"Impact of governance on value creation in Moroccan SMES: An empirical analysis based on economic value added"

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IMPACT OF GOVERNANCE ON VALUE CREATION IN MOROCCAN SMEs: AN EMPIRICAL ANALYSIS BASED ON ECONOMIC VALUE ADDED

Abstract

This article focuses on small and medium-sized enterprises operating in environments characterized by increased financial and institutional constraints. The literature on this type of organization has mainly concentrated on traditional accounting performance indicators, such as return on assets or return on equity, while economic value creation that explicitly incorporates the cost of capital remains largely unexplored. The objective of this study is to analyze the impact of corporate governance mechanisms on value creation within Moroccan SMEs. The study is based on a sample of 31 SMEs observed over the period 2015–2023, representing 279 observations. Value creation is measured using Economic Value Added, calculated from a cost of capital estimated using an accounting beta, adapted to unlisted companies. Estimates are made using a Feasible Generalized Least Squares model. The results show that board size has a positive and significant effect on value creation ($\beta = 0.495$; $p = 0.010$), as does the level of education of board members ($\beta = 3.690$; $p < 0.001$). On the other hand, family ownership is negatively associated with value creation ($\beta = -1.934$; $p = 0.008$). The age of a CEO, dual roles, and the frequency of board meetings do not have a statistically significant effect. These results highlight the decisive role of human capital in generating economic value within SMEs in emerging economies.

Keywords ownership, board, education, accounting beta, risk, performance

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INTRODUCTION

In an economic environment marked by volatility, tightening financial constraints, and intensifying competition, the ability of companies to create sustainable value depends as much on their strategic choices as on the quality of their governance mechanisms (Faiteh et al., 2024a; Faiteh & Aasri, 2025a). Corporate governance is generally defined as a set of mechanisms that govern the relationship between capital providers and managers, with a view to limiting opportunistic behavior and steering decisions towards the interests of the company and its financiers (Shleifer & Vishny, 1997; El Badri et al., 2025a). The separation between ownership and control, at the heart of agency theory, generates costs that can affect organizational efficiency when control mechanisms are insufficient (Jensen & Meckling, 1976).

While these issues have been extensively studied in large listed companies, they are particularly important in small and medium-sized enterprises, which are characterized by a high concentration of ownership, centralized decision-making structures, and access to finance that is heavily dependent on their informational credibility.

In emerging markets, where institutional mechanisms may be less developed, internal governance is a potentially decisive lever for performance and value creation (Ararat et al., 2021; Faiteh et al., 2024b; El Badri et al., 2025b).

Furthermore, most empirical studies use traditional accounting indicators that do not explicitly include the cost of capital employed. However, economic value creation requires profitability to exceed this cost, in line with the residual income approach (Faiteh & Aasri, 2023).

1. LITERATURE REVIEW AND HYPOTHESES

Corporate governance has established itself as a major theoretical field since the seminal work of Berle and Means (1932), which highlighted the issues related to the separation of ownership and control. Agency theory structured this school of thought by analyzing conflicts of interest between shareholders and managers and the resulting costs. From this perspective, governance mechanisms aim to regulate the discretionary power of managers and steer decisions towards maximizing value (Charreaux, 1997; Shleifer & Vishny, 1997; Faiteh et al., 2026).

However, this disciplinary framework, largely inspired by Anglo-Saxon economies, appears less suited to contexts characterized by a high concentration of ownership and direct involvement of managers in capital, as is the case with small and medium-sized enterprises.

These companies are characterized by low organizational formalization, centralized decision- making, limited human and financial resources, and a close intertwining of personal and productive assets (Berry & Rondinelli, 1998; Hudson et al., 2001; Marchesnay, 1997). In emerging markets, internal governance can play an important role in less developed institutional environments (Ararat et al., 2021; Faiteh & Aasri, 2022b; Faiteh et al., 2026).

Beyond the shareholder approach, several theoretical frameworks complement the analysis. Stakeholder theory extends governance to all actors contributing to value creation (Freeman, 1984).

Resource dependency theory emphasizes that organizations depend on critical resources, such as financial, informational, human, technological, or institutional, controlled by actors in their external environment. From this perspective, the board of directors contributes to securing resources (Arnegger et al., 2014; Liu et al., 2014) in two complementary ways. Firstly, through the diversity of its members' skills and expertise, it enhances the quality of strategic support and the ability to analyze opportunities and risks. Secondly, through the extensive networks of its directors, it facilitates access to external resources such as bank financing, commercial partners, institutional support, and legitimacy with public and private actors (Afrifa & Tauringana, 2015).

Stewardship theory views the leader as a stakeholder committed to the interests of the organisation (Donaldson et al., 1997; Donaldson & Davis, 1991; Faiteh et al., 2025b). This theory emphasizes trust, autonomy, and recognition of managerial skills. Finally, the cognitive approach emphasizes the board's ability to enrich decision-making processes and promote organizational learning (Denzau & North, 1994; Wirtz, 1999).

Empirically, the results regarding the impact of governance mechanisms on SME performance remain mixed. With regard to board size, it is one of the most studied attributes in governance. According to resource dependence theory, a larger board promotes access to external resources, diversity of skills, and better strategic support, which could improve value creation. The study by La Rosa and Bernini (2018) highlights that, in Italian SMEs, board size has a significant positive effect on performance, as measured by ROE. Similarly, the study by Ismail and Tarofder (2015) highlights a positive effect of board size on the performance of SMEs in Sri Lanka. The results of Abor and Biekpe (2007) also suggest a positive and significant effect of board size on the performance of Ghanaian SMEs. However, Afrifa and Tauringana (2015), using a sample of 234 British SMEs listed on the AIM, show that board size has a negative ef-

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fect on performance as measured by ROA and ROE, with overly large boards being considered costly and less effective in resource-constrained structures, while smaller boards promote coordination and responsiveness.

The duality of the CEO (combining the roles of chair and CEO) is also a key mechanism in SMEs. Stewardship theory suggests that unified leadership improves decision-making speed, strategic consistency, and coordination, which can promote value creation, particularly in a context of limited resources. According to Ismail and Tarofder (2015), duality has a positive and significant effect on the performance of Sri Lankan SMEs: the combination of the roles of CEO and chairperson, present in 92% of the sample, seems to promote better control and greater efficiency in small structures. Similarly, Abor and Biekpe (2007) find that duality in leadership has a positive and significant effect on the performance of Ghanaian SMEs. This dual role, found in 86% of their sample, is said to promote faster decision-making, centralized leadership, and better alignment of objectives. Contrary to the predictions of agency theory, duality can thus prove beneficial in small businesses, confirming the work of Rechner and Dalton (1991).

With regard to the board of directors, several studies suggest that the level of competence of its members, including that of the CEO, is one of the key determinants of the quality of strategic decisions. A better-trained board can promote diversity of skills and thus improve value creation. According to a study by Ismail and Tarofder (2015) on Sri Lankan SMEs, the skills and level of training of executives and directors appear to be an important determinant of performance. Similarly, Abor and Biekpe (2007) show that the skills of managers have a positive and significant impact on the performance of the 120 Ghanaian SMEs studied. Better trained managers generally have greater decision-making capacity, more extensive networks, and more effective control systems. However, some studies qualify this relationship by pointing out that, in SMEs, the effect of the board may be dominated by the quality of the manager's leadership and specific technical skills. These differences reinforce the value of empirically examining the role of human capital in value creation.

The board's activity, measured by the frequency of meetings, is an indicator of its commitment to governance. Regular meetings promote the flow of information, strategic discussions, and the exercise of managerial control, which can, in theory, contribute to value creation. Charreaux and Wirtz (2006), highlight the contribution of board discussions in helping executives to build, refine, test, or revise their strategic vision and acquire additional managerial skills. However, the literature emphasizes that meeting frequency does not necessarily guarantee improved performance, as the quality of discussions appears to be more decisive than their formal intensity. It also suggests that frequency is not necessarily an indicator of effectiveness: it may reflect internal difficulties, reactions to poor performance, or essentially formal meetings. Several studies thus conclude that there is a negative or insignificant relationship with performance, suggesting that the quality of exchanges and the relevance of decisions take precedence over the mere regularity of meetings, particularly in the context of SMEs. The analysis by Arosa et al. (2013) reveals no significant effect of board meeting frequency on the performance of unlisted Spanish SMEs ($\beta = 0.001$).

Family ownership: the literature emphasizes that family involvement can be an advantage, insofar as values such as trust, altruism, and paternalism help to strengthen loyalty and organizational commitment (James, 1999). Empirical studies, notably that of Ismail and Tarofder (2015), confirm that family ownership can enhance the performance of Sri Lankan SMEs. Similarly, the study by Abor and Biekpe (2007), conducted on 120 Ghanaian SMEs, highlights the positive effect of family participation on performance, promoting greater consistency in decision-making and more stable management. However, Hamelin (2012) highlights the overall negative effect of family ownership on the growth of French SMEs.

Finally, according to Upper Echelon theory, the age of the manager is an essential governance mechanism. The experience gained over the years, and seniority promote a better understanding of organizational specificities, greater strategic consistency, and more informed decision- making, which are likely to improve performance.

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However, the empirical results remain mixed: the study by Afrifa and Tauringana (2015), covering 234 British SMEs listed on the AIM over the period 2004–2013, shows a significant positive effect of the age of the manager in medium-sized companies, while this effect does not appear to be significant in small companies, suggesting that the impact of age depends on the organizational context.

A second set of studies concerns the measurement of value creation. Most research on small and medium-sized enterprises uses traditional accounting indicators that do not explicitly include the cost of capital employed. However, economic value creation requires that profitability exceed this cost. Economic Value Added, based on the concept of residual income, offers a more demanding measure of performance (Faiteh & Aasri, 2023). However, its application to unlisted SMEs remains limited due to the difficulties in estimating the cost of equity, although the use of accounting beta is a methodological alternative that has been validated in the literature (Almisher & Kish, 2000; Intrisano et al., 2017; Roque et al., 2021; Rutkowska-Ziarko & Pyke, 2018; Rutkowska-Ziarko & Markowski, 2022; Sarmiento-Sabogal & Sadeghi, 2015; Faiteh & Aasri, 2022a).

Thus, the literature highlights an abundance of work on corporate governance, but heterogeneous empirical results and an under-exploration of economic value creation in the context of unlisted SMEs in emerging markets. These findings justify a contextualized empirical analysis to examine the role of internal governance mechanisms in economic value creation.

The objective of this article is to empirically analyze the impact of internal governance mechanisms on value creation as measured by Economic Value Added in Moroccan small and medium-sized enterprises.

The hypotheses are formulated as follows:

H1: *Board size has a positive impact on value creation in SMEs.*

H2: *The dual role of board chair and CEO contributes positively to value creation in SMEs.*

H3: *The frequency of meetings has a positive impact on value creation in SMEs.*

H4: *The level of education of board members has a positive impact on value creation in SMEs.*

H5: *Family ownership has a positive impact on value creation in SMEs.*

H6: *The age of the manager has a positive impact on value creation in SMEs.*

2. METHODS

In this study, the target population consists of small and medium-sized enterprises (SMEs) operating in the Rabat–Salé–Kénitra region. The selection of the study population is based on three cumulative criteria: (i) an annual turnover below 75 million Moroccan dirhams, (ii) location within the Rabat–Salé–Kénitra region, and (iii) establishment prior to 2010. The first criterion is defined in accordance with the Moroccan SME Charter (Article 1, Official Bulletin No. 5036, September 15, 2002), which sets the annual turnover threshold for SMEs at below 75 million dirhams. The choice of the Rabat–Salé–Kénitra region is justified by its strong representativeness within the Moroccan entrepreneurial landscape, as it ranks second in terms of SME concentration, accounting for approximately 15% of all firms.

The firm age criterion, defined as establishment prior to 2010, is motivated by methodological requirements related to the estimation of Economic Value Added (EVA). In the case of unlisted SMEs, EVA is computed using the weighted average cost of capital (WACC), which incorporates the cost of equity estimated through an accounting beta. In line with the literature on unlisted firms, this beta is derived from return on assets (ROA) over a rolling five-year window (Faiteh & Aasri, 2022a). More specifically, the beta for 2015 is estimated using data from the 2010–2015 period, the beta for 2016 from 2011–2016, and so on until 2023. Consequently, this approach requires the availability of financial data over the 2010–2023 period, which justifies the exclusion of firms lacking a sufficient historical record.

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The initial sample, consisting of 80 SMEs, was provided by the High Commission for Planning (HCP) using a simple random sampling method. Following the data collection phase, incomplete observations were removed to ensure sufficient historical depth of financial data required for the calculation of Economic Value Added (EVA). The final empirical analysis is therefore based on a sample of 31 SMEs operating in the Rabat–Salé–Kénitra region, observed over a nine-year period from 2015 to 2023, yielding a total of 279 firm-year observations.

The study adopts a panel data approach, combining financial data from the financial statements provided by the companies in the sample, supplemented by information from the Inforisk platform of the Moroccan Office for Industrial and Commercial Property (OMPIC). Governance data were collected using a questionnaire administered to managers. The dependent variable is EVA, transformed into a logarithm (Log_EVA) for estimation. The size and age of the company and the COVID-19 pandemic are introduced as control variables. The empirical model used is written as follows:

$$\begin{aligned} Log\_EVA_{it} &= \alpha_0 + \beta_1 \cdot BSIZE_{it} \\ &+\beta_2 \cdot DUAL_{it} + \beta_3 \cdot BMEET_{it} \\ &+\beta_4 \cdot BEDU_{it} + \beta_5 \cdot Propfam_{it} \\ &+\beta_6 \cdot AGEDIR_{it} + \beta_7 \cdot SIZE_{it} \\ &+\beta_8 \cdot AGE_{it} + \beta_9 \cdot Covid20_{it} \\ &+\beta_{10} \cdot Covid21_{it} + \mu_i + \varepsilon_{it}. \end{aligned} \tag{1}$$

All variables are defined in Table 1.

Table 1. Summary of variables in the research model

No.	Variables	Measurement indicator	Coding
		Dependent variable	
1	Economic Value Added (EVA)	Formula (residual income approach): *EVA* = *NI* – (*C* × *k*) where *RN* = net income for the period; *C* = invested capital (or equity, depending on available data); *k* = cost of capital. The cost of equity is estimated using the CAPM: *k_e* = *R_f* + β × (*R_m* – *R_f*). *R_f* = risk-free rate (10-year government bonds); *R_m* = market (or sample) return; β = accounting beta. The accounting beta is calculated based on *ROA* over a rolling 5-year window. For the estimate, EVA is transformed into a logarithm (*Log_EVA*).	Log_EVA
		Independent variables	
1	Board size	Total number of board members	BSIZE
2	Duality of the executive	1 if the chief executive is also chair of the board, otherwise 0	DUAL
3	Frequency of meetings	This variable takes the following values depending on the number of board meetings held per year: 1: once; 2: twice; 3: three times; 4: four times; 5: more than 4 times)	BMEET
4	Level of education of board members	Number of persons with higher education on the board	BEDU
5	Family ownership	Percentage of share capital held by family members	Propfam
6	Age of the manager	The age of the manager at the time of the financial year under review, taking the following values: 1: if the age is less than 30; 2: if the age is between 30 and 40; 3: if the age is between 41 and 50; 4: if the age is between 51 and 60; 5: if the age is over 60.	AGEDIR
		Control variables	
1	Company size	Natural logarithm of total assets	SIZE
2	Age of the company	Natural logarithm of the number of years elapsed since the company was founded up to the year under review	AGE
3	COVID-19 pandemic (2020)	Binary variable taking the value 1 for the 2020 financial year and 0 otherwise	Covid20
4	COVID-19 pandemic (2021)	Binary variable taking the value 1 for the 2021 financial year and 0 otherwise	Covid21

3. RESULTS

The descriptive statistics for the variables used in the analysis are presented in Table 2. The sample comprises 31 SMEs observed over 9 years, i.e., 279 observations.

The dependent variable corresponding to value creation estimated using the logarithm of EVA (*Log_EVA*) has a mean of 8.81, suggesting, on average, economic value creation within the SMEs in the sample. The minimum value is 0, as negative values have been replaced by 0, since there is no value creation when EVA is negative. Thus, some companies are unable to cover the cost of capital on a sustainable basis. On the other hand, the maximum value is 14.61, which represents MAD 2,207,162.22 in monetary terms in 2023.

With regard to governance mechanisms, the average size of the board is close to five members, with a variation between 3 and 8, which is consistent with the characteristics of SMEs. Variability over time appears to be generally stable, suggesting relative stability in the structure of the board over time.

The variable for the duality of the roles of chair and managing director (DUAL) has an average of 0.97, indicating that almost all companies combine the roles of chair and managing director. The absence of intra-individual variation (within standard deviation = 0) confirms that this configuration remains stable over the study period.

The frequency of board meetings (BMEET) averages 4.49 meetings per year. The low intra- individual variability (0.11) suggests temporal stability, while the differences observed are mainly related to company-specific characteristics.

The level of education of board members (BEDU) averages 0.72, indicating that a significant proportion of directors have a level of education above a bachelor's degree. The variation is mainly inter-individual, with little variation over time.

With regard to family ownership (Propfam), the average of 0.31 reveals that approximately one-third of companies have significant family ownership. The observed dispersion is mainly due to structural differences between companies.

The age of the manager (AGEDIR) has an average of 3.85. This result indicates that the managers of the SMEs studied are mainly in the 51-60 age group, reflecting a relatively experienced managerial profile.

With regard to the control variables, the size of the company (SIZE), measured by the logarithm of total assets, has an average of 14.86, with greater inter-individual dispersion than temporal variation. The age of the companies (AGE), estimated using the logarithm of seniority, indicates the coexistence of relatively young companies and more established companies within the sample. The variability observed is both inter-individual and intra-individual. The variation between firms reflects structural differences in seniority, while the variation over time is mainly explained by the mechanical and gradual evolution of the age of companies during the period studied.

Finally, the dichotomous variables Covid20 and Covid21 have an average of 0.10, corresponding to the proportion of observations affected by each year of the health crisis. Their high intra-individual variability reflects the temporal nature of the shock.

Overall, the variance decomposition highlights significant heterogeneity between companies, combined with temporal variability for certain variables, confirming the relevance of using econometric panel data models to simultaneously take into account individual and temporal effects.

Table 3 presents the Pearson correlation matrix between the model variables (N=279). Overall, the coefficients remain moderate, suggesting that there are no strong relationships between the explanatory variables. To confirm this finding, a multicollinearity test was performed using the variance inflation factor (VIF) and the tolerance index. The purpose of this test is to identify any linear interdependencies between the explanatory variables that could affect the robustness of the estimates and the validity of the empirical model.

The results of the VIF test, presented in Table 4, show that the inflation factor values vary between 1.04 and 1.64, with an average of 1.27. These values are well below the critical threshold of 5 recom-

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Table 2. Descriptive statistics

Source: Stata software.

Variable	Dimension	Mean	Standard deviation	Min	Max
Log_EVA	Overall	8.80592	5.161878	0	14.60722
	Between	–	2.955279	2.098463	12.81251
	Within	–	4.261765	–3.379161	18.47324
BSIZE	Overall	4.799283	1.336752	3	8
	Between		1.280245	3	8
	Within		0.4416378	3.132616	6.46595
DUAL	Overall	0.9677419	0.1770022	0	1
	Between	–	0.1796053	0	1
	Within	–	0	0.9677419	0.9677419
BMEET	Overall	4.494624	0.9850354	1	5
	Between	–	0.9920834	1.333333	5
	Within	–	0.119952	4.16129	6.16129
BEDU	Overall	0.7224526	0.3274958	0	1
	Between		0.3307815	0	1
	Within		0.0313975	0.5743045	0.9076378
Propfam	Overall	0.3121842	0.4261385	0	1
	Between	–	0.4139284	0	1
	Within	–	0123239	–0.3544824	0.8677398
AGEDIR	Overall	3.853047	1.054239	2	5
	Between	–	1.045227	2	5
	Within	–	0.2244097	2.964158	4.741935
SIZE	Overall	14.86616	1.733426	10.40381	18.28026
	Between	–	1.646426	11.87685	17.99024
	Within	–	0.609962	11.31999	17.11449
AGE	Overall	2.374139	0.3742896	1.609438	3.367296
	Between	–	0.2743436	2.152679	3.213491
	Within	–	0.2588323	1.830898	2.78641
Covid20	Overall	0.1043771	0.3062652	0	1
	Between	–	0.0196419	0	0.1111111
	Within	–	0.3051116	–0.006734	0.993266
Covid21	Overall	0.1043771	0.3062652	0	1
	Between	–	0.0196419	0	0.1111111
	Within	–	0.3051116	–0.006734	0.993266

Table 3. Correlation matrix

Source: Stata software.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Log_EVA	1.00										
BSIZE	0.19	1.00									
DUAL	–0.02	–0.3	1.0								
BMEET	0.14	0.16	–0.09	1.00							
BEDU	0.13	0.09	–0.16	–0.10	1.00						
Propfam	–0.05	0.49	0.13	–0.02	–0.01	1.00					
AGEDIR	–0.01	0.37	0.30	–0.05	–0.04	0.44	1.00				
SIZ	0.27	0.25	0.03	0.28	–0.15	0.12	0.30	1.00			
AGE	–0.00	0.22	0.05	0.04	–0.04	0.11	0.27	0.01	1.00		
covid20	–0.03	0.01	–0.00	–0.00	–0.01	–0.00	0.01	0.03	0.11	1.0	
covid21	–0.04	0.00	0.00	–0.00	–0.01	–0.03	0.03	0.02	0.19	–0.13	1.00

mended by Hair (2018), while the tolerance indices all remain above the threshold of 0.1. These results confirm the absence of significant multicollinearity and indicate the robustness of the specification chosen for the econometric analysis of panel data.

Table 4. Multicollinearity test (variance inflation factor)

Source: Stata software.

Variable	VIF	1/VIF
AGEDIR	1.64	.609
BSIZE	1.55	.646
Propfam	1.50	.666
SIZE	1.29	.776
AGE	1.20	.836
DUAL	1.16	.861
BMEET	1.16	.864
BEDU	1.08	.925
covid21	1.07	.936
covid20	1.04	.961
Mean VIF	1.27	.

Before the final econometric estimation of the panel data model, it is necessary to identify the most appropriate econometric specification in terms of data structure. To this end, several specification tests are used to compare the different possible model configurations and select the one that provides the best empirical fit.

To this end, Fisher's test was used to assess the relevance of a fixed effects model compared to the pooled model. The Breusch–Pagan Lagrange Multiplier (BP-LM) test examines the existence of unobserved individual effects justifying the adoption of a random effects model. In addition, the Hausman test allows a choice to be made between a fixed effects model and a random effects model. These tests aim to determine the most appropriate econometric specification for empirical analysis (see Table 5).

The results of the specification tests indicate that the pooled model is inappropriate, as shown by the F-test and the Breusch–Pagan LM test. Furthermore, the Hausman test does not reject the hypothesis of exogeneity of individual effects, which leads to the random effects model being retained for estimation.

The results of the estimates using the pooled OLS model, the fixed effects (FE) model, and the random effects (RE) model are presented in Table 6.

Table 6. Regression results

Variables	(1)	(2)	(3)
	OLS	FE	RE
BSIZE	0.824***	0.698***	0.969**
	(0.270)	(1.017)	(0.384)
DUAL	1.746	–[a]	2.342
	(1.763)	–	(2.860)
BMEET	0.173	–3.091	–0.052
	(0.316)	(2.167)	(0.502)
BEDU	2.574***	14.013	2.672*
	(0.919)	9.750	(1.471)
Propfam	–1.811**	–6.097*	–1.496
	(0.832)	(3.173)	(1.240)
AGEDIR	–0.566	–2.450*	–0.951*
	(0.352)	(1.329)	(0.515)
SIZE	0.855***	2.40***	1.074***
	(0.190)	(0.550)	(0.263)
AGE	0.185	–3.315**	–1.046
	(0.846)	(1.346)	(0.968)
covid20	–0.832	–0.551	–0.658
	(0.938)	(0.850)	(0.861)
covid21	-0.997	–0.364	–0.681
	(0.951)	(0.872)	(0.878)
Constant	–9.685**	–16.805	–9.017*
	(3.820)	(18.347)	(5.455)
Observations	279	279	279
R-squared	0.157	0.087	0.146
Number of code		31	31

Note: a: The DUAL variable, which is binary (0; 1), does not appear in the fixed effects estimation due to the absence of intra-individual variation over the study period. As fixed-effects models are based exclusively on variation over time, any invariant or quasi-invariant variable is automatically eliminated during estimation. Standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

To test the robustness of the results from the fixed effects model, diagnostic tests were performed to identify the possible presence of heteroscedasticity and autocorrelation of errors.

Table 5. Specification tests

Source: Stata software

Test	Null hypothesis (H0)	Prob	Decision
F-test (OLS/FE)	The fixed effects are not significant (Pooled).	Prob>F=0.000	FE
Breusch-Pagan (LM) (OLS/RE)	The variance of specific effects is zero (Pooled).	Prob>chibar2=0.0009	RE
Hausman (FE/RE)	Specific effects not correlated with the explanatory variables (RE).	Prob>chi2= 0.0168	FE

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Table 7. Diagnostic tests of the panel model (RE)

Source: Stata software.

Test	Null hypothesis (H_0)	Statistics / p-value	Decision
Wooldridge	Absence of first- order autocorrelation	$F(1,30) = 2.828$ $p = 0.1030$	No autocorrelation
Breusch–Pagan LM	Homoscedasticity of errors	$\chi^2 = 453868.77$ $p = 0.0000$	Heteroscedasticity present

The diagnostic tests did not reveal any first-order autocorrelation at the 5% threshold (Wooldridge test, p = 0.103) (see Table 7). However, the modified Wald test for heteroscedasticity in fixed effects models led to the rejection of the homoscedasticity hypothesis, revealing heterogeneous error variance between companies. This violation of classical assumptions justifies the use of robust estimation methods to ensure the validity of statistical inference.

Given the presence of heteroscedasticity between companies, as revealed by the modified Wald test, and the absence of first-order autocorrelation, the final estimation is performed using the Feasible Generalized Least Squares (FGLS) model, specifying heteroscedastic panels, to analyze the relationship between corporate governance and value creation within small and medium-sized enterprises in the Rabat–Salé–Kénitra region. This approach provides efficient estimators in the presence of non-constant error variance between individuals.

In this context, the results of the static panel model are presented in Table 8.

The results of the hypotheses testing indicate that only hypotheses H1 and H4 are supported. Specifically, board size (BSIZE) and board educational level (BEDU) have a positive and statistically significant impact on value creation. In contrast, hypotheses H2, H3, H5, and H6 are not supported. CEO duality (DUAL), board meeting frequency (BMEET), and CEO age (AGEDIR) do not exhibit a significant effect on value creation. Furthermore, contrary to the expected positive relationship, family ownership (PROPFAM) has a significant negative effect on value creation.

4. DISCUSSION

Based on the results of the preliminary tests, we estimated an FGLS model to analyze the relationship between corporate governance and value creation in small and medium-sized enterprises in the Rabat–Salé–Kénitra region. All econometric estimates were performed using Stata software (version 17), which was chosen for the reliability of its statistical procedures and the diversity of options it offers for panel data analysis.

Table 8. Cross-sectional time-series FGLS regression

Source: Stata software.

Log_EVA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
BSIZE	.495	.190	2.59	0.010	0.121	0.869	**
DUAL	2.212	1.646	1.34	0.179	–1.015	5,438	
BMEET	0.234	0.283	0.83	0.408	–0.320	0.789	
BEDU	3.690	0.770	4.79	0.000	2.180	5.200	***
Propfam	–1,934	0.731	–2.65	0.008	–3.367	–0.501	***
AGEDIR	–0.272	0.317	–0.86	0.392	–0.894	0.350	
SIZE	1.056	0.173	6.11	0.000	0.717	1.395	***
AGE	–0.190	0.636	–0.30	0.765	–1.436	1.057	
covid20	–0.737	0.543	–1.36	0.175	–1.802	0.328	
covid21	–0.329	0.553	–0.59	0.552	–1.413	0.755	
Constant	–12.228	3.349	–3.65	0.000	–18.792	–5,664	***
Mean dependent var		0.000	SD dependent var		1.000		
Number of observations		279	Chi-square		80.44		

Note: *** p < .01, ** p < .05, * p < .1.

Comparing the results of our model with the conclusions drawn from the existing literature allows us to propose a discussion at this stage, to ensure its interpretation and justification on a theoretical level.

The results of the FGLS model indicate that the overall Wald statistic is significant ($\chi^2(10) = 80.44$; $p < 0.001$), which indicates that the model is statistically significant overall.

With regard to governance mechanisms, board size (BSIZE) is positively and significantly associated with value creation ($\beta = 0.495$; $p = 0.010$). This result supports the resource dependence theory and is consistent with the findings of La Rosa and Bernini (2018) and Ismail and Tarofder (2015). This convergence can be explained by the fact that a larger board facilitates access to diverse resources and enhances collective cognitive capabilities. Such diversity improves the quality of strategic decision-making through the confrontation of complementary perspectives and a better identification of growth opportunities, ultimately leading to enhanced value creation. In the context of Moroccan SMEs, this effect appears particularly relevant due to constraints in accessing external resources, thereby reinforcing the board's role as a strategic driver of value creation.

In contrast, CEO duality (DUAL) does not exhibit a significant effect on value creation ($p = 0.179$), suggesting that the combination of the roles of CEO and board chair does not significantly influence firm performance. This finding contrasts with the results of Ismail and Tarofder (2015) and Abor and Biekpe (2007), who report a significant relationship between duality and performance. This divergence may be explained by contextual differences, particularly in environments characterized by concentrated ownership and strong managerial centrality. In such settings, the combination of roles does not substantially alter the alignment of interests between owners and managers, thereby limiting its disciplinary function. Furthermore, the absence of a significant effect may reflect the coexistence of opposing forces: while duality may reduce board independence, it may also enhance strategic coherence and decision-making speed. These countervailing effects may offset each other, resulting in a non-significant overall impact.

The frequency of board meetings (BMEET) is not significantly related to value creation ($p = 0.408$), a finding that is consistent with Arosa et al. (2013). This lack of significance suggests that the quality and content of meetings are more important than their formal frequency. In SMEs, where organizational structures are more flexible and interactions are often informal, strategic decisions may be made outside formal board meetings, thereby limiting the relevance of this indicator.

Family ownership (PROPFAM) is negatively and significantly associated with value creation ($\beta = -1.934$; $p = 0.008$), indicating that ownership concentration within families may hinder firm performance. This result is consistent with Hamelin (2012), who highlights the limitations associated with concentrated control. This convergence may be explained by the tendency of family firms to prioritize control preservation and risk avoidance, sometimes at the expense of value-enhancing investments. In the Moroccan context, characterized by high ownership concentration, this effect may be further reinforced by socio-emotional considerations specific to family businesses.

CEO age (AGEDIR) does not have a significant effect on Log_EVA ($p = 0.392$), suggesting that this demographic characteristic is not a key determinant of value creation in our sample. This finding contrasts with Afrifa and Tauringana (2015), who report a significant effect of age, often interpreted in terms of accumulated experience or risk preferences. This discrepancy may be attributed to differences in economic context, performance measures, or sample characteristics. It also suggests that age, as a proxy variable, does not adequately capture the productive dimensions of managerial human capital. Therefore, attributes such as education level, professional experience, and managerial competencies may play a more decisive role in value creation than age per se.

From this perspective, board human capital (BEDU), including CEO capital, emerges as a

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key determinant of value creation. The estimated coefficient, which is large and highly significant (β = 3.690; $p < 0.001$), underscores the importance of skills and qualifications in addressing the complex challenges SMEs face. This result is consistent with the findings of Abor and Biekpe and supports the cognitive perspective of corporate governance. It suggests that, in SMEs, the quality of human resources on the board may be more critical than formal governance structures in driving value creation.

Finally, among the control variables, company size (SIZE) has a positive and significant impact on value creation (β = 1.240; $p < 0.001$). The age of a company (AGE) does not appear to significantly influence value creation ($p = 0.765$). Regarding the COVID-19 health crisis (COVID-20 and COVID-21), although the coefficients for 2020 and 2021 are negative, their insignificance indicates that the impact of the COVID-19 shock does not appear to be decisive after controlling for governance mechanisms and company-specific characteristics.

Overall, the hypotheses regarding board size (H1) and board members' educational level (H4) are confirmed, while those regarding duality (H2), meeting frequency (H3), CEO age (H6), and family ownership (H5) are not supported. These results suggest that, in Moroccan SMEs with concentrated ownership, value creation depends mainly on the quality of the skills deployed and the board's strategic capacity.

CONCLUSION

This study investigates the impact of corporate governance mechanisms on value creation, measured by Economic Value Added (EVA), in non-listed Moroccan small and medium-sized enterprises (SMEs) located in the Rabat-Salé-Kénitra region.

The empirical results indicate that governance mechanisms do not affect value creation uniformly. Board size and the educational level of board members are found to have a positive and significant impact on EVA, whereas family ownership is negatively associated with value creation. In contrast, CEO duality, board meeting frequency, and CEO age do not exhibit a statistically significant effect.

These findings suggest that value creation in Moroccan SMEs is driven more by the quality of human capital embedded in the board than by formal governance structures. They underscore the importance of fostering knowledge, skills, and expertise within boards of directors. At the same time, the results indicate that a high concentration of family ownership may encourage more conservative strategic choices, which could limit the firm's ability to maximize economic value.

AUTHOR CONTRIBUTIONS

Conceptualization: Soumia El Alaoui.
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Formal analysis: Soumia El Alaoui.
Investigation: Soumia El Alaoui.
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Supervision: Mohammed Rachid Aasri.
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