveness, showing that EC can act as an antecedent of DC. This result aligns with previous findings (Sijabat et al., 2021) explaining that SMEs' competitiveness and their EC are positively and significantly affected by their DC. Another contribution of this research is addressing the recommendations of (Abbas et al., 2019; Khouroh et al., 2020) to gather empirical evidence on the EC's role in SMEs' competitiveness with other countries.

These empirical findings have significant implications for academic and business communities. According to the empirical evidence in this research, the role of EC in SMEs' sustainable competitiveness. This result is consistent with previous research (Adjabeng et al., 2022; Hu et al., 2022; Vu, 2020) explaining that entrepreneurial capability has the power to impact the competitiveness of firms in volatile and dynamic markets. EC acts as a primary driving force for SMEs in their performance and process adaptability by fostering opportunity-seeking, innovativeness, resourcefulness, and adaptability to achieve sustainable competitiveness.

Furthermore, the empirical investigation confirms that the effect of EC on DC is positive and significant. This means that the EC of SMEs motivates them to continually pursue new opportunities, necessitating the development of DC to seize those opportunities. In general, EC provides a clear vision and motivation for change, while DC offers the tools and processes to turn these visions into realities through sensing and shaping opportunities in the business environment, seizing identified opportunities before competitors, and adjusting resources, knowledge, and processes to meet new market demands by reconfiguring of its capabilities. By nurturing these aspects, working in synergy with EC as an engine and DC as a gear, SMEs can achieve sustainable competitiveness in the dynamic business environment.

The impact of EC on SMEs' competitiveness is strengthened when DC mediates it. This indicates entrepreneurial capabilities, including innovativeness, risk-taking, and pro-activeness, help SMEs identify opportunities, develop new ventures, and adapt to market dynamism. However, having these capabilities does not guarantee sustainable competitiveness. When EC enables SMEs to generate innovative ideas and identify opportunities, DC becomes critical for turning these ideas into reality by effectively sensing the current and future environment through scenario planning and internal and external resource integration for the common goal of the firm. Overall, DC acts as a bridge, allowing SMEs to leverage their entrepreneurial spirit for sustainable competitiveness.

The concepts of dynamic and entrepreneurial capabilities are similar globally, but their roles differ. Entrepreneurial capability can drive economic growth through new business openings, job creation, and product development from an emerging economy perspective. Dynamic capabilities enable these businesses to adapt to changing market conditions and remain competitive, fostering innovation in infrastructure and maximizing limited resources. In contrast, the role of dynamic and entrepreneurial capabilities in developed economies is crucial for maintaining competitiveness globally.

SMEs in Tigray are currently struggling for survival. Therefore, for firms to sustain their business, investing in enhancing their dynamic and entrepreneurial capabilities is crucial. These capabilities enable rapid adoption, innovation, and resourcefulness in the face of significant challenges. Firms equipped with dynamic and entrepreneurial capabilities benefit from flexibility, resilience, innovation, creativity, job creation, and economic growth.

3.2.2. Implications

3.2.2.1. Practical and Managerial Implications

This research has significant implications for owners/managers and policymakers in various aspects. Primarily, it offers a better understanding of the impact of EC on SMEs' sustainable competitiveness and their DC performance in the manufacturing economy of developing countries. It provides supportive information on how EC equips businesses with the skills and mindset needed to succeed in dynamic markets. SMEs with EC are more likely to be innovative in products, services, and processes, leading to unique offerings that cater to evolving customer needs, giving them an edge over competitors. Additionally, SMEs with an entrepreneurial spirit are proactive in seeking new opportunities, making them less vulnerable to market shifts and better able to respond to changing circumstances.

The research findings have practical implications for managers and owners in selecting the necessary components of EC for sustainable competitiveness. SME managers should focus on developing entrepreneurial autonomy, pro-activeness, and innovativeness to achieve sustainable competitiveness. These skills can be developed through education and training (Huang, 2014) fostering an entrepreneurial culture that empowers employees and decentralizes decision-making. Managers should cultivate an environment that encourages innovation and ownership of ideas among employees, as well as provide training in opportunity identification and creative problem-solving.

Another implication of this research is related to DC, which is essential for SMEs to adapt and thrive in a constantly changing environment by sensing new opportunities and enhancing market responsiveness. Investing in by integrating and coordinating all internal and external resources to achieve sustainable competitiveness. Investing in learning and skill development for the workforce is crucial for adapting to new technologies and market trends.

3.2.2.2. Theoretical Implications

The research contributes to the literature on EC by integrating RBV and performance into a new conceptual framework that includes EC, DC, and competitiveness in the SMEs of developing economies. It also presents an empirical model assessing the effects of EC variables on SMEs' sustainable competitiveness, highlighting how DC mediates the

relationship between EC and competitiveness. This research fills a theoretical gap by demonstrating the critical role of EC in DC and SMEs' sustainable competitiveness.

4. CONCLUSION

This research was conducted on SMEs located in Ethiopia (specifically the Tigray region) operating in the manufacturing sector, from the perspective of developing countries. The aim was to study the effect of EC on DC and the sustainable competitiveness of SMEs. Additionally, it assessed the mediating role of DC between EC and competitiveness. A total of three direct and one indirect hypothesis were tested using a structural equation model based on survey data collected from 459 SMEs. The empirical evidence supported all four hypotheses.

The research result revealed that EC is crucial for the ' sustainable competitiveness of SMEs. SMEs with entrepreneurial autonomy, innovativeness, pro-activeness, and risk-taking, can, achieve sustainable competitiveness through high productivity and by implementing adaptable and flexible working processes to adapt to new changes. Additionally, DC positively and significantly mediates the relationship between EC and competitiveness, suggesting that EC can be considered the predecessor of DC based on the results. The strong correlation between these factors indicates that firms that fail to act proactively and innovate new product features struggle to sense changes in the business environment and reconfigure their resources, accordingly, leading to an inability to sustain their business without combining these internal capabilities.

The research findings contribute to the entrepreneurial literature by demonstrating that entrepreneurial capabilities can indirectly impact the sustainable competitiveness of SMEs in the manufacturing sector through dynamic capabilities. Overall, these findings can SME owners and managers understand how to adapt to changing conditions, innovate, and create new opportunities for job creation, ultimately contributing to general economic growth.

Despite the valuable insights gained from this research, some limitations need to be addressed. The survey nature was, limiting respondents from conducting a more in-depth analysis of relevant themes. Future studies should consider incorporating both qualitative and quantitative data collection methods to get new insights and broader inputs. Additionally, this research focuses solely on the manufacturing sector of an emerging economy. Future research should expand to include other developing countries and economies.

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6. CONFLICT OF INTEREST

The authors declare that there is no financial or non-financial conflict of interest in this research.

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