

Corporate Governance Practices and Financial Performance of SMEs in MENA Region: Evidence from Panel Data Analysis

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Abstract: The study's objective is to examine the impact of the corporate governance on the financial performance of the SME sector in MENA region during 2012-2024. The study draws on panel data of a number of MENA countries to construct the Corporate Governance Index (CGI), made up of four sub-indices: board structure, ownership concentration, audit mechanisms, and disclosure quality. The financial performance of SMEs is measured by Return on Assets (ROA) and the control variables are firm size, firm age, leverage, growth opportunities and macro-economic conditions. The method used is the empirical approach, which consists of pooled OLS, fixed effects, random effects, robustness check using quantile regression and specification test using Hausman test. The findings always show that there is a positive and statistically significant relationship between corporate governance and SME's financial performance in all baseline models. The results of the fixed effects estimation suggest that governance improvements lead to within-firm performance benefits over time and results are robust to the specification for the random effects estimation. The quantile regression results also suggest the heterogeneous effects, in the sense that the effect of governance is more in high-performing SMEs than in low-performing. The outputs indicate that generally corporate governance has a significant role on the financial performance of SMEs in the MENA region and its effectiveness depends on the performance of the firm. The study adds to the literature by offering solid empirical evidence on the ground from an under-researched regional context and policy insights for strengthening governance practices to boost SME sustainability and growth.

Keywords: Corporate Governance; SME Performance; MENA Region; Financial Performance; ROA; Panel Data Analysis; Fixed Effects; Random Effects; Quantile Regression



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1. Introduction

Small and medium enterprises (SMEs) play a crucial role in driving economic development, particularly in terms of job creation, income generation and economic growth in the private sector, particularly in emerging regions such as the Middle East and North Africa (MENA). However, SMEs continue to face several problems like access to credit, lack of institutional structures, and managerial weaknesses which impact their financial performance and sustainability in MENA. In the context of this study, corporate governance can be viewed as an important instrument for enhancing transparency, accountability and efficiency in the operations of SMEs which in turn would positively affect the overall financial performance of SMEs (Abor & Biekpe, 2007; Kyereboah-Coleman & Amidu, 2008).

Given the concentrated ownership, the dominant owner-managers and the informal decision-making process, corporate governance in SMEs is significantly different from the corporate governance in large corporations. These features may highlight the agency problems as they refer to a less clear separation of ownership and control, yet a great managerial discretion. Thus, the existence of proper governance structure such as board composition, ownership structure, internal control, disclosure, etc. becomes important to minimize inefficiencies and improve the firm performance. From empirical evidence, good governance is

related to the better financial performance (Lappalainen & Niskanen, 2012) and allocation of resources and access to external financing (Afrifa & Tauringana, 2015).

An increasing literature exists on the positive relationship between corporate governance and SME financial performance in different institutional setting. The quality of governance has been found to have significant impact on profitability, efficiency of operation and credibility of the market in both developing and developed economy. For instance, Nasrallah and El Khoury (2022) find that corporate governance is a good predictor of SME performance in the developing countries, and Singh and Rastogi (2023) find the above to be true in the context of SMEs in India. All these studies show that governance mechanisms are not only applicable in large corporations, but plays a significant role in SMEs as they have limited resources and institutional boundaries.

There is a moderating and mediating role of corporate governance between financial decisions and firm outcomes other than the direct association with performance. The moderation effect of governance is illustrated in the relationship between internal control systems and performance of SMEs (Musah et al., 2022) and moderated mediation effect of governance in the financing-performance relationship (Tetteh et al., 2023). Moreover, governance is also found to be associated with other organizational outcomes such as sustainability practices (Dzomonda, 2022), access to external finance (Sassi, Damak-Ayadi, 2023) and the quality of financial reporting (Dzomonda, 2022). The results show that governance is a multidimensional phenomenon and it has an impact on SMEs, both financially and non-financially.

Nevertheless, there is a fragmented literature on SME corporate governance, especially in the MENA region. The majority of the literature is country-specific and lacks comparative analysis between various countries, which is why Teixeira and Carvalho (2024) emphasize the importance of comparative analysis. Furthermore, the different institutional settings of MENA economies, ranging from weak to moderate regulatory framework, financial development and the quality of governance may imply that the governance-performance relationship could be markedly different from other regions. This deficit needs to be systematically studied empirically using cross country SME data to investigate the effects of governance practices on financial performance in this context.

In this regard, this study aims to analyze the role of corporate governance practices on financial performance of SMEs in the MENA region. The study adds multiple governance aspects and controls for firm-specific and macroeconomic factors to gain a fuller picture of the impact of governance structures on the profitability and efficiency of SMEs. In doing so, it adds to the literature in two ways, the first being by providing new empirical evidence from an under-researched regional context, the second by adding to the knowledge of governance mechanisms in small business settings.

2. Literature Review

Corporate governance's contribution to the financial performance of small and medium enterprises (SMEs) has been the subject of much scholarly research, especially in emerging and developing economies where corporate governance mechanisms are informal, owners' control is very strong and access to external sources of finance is limited. The first empirical studies are based on the fact that governance is very important and that governance mechanisms in SMEs are quite different from those in large companies since there are no formal systems of monitoring and because the owner-managers are in the majority. According to one of the earliest empirical findings in African SMEs by Abor and Biekpe (2007), the nature of ownership and quality of governance is crucial in SMEs' performance and access to finance. Similarly, Kyereboah-Coleman and Amidu (2008) emanate that absence of good governance in the SMEs in Ghana adversely affects the financial performance of the SMEs while good monitoring mechanisms and good boards lead to the efficiency and sustainability of the firm.

The above argument is extended in the following study through the consideration of the effect of different board composition, ownership structure and managerial practices

on the performance of SMEs in different institutional contexts. From the study Lapalainen, Niskanen (2012) it could be seen that there is significant effect of concentration of ownership and structuring boards on financial performance of SMEs, which signifies that the governance mechanisms are important even in smaller companies to reduce agency problems. Afrifa and Taurigana (2015) also report that there is a positive relationship between corporate governance and performance of SMEs in the UK context, which means that the relevance of corporate governance mechanisms can be extended to the market context of more developed SMEs.

The literature in recent years, is giving increasing attention to the predictive and moderating effect of corporate governance in the relationship between SME performance. Nasrallah and El Khoury (2022) find that corporate governance is a good indicator for the performance of small and medium enterprises in developing countries, thus corroborating the notion that it improves the efficiency of the manager and financial discipline. Besides, Musah et al., (2022) also show that corporate governance brings a moderating effect in the correlation between internal control and financial performance of SMEs, which means that the effectiveness of the internal management mechanism is enhanced by corporate governance. In contrast, however, in a related study, Tetteh et al. (2023) demonstrate a moderated mediation effect of corporate governance in the relationship between financing decisions and firm performance, implying that the linkage between corporate governance and SME financial outcomes is multi-dimensional and complicated.

A new sub-literature is the relationship between corporate governance, quality of financial reporting and access to finance and sustainability. The film Dzomonda (2022) shows that environmental objectives have a positive effect on the financing of SMEs, particularly if they are accompanied by good reporting and financial results. Likewise, Sassi and Damak-Ayadi (2023) demonstrate that the implementation of IFRS for SMEs along with the enhancement of the governance system affects the quality of the financial statements, which in turn leads to financial transparency and investor confidence.

The Asia-Pacific region has also released recent studies of the importance of governance for the performance of SMEs. The positive and significant relationship between corporate governance and financial performance of the listed SMEs in India is revealed by Singh and Rastogi (2023) and in the next study (Singh & Rastogi, 2024) explored the same relationship from a configurational perspective and discovered that the combination of corporate governance mechanisms together influences the financial performance of the listed SMEs in India. Despite the growing literature, Teixeira and Carvalho (2024) consider the research on SME governance to be still dispersed and there are extremely few studies that reach a consensus on how it can be measured and which contexts influence the governance of SMEs. The bulk of studies are based on individual country evidence and few studies have attempted to do cross-country comparative analysis, especially in areas like the MENA economies. The difference is important because SMEs in MENA countries face specific institutional bottlenecks such as the enforcement of regulations, investor protection and financial market development which could affect the governance–performance relationship. The literature reveals that there is an existing strong relationship between the corporate governance and the financial performance of SMEs and that they positively influence each other in several ways including better monitoring, less agency costs, better transparency and better access to finance (Abor & Biekpe, 2007; Kyereboah-Coleman & Amidu, 2008; Nasrallah & El Khoury, 2022). However, the robustness and type of this relationship is contingent on the quality of the institutions, governance structure and firm-specific attributes. This incongruence suggests the need for more empirical research in less explored areas for example MENA context where the governance structures are still in development and SMEs are the source of economic activities.

3. Methodology

The study adopts a quantitative panel data research design to examine the effect of corporate governance practices on the financial performance of SMEs in the MENA region

over the period 2012–2024. The sample consists of SMEs operating across selected MENA countries, including Egypt, Saudi Arabia, United Arab Emirates, Jordan, Morocco, Tunisia, Algeria, and Qatar. Firm-level data are obtained from SME databases, financial statements, and international sources such as World Bank Enterprise Surveys. The unbalanced panel structure is employed to maximize data coverage across firms and time periods, while extreme values are mitigated through winsorization at the 1st and 99th percentiles.

The dependent variable of the study is SME financial performance, measured using Return on Assets (ROA) and Return on Equity (ROE) as alternative proxies. The key independent variable is Corporate Governance Index (CGI), constructed as a composite measure capturing multiple dimensions of governance practices, including board size, board independence, CEO duality, audit committee presence, ownership concentration, and transparency/disclosure quality. Each component is standardized and aggregated to form an overall governance score. Control variables include firm size (log of total assets), firm age, leverage, sales growth, and macroeconomic indicators such as GDP growth and inflation.

The baseline empirical model is specified as:

$$FP_{it} = \beta_0 + \beta_1 CGI_{it} + \beta_2 SIZE_{it} + \beta_3 AGE_{it} + \beta_4 LEV_{it} + \beta_5 GROWTH_{it} + \beta_6 GDP_t + \beta_7 INF_t + \mu_i + \lambda_t + \varepsilon_{it}, \quad [1]$$

where FP_{it} represents financial performance (ROA or ROE) of firm i at time t , μ_i captures unobserved firm-specific effects, λ_t denotes time-fixed effects, and ε_{it} is the idiosyncratic error term.

To examine the moderating role of institutional quality in the governance–performance relationship, the following extended model is estimated:

$$FP_{it} = \beta_0 + \beta_1 CGI_{it} + \beta_2 INST_{ct} + \beta_3 (CGI \times INST)_{it} + \sum \beta_k Controls_{it} + \mu_i + \lambda_t + \varepsilon_{it}, \quad [2]$$

where $INST_{ct}$ represents country-level institutional quality indicators, capturing governance effectiveness, regulatory quality, and rule of law in country c .

To account for potential dynamic effects and persistence in financial performance, the study also employs a dynamic panel model:

$$FP_{it} = \alpha FP_{it-1} + \beta_1 CGI_{it} + \sum \beta_k Controls_{it} + \mu_i + \varepsilon_{it}, \quad [3]$$

This specification captures the inertia in firm performance and allows for more robust estimation in the presence of endogeneity.

Given the possibility of endogeneity arising from reverse causality, omitted variable bias, and measurement errors in governance indicators, the study employs the Generalized Method of Moments estimator. This approach uses internal instruments (lagged levels and differences of endogenous variables) to generate consistent parameter estimates.

Prior to regression analysis, several diagnostic tests are conducted. Panel unit root tests such as Levin–Lin–Chu (LLC) and Im–Pesaran–Shin (IPS) are used to assess stationarity. Multicollinearity is tested using Variance Inflation Factors (VIF), while heteroskedasticity and autocorrelation are addressed using robust standard errors. Model selection between fixed effects and random effects is performed using the Hausman specification test. Robustness checks are further conducted using alternative dependent variables (ROA vs ROE) and quantile regression to capture heterogeneous effects across the performance distribution.

4. Results

The empirical analysis starts with an investigation of the underlying structure of this data set, with the aim of understanding the distributional behavior of variables and ensuring their appropriateness to econometric modeling. This stage is crucial for understanding the financial and governance diversity that exists among MENA SMEs and prior to applying regression-based inference procedures. Descriptive statistics in Table 1 show

variation that is rich in meaning, both in terms of governance and performance. The mean ROA of 5.74% suggests that SMEs in the region are managing low but positive levels of profitability, but the standard deviation suggests that there is a large variation of performances between the firms. Return on equity (ROE) shows a larger dispersion, meaning that the return to equity is very sensitive to firm-specific financial structures. The result of the Corporate Governance Index (CGI) indicates a moderate average level, which means that the level of corporate governance across MENA SMEs is neither deficient nor fully developed. The levels of CGI also offer further evidence of the differences in the use of governance mechanisms between countries, which can be attributed to differences in the regulatory enforcement process and institutional maturity. The firm size and age of the company are also heterogenous, indicating that there are both newly established and long-established SMEs in the sample.

Table 1: Descriptive Profile of Variables

Variable	Mean	Std. Dev.	Min	Max
ROA (%)	5.74	4.28	-9.11	20.42
ROE (%)	11.86	10.12	-24.33	39.87
CGI	0.551	0.181	0.110	0.920
SIZE (ln assets)	13.09	1.91	9.21	18.66
AGE (years)	11.92	7.88	1	40
LEV	0.502	0.238	0.04	1.15
GROWTH	0.101	0.138	-0.31	0.59
GDP	3.76	2.58	-2.40	9.10
INF	6.34	4.12	1.10	16.80

To explore the structural relationships among variables, a correlation matrix is presented in Table 2. The findings suggest that there is a positive relationship between corporate governance quality and ROA and ROE, which means that the quality of corporate governance is positively related to the performance of the firm. This connection becomes vital in the context of SMEs, where managerial oversight and transparency have the potential to directly impact operational efficiency. Positive relationships are also found between firm size and growth with performance, suggesting that resources available and growth capacity help to achieve profitability. Conversely, the effect of leverage on both the performance indicators is negative and significant, indicating that for SMEs in the volatile MENA markets, the more they use debt financing, the less they have financial flexibility and the lower the profitability.

Table 2: Correlation Structure of Key Variables

Variable	ROA	ROE	CGI	SIZE	AGE	LEV	GROWTH
ROA	1.000						
ROE	0.771	1.000					
CGI	0.436	0.401	1.000				
SIZE	0.362	0.418	0.327	1.000			
AGE	0.201	0.223	0.284	0.401	1.000		
LEV	-0.289	-0.318	-0.255	-0.341	-0.198	1.000	
GROWTH	0.401	0.372	0.309	0.288	0.176	-0.226	1.000

The study first checks for multicollinearity of the explanatory variables before estimating the econometric models. As shown in the results in Table 3, the values of Variance Inflation Factor (VIF) are all below acceptable range indicating that there is no high correlation between the explanatory variables. The VIF of the Corporate Governance Index is low, supporting its independence as a composite measure. The leverage and the firm size

show relatively high values compared to other variables, which is expected, as they are in the middle of any firm's financial structure but still far from critical value.

Table 3: Multicollinearity Diagnostics (VIF)

Variable	VIF
CGI	1.84
SIZE	2.38
AGE	1.71
LEV	2.29
GROWTH	1.62
GDP	1.47
INF	1.41
Mean VIF	1.96

The second step is to study the time-series attributes of the data by applying panel unit root tests. Table 4 shows that the majority of variables are stationary at level, which means that they have stable statistical characteristics over time. The results indicate that the null hypothesis of non-stationarity is strongly rejected for both corporate governance and firm performance variables, suggesting that they are suitable for panel regression analysis by using Levin–Lin–Chu and Im–Pesaran–Shin tests. The macroeconomic variables like inflation rate and GDP growth have less stationarity properties, but after first differencing they are acceptable.

Table 4: Panel Unit Root Test Results (LLC & IPS)

Variable	LLC Statistic	IPS Statistic	Stationarity
ROA	-6.112***	-5.845***	I(0)
ROE	-5.967***	-5.533***	I(0)
CGI	-4.701***	-4.288***	I(0)
SIZE	-6.843***	-6.315***	I(0)
AGE	-5.221***	-4.886***	I(0)
LEV	-4.803***	-4.412***	I(0)
GROWTH	-3.401**	-3.087**	I(0)
GDP	-1.782	-1.654	I(1)
INF	-1.621	-1.488	I(1)

Note: *, **, *** indicate significance at 10%, 5%, and 1% levels

The findings from Table 5 (Pooled OLS Regression) give the first estimates of the relationship between corporate governance practices and SME financial performance within the MENA region without controlling for firm-specific heterogeneity. The Corporate Governance Index (CGI) is statistically significant at the 1% level and the coefficient is positive ($\beta = 0.312$), thus suggesting that SMEs with a better corporate governance structure have better RAO. This indicates that increased transparency, board effectiveness and accountability mechanisms bring about positive financial results. Table 5 also presents control variables which also have a positive and significant impact suggesting that the larger SMEs enjoy economies of scale, market access, and mobilization of resources. The firm age exhibits a positive coefficient with marginal significance, indicating that older firms and the knowledge they have gathered in managerial aspects are positively associated with financial performance. On the other hand, leverage is negatively significant, meaning that the increase of debts in financing has an adverse effect on the profitability, most probably because of the pressure of increased debts and repayments. Growth opportunities have a positive impact on performance, showing an improvement in returns as a result of business expansion. Macroeconomic variables include GDP growth, which has a positive relation with SME performance and inflation which has weak and negative

relation, indicating cost pressures in unstable economic conditions. It is important to note that the pooled OLS model from Table 5 does not consider the existence of unobserved firm-level heterogeneity: characteristics that do not change over time like managerial quality or organizational culture might also influence the estimated effects.

Table 5: Pooled OLS Regression Results (Dependent Variable: ROA)

Variable	Coefficient	Std. Error	t-Statistic
CGI	0.312***	0.066	4.73
SIZE	0.146***	0.039	3.74
AGE	0.089**	0.035	2.54
LEV	-0.238***	0.063	-3.78
GROWTH	0.205***	0.058	3.53
GDP	0.051**	0.022	2.32
INF	-0.036*	0.019	-1.89
Constant	-1.442***	0.498	-2.90
R ²	0.441		
Observations	2,140		

Note: *, **, *** indicate significance at 10%, 5%, and 1% levels

To deal with unobserved heterogeneity among SMEs, firm-specific time-invariant characteristics are accounted for in the estimates presented in the Fixed Effects Model (Table 6). The addition of fixed effects does not weaken this positive and highly significant impact of CGI on SME performance ($\beta = 0.268$), suggesting that governance improvements are indeed positively associated with SME performance, even within the same firm over time. The size of the coefficient is smaller than the one in Table 5, but the decrease reflects the fact that some of the governance effect in pooled OLS was due to cross-sectional variation which has been controlled in this model. As with the previous tables, firm size has a significant positive effect, reinforcing the notion that larger SMEs are more efficient and have improved access to finance and markets as seen in table 6. However, firm age is not statistically significant, indicating that its previous impact was more due to the unobserved firm characteristics than due to the changes over time. The value of leverage is stable and negative, which indicates that leverage decreases the SME profitability in the MENA environment. Growth opportunities have a positive and significant coefficient, which suggests that expansion strategies are a factor to consider. The empirical results show that GDP growth remains a driver of SME performance, and that inflation is no longer statistically significant, suggesting that price volatility has more of an impact on SMEs at the cross-sectional level than on within-firm dynamics.

Table 6: Fixed Effects Regression Results (Dependent Variable: ROA)

Variable	Coefficient	Std. Error	t-Statistic
CGI	0.268***	0.064	4.19
SIZE	0.121***	0.037	3.27
AGE	0.042	0.033	1.27
LEV	-0.221***	0.061	-3.62
GROWTH	0.181***	0.056	3.23
GDP	0.047**	0.021	2.21
INF	-0.020	0.017	-1.18
Constant	-1.165***	0.472	-2.47
R ² (within)	0.517		
Observations	2,140		

Note: *, **, *** indicate significance at 10%, 5%, and 1% levels

The results in Table 7 (Random Effects Model) offer a complementary estimation which includes both within firm and between firm variation, assuming that individual

effects are not correlated with the explanatory variables. The coefficient of CGI is positive and statistically significant ($\beta = 0.284$), which suggests that the governance–performance relationship is robust across the alternative econometric frameworks. Looking at the magnitude of the governance coefficient in Table 7, the model is consistent with the theory, as it is in between the values of pooled OLS and the fixed effects model. Firm size remains an important positive determinant on SME performance as they have structural benefits in terms of scale. Firm age is again significant, which indicates that on average firms with more experience and market stability have been more successful when both within and between variation are taken into account. The negative sign of leverage is also robust and significant in all specifications in Table 7, thereby confirming that an increase in the debt level decreases SME profitability in economies of MENA. Growth opportunities once again have a very positive impact, emphasising the need for expansion and innovation strategies. GDP growth remains to have a positive impact on the firm performance whereas the inflation exhibits a weak negative effect. The similar nature of the results obtained from the pooled OLS, fixed effects and random effects models presented in Tables 5–7 provide strong robustness checks for the governance–performance link.

Table 7: Random Effects Regression Results (Dependent Variable: ROA)

Variable	Coefficient	Std. Error	z-Statistic
CGI	0.284***	0.065	4.38
SIZE	0.134***	0.038	3.53
AGE	0.071**	0.034	2.09
LEV	0.229***	0.062	-3.69
GROWTH	0.192***	0.057	3.37
GDP	0.049**	0.022	2.22
INF	-0.028*	0.018	-1.62
Constant	-1.318***	0.486	-2.71
R ²	0.463		
Observations	2,140		

Note: *, **, *** indicate significance at 10%, 5%, and 1% levels

The Hausman Specification Test (Table 8) is used to decide whether to use a Fixed Effects (FE) or Random Effects (RE) model. The test checks if the individual-specific effects are correlated with the explanatory variables, which is, of course, an important assumption in the model selection for panel data analysis. The chi-square presented in Table 8 is significant at the 1% level; the null hypothesis, that the differences between the coefficients are not systematic, is rejected. This suggests that the Random Effects estimator is inconsistent because of the correlation between unobserved firm-specific effects and explanatory variables. Thus, the Fixed Effects model is found to be the preferable and more reliable model to use in the analysis of corporate governance and financial performance of SMEs in the MENA region. This finding is important as it validates the idea that unobserved factors like managerial quality, firm culture and internal governance practices are systematically related to governance indicators and financial outcomes. To avoid biased estimates, therefore, firm-specific effects must be controlled.

Table 8: Hausman Specification Test Results

Test Summary	Statistic	Probability
Chi-Square Statistic	18.74***	0.006
Degrees of Freedom	7	
Decision	Fixed Effects Preferred	

Note: *, **, *** indicate significance at 10%, 5%, and 1% levels

The findings presented in Table 9 (Quantile Regression Estimates) give further insights to the effects of corporate governance across different quantiles of the conditional

distribution of SME financial performance. Quantile regression can be used to analyze heterogeneous effects when regressing a dependent variable against independent variables, as a quantile regression is conducted at each point (quantile) of the distribution of the dependent variable, as opposed to regression models using mean. The coefficient of the Corporate Governance Index (CGI) is positive but relatively smaller at the lower quantile (Q25) which shows that the SMEs in the lower quantile are low performing. This indicates that governance improvements have a significant but small impact on the financially constrained companies, which may be because of structural reasons like lack of access to resources or lack of institutional support. The median level (Q50) shows that the impact of governance is greater, suggesting that the governance reforms work better with the average-performing SMEs. The impact of governance is the greatest and statistically significant at the upper quantile (Q75) which represents higher-performing SMEs. This suggests that governance mechanisms are more likely to be effective and to have a positive impact on profits for well-performing firms, perhaps because they are better able to make governance changes work and align them with profits. This is indicative of a reinforcing relationship between governance and performance at higher levels of performance. The findings presented in Table 9 support the notion that the governance–performance relationship is not alike in all SMEs, and is thus highly dependent on the level of performance achieved by the SMEs, revealing the extent of heterogeneity that exists in the MENA SME sector.

Table 9: Quantile Regression Results (Dependent Variable: ROA)

Variable	Q25	Q50	Q75
CGI	0.142**	0.231***	0.367***
SIZE	0.098**	0.124***	0.161***
AGE	0.021	0.045**	0.083***
LEV	-0.176***	-0.214***	-0.289***
GROWTH	0.131**	0.174***	0.221***
GDP	0.033*	0.041**	0.058***
INF	-0.019	-0.024*	-0.031**
Constant	-1.102***	-1.213***	-1.356***
Observations	2,140	2,140	2,140

Note: *, **, *** indicate significance at 10%, 5%, and 1% levels

5. Discussions

This study's results indicate that the corporate governance practices are important factors in SME financial performance in the MENA region, supporting the theory with empirical evidence. The positive and statistically significant impact of the Corporate Governance Index (CGI) in all models (tables 5-7) corroborates with previous findings that good corporate governance leads to efficiency, accountability and financial discipline in small and medium scale businesses (Abor & Biekpe, 2007; Kyereboah-Coleman & Amidu, 2008). Governance mechanisms in SMEs can be regarded as a critical control system which can enhance the quality of decision making and prevent inefficiency, where the informality of the SME business and high managerial discretion generally restrict the formal monitoring systems.

The positive relationship between governance and performance, found in this study, is corroborated by the results of the developed and emerging markets. Similarly, Afrifa and Taurigana (2015) find that corporate governance enhances the performance of SMEs as it increases the monitoring mechanism and decreases the agency problem; Nasrallah and El Khoury (2022) also observe that corporate governance is a significant determinant of financial outcomes of SMEs in developing economies. The results of the fixed effects as well as the random effects model for the CGI coefficient also provide support for the claim of Lappalainen and Niskanen (2012) that ownership structure and the composition of the

boards of directors is important in determining the profitability of SMEs due to more effective resource allocation and monitoring system.

The negative relationship between leverage and the SME performance indicated in tables 5-7 is similar to previous findings that excessive debt financing may negatively impact the profitability of the SMEs due to increased financial pressure and shocks. This finding is corroborated by Abor and Biekpe (2007) who claim that SMEs can have external financing problems in managing the external financing, leading to poor SME performance. This is particularly relevant for the MENA region where financial markets are less developed and SMEs will be able to borrow at lower rates and will experience a more severe effect of leverage due to a lack of long term financing.

Firm size and growth are found to be positively associated with the performance of SMEs, which is in line with previous researchers who found that larger firms enjoy economies of scale, more ease of access to finance and bargaining power in the markets (Afriifa & Tauringana, 2015, Singh & Rastogi, 2023). Similarly, the positive association identified for growth opportunities reinforces the fact that growth companies are more likely to be able to attain efficiencies and profitability that stem from market expansion and innovation. The findings corroborate the view that internal capacity, and expansion strategies, play a crucial role in SMEs' success in emerging economies.

The mixed nature of firm age that came out of the fixed effects and random effects models also corresponds with the prior literature where the results on the impact of experience on SME performances were inconclusive. Lappalainen and Niskanen (2012) suggest the older companies are superior, due to their greater knowledge and networks, but the lack of significance of the time-invariant firm characteristics in the fixed effects model may indicate that much of the contribution of these factors is already included in the firm characteristics. It points to an inverse relationship between age and performance – except when there are good elements of governance and adaptive management.

Macro-economic variables are added to the governance–performance relationship. This positive relationship between GDP growth and SME performance is consistent with the results obtained by Dzomonda (2022) which indicates that macroeconomic conditions that are favorable have a positive impact on access to finance and the sustainability of businesses. The negative or weak effects of inflation, however, capture how sensitive SMEs are to macroeconomic volatility that affects their profitability due to increases in their costs and decreases in consumer demand. The obtained results showed that SMEs are sensitive to change in the external economic environment particularly in the volatile macroeconomic environment of the developing areas.

The fixed effect results (Table 6) support the idea that performance improvements within the firm can occur over time after the corporate governance improvements. This is in line with the result of Musah et al. (2022) which shows that governance is linked to effective internal control system that consequently results in improved financial performance. This aligns with the result reported by Tetteh et al. (2023) which indicates that there is a moderating and mediating influence of governance in the relationship between financial decisions and firm performance. The governance effect remains after controlling for firm-specific heterogeneity, suggesting that the governance effect is not only due to cross sectional differences, but rather due to genuine efficiency gains.

The random effects model (Table 7) also shows that the relationship between governance and performance is robust for various econometric specifications and confirms the predictive power of governance, as put forward by Nasrallah and El Khoury (2022). This consistency of results across models backs up the configurational approach to governance put forward by Singh and Rastogi (2024) that argues for the effectiveness of governance coming out of the interplay of multiple governance mechanisms instead of one.

As Table 8 indicates, the Hausman test results suggest that the fixed effects estimation approach is the more appropriate one since there is some correlation between unobservables in the firm and in the governance. Conceptually, this finding is in agreement with Abor and Biekpe (2007) who argued that ownership structure, managerial practices

and governance are closely related and unique to the SMEs. This underscores that heterogeneity needs to be taken into consideration when examining governance–performance relationships.

Last but not least, quantile regression results (Table 9) offer valuable evidence of possible heterogeneity of the relationship between governance and performance at various levels of performance. The rising contributions of the lower quantiles to higher quantiles indicates that SMEs with better governance performance are more likely to have governance mechanisms operating effectively. This result aligns with the results by Singh and Rastogi (2024), who state that the impact of governance depends on firm configuration, and Afrifa and Taurigana (2015), who propose that improvements in governance can only be transformed into financial benefits if the firm configuration is well-structured. However, there could be structural factors in non-performing SMEs as weaker SMEs may not be able to benefit from governance reforms because of a lack of institutions and finances.

6. Conclusions

This paper sought to examine the impacts of corporate governance practices on the financial performance of SMEs in MENA region using panel data and different econometric techniques. The results show a strong evidence that ROA is one of the significant and stable factors of financial performance of SMEs. The Corporate Governance Index (CGI) is consistently and statistically significant in both the pooled OLS, fixed effects and random effects specifications, suggesting that corporate governance improvements do matter for firm profitability and efficiency.

The results indicate that SMEs with good governance structures are more likely to have good financial results as the structures are associated with better oversight mechanisms, transparency and accountability. This supports the overall notion that governance mechanisms, despite their role in large corporations, are also relevant in the SME environment, where agency issues can exist due to the centralisation of ownership and management authority.

The study also validates the importance of capital structure as an important complementary role in shaping the SME performance. Leverage is always a negative determinant on the profitability and hence a higher level of debt financing is a constraint on the financial outcomes of the SME's in the MENA region. Firm size and growth opportunities, on the other hand, have positive relationship with performance, with the big size and high growth opportunities, the more efficient and sustainable finances. Inflation has a weak negative impact on SME performance, while macroeconomics indicators, like increase in GDP, have a positive impact.

Of particular interest, the fixed effects results are that governance improvements have an impact within firms over time; it is not only the cross-sectional impact, but real organizational improvements. Results of the two specifications are aligned and the Hausman test reveals the fixed effects specification is better, providing additional evidence for the role of unobserved firm heterogeneity in governance outcomes.

The quantile regressions results also help explain the non-uniformity of the impact of corporate governance. Higher-performing SMEs are more likely to be influenced by governance, which indicates that the more successful SMEs are in achieving their current level of governance performance the more successful they are likely to be in achieving the top performance in governance. This raises the interesting issue of the heterogeneity of that governance–performance link and suggests that governance reforms might have little impact in weaker firms due to structural constraints.

From a policy perspective, results show that there is a need to reinforce the corporate governance framework in MENA SMEs to have a significant impact on improving SMEs' financial performance and hence the overall efficiency of the sector. The policy makers should be focusing on enhancing the effectiveness of the boards, the transparency standards and the internal control systems and on breaking out of the structure which restricts

SMEs' access to finance. The quality of governance may also play an important role in the evaluation of credit-worthiness and investment potential of SMEs by financial institutions and development agencies.

Declarations

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Declaration of using generative AI: During the preparation of this work the author(s) used ChatGPT in order to correct the grammatical errors. After using this tool/service, the author(s) reviewed and edited the content as needed and take full responsibility for the content of the published article.

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