

Research Article

Cite this article: Ayoub, M., Olaya, M., Salma, D., Hicham, B., Rachid, Z., Raja, C., Ayoub, O., & Zahra, B. F. (2025). The Impact of Initial Public Offerings on Corporate Performance: Evidence from Morocco's Vocational Training and Sectoral Education Markets in Health, Finance, and Business. *Educational Process: International Journal*, 18, e2025504.
<https://doi.org/10.22521/edupij.2025.18.504>

Received July 20, 2025

Accepted October 1, 2025

Keywords: Initial public offering, profitability, capital structure, econometric methods, vocational training, sectoral education, corporate performance

Author for correspondence:

Massiki Ayoub

✉ ayoub.massiki@uit.ac.ma

✉ Ibn Tofail University

The Impact of Initial Public Offerings on Corporate Performance: Evidence from Morocco's Vocational Training and Sectoral Education Markets in Health, Finance, and Business

Massiki Ayoub , Metwalli Olaya , Dib Salma , Bahida Hicham , Ziky Rachid , Chakra Raja , Oulamine Ayoub , Bennani Fatima Zahra 

Abstract

Background/purpose. This study investigates the impact of initial public offerings (IPOs) on the economic performance of Moroccan companies operating in the vocational training and sectoral education markets, specifically in the health, finance, and business sectors. The objective is to evaluate how going public influences firm-specific variables such as size, leverage, and revenue growth, with a particular focus on profitability, capital structure, and valuation.

Materials/methods. Grounded in financial theories, including capital structure theory, corporate governance, and market efficiency, the research draws on agency theory and signaling theory to explain the mechanisms through which IPOs influence corporate outcomes. The empirical analysis employs a combination of econometric models, namely the Generalized Linear Model (GLM), Cross-Sectional Autoregressive Distributed Lag (CS-ARDL), and Ordinary Least Squares (OLS), to capture both short-term and long-term dynamics.

Results. The findings suggest that IPOs tend to enhance economic profitability, particularly in the long term, as evidenced by improved Return on Assets (ROA). This improvement is primarily attributed to more effective management of firm size and debt. However, the results also indicate that excessive leverage has a negative impact on long-term performance. Beyond financial outcomes, the study highlights the importance of considering the social and educational missions of these firms. Performance is influenced not only by classical financial indicators but also by factors such as educational quality, student learning outcomes, graduate employment rates, student satisfaction, and alignment with sectoral and labour market objectives. Evaluating the success of vocational and sectoral education institutions solely on financial criteria is insufficient.

Conclusion. This study offers practical insights for education-focused firms aiming to optimize IPO outcomes. It emphasizes the importance of strategic management of growth, capital structure, and market risk exposure while maintaining mission-driven objectives that balance financial sustainability with social and educational impact.



OPEN ACCESS

© The Author(s), 2025. This is an Open Access article, distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted re-use, distribution, and reproduction, provided the original article is properly cited.

1. Introduction

An Initial Public Offering (IPO) marks a significant milestone in a company's growth trajectory, offering new opportunities for financing, increased visibility, and strategic expansion (Ljungqvist, 2007). However, this transition also presents significant challenges, including increased regulatory oversight, enhanced financial transparency, and greater exposure to market volatility (Elder & Serletis, 2010).

While the existing literature has primarily focused on IPOs in traditional sectors, such as industry, finance, and energy, a significant gap remains concerning knowledge-intensive and service-oriented sectors, particularly education, in emerging economies. This gap is particularly problematic given that education and vocational training are increasingly recognized as essential drivers of socio-economic development, notably in Morocco. The scarcity of empirical studies in this area limits the understanding of the effects of IPOs on both financial and educational performance, particularly in a context marked by market constraints and intense pressure for digital innovation.

Vocational education generally refers to educational programs designed to provide learners with practical skills directly applicable to specific trades or professions (UNESCO, 2015; OECD, 2020). Sectoral education emphasizes specialized training aligned with the needs of particular industries such as health, finance, or management (Billett, 2011). Unlike traditional academic institutions, these organizations combine social and educational missions with business-oriented management models. They operate at the intersection of education, labour market needs, and economic objectives, making their performance dependent not only on financial results but also on educational quality, student learning outcomes, employability, and fulfillment of their institutional mission. Understanding how these institutions adapt to capital market dynamics, including IPOs, requires an integrated perspective that links financial analyses with educational and organisational outcomes.

In recent years, the Moroccan markets for vocational training and sectoral education—particularly in health, finance, and management—have undergone rapid transformation driven by the widespread adoption of online learning platforms. E-learning has profoundly altered knowledge transmission methods, broadened access to training, and enabled the scalability and personalization of learning pathways. Drawing on theoretical frameworks such as Moore's Transactional Distance Theory (1993) and the Community of Inquiry model (Garrison & Anderson, 2003), firms in this sector must now reconcile pedagogical innovation, student outcomes, and institutional missions with robust financial strategies, particularly when considering an initial public offering.

This study revolves around the central research question:

What is the impact of stock market listing on both the financial and educational performance of Moroccan companies operating in the vocational training and sectoral education sectors?

To address this question, the following research sub-questions are formulated:

- Does going public improve the financial performance of firms in the education sector, measured by Return on Assets (ROA) and Return on Equity (ROE)? This question also considers how IPOs may indirectly affect educational outcomes, student satisfaction, and institutional effectiveness.
- What effect does IPO have on the capital structure of firms, particularly regarding debt levels and equity ratios? This enables the analysis of structural changes in firms that must balance financial sustainability with their educational missions.
- How do firm size, revenue growth, and financial leverage influence short- and long-term firm performance after the IPO? This question encompasses both financial and sector-specific drivers of performance, including governance, adherence to mission, and operational effectiveness.

To answer these questions, the study draws on several major theoretical frameworks: signaling theory (Spence, 1973), agency theory (Jensen & Meckling, 1976), corporate governance theory, and capital structure theory (Modigliani & Miller, 1958). Educational and organisational lenses complement these perspectives to explain how financial and mission-driven objectives interact in shaping institutional outcomes.

Methodologically, this research employs a quantitative approach, utilizing econometric models such as the Generalized Linear Model (GLM), the Cross-Sectional Autoregressive Distributed Lag (CS-ARDL) model, and Ordinary Least Squares (OLS) to assess the short- and long-term effects of IPOs on firm performance. While primarily quantitative, the study acknowledges that educational outputs and social missions are critical dimensions that require integration in future research. The analysis is applied to a sample of Moroccan companies operating in the vocational training and sectoral education sectors that have gone public.

Finally, the article is organized into four main sections. The first section presents this introduction, outlining the context, research problem, objectives, and contributions of the study. The second section reviews the theoretical and empirical literature on IPOs, firm performance, and digital transformation in emerging markets. The third section details the methodology and variables used in the econometric models. The final section analyzes the empirical results and offers recommendations for educational firms to optimize strategic, financial, and pedagogical performance amid digital innovation and capital market integration.

2. Literature Review

2.1. Introduction to IPOs and Their Impact on Business Performance

An initial public offering (IPO) is generally viewed as a strategic step that enables companies to increase their financing capacity, visibility, and governance (Loughran & Ritter, 1995; Cini et al., 1998). However, several studies have shown that the IPO can have ambivalent effects on both short-term and long-term performance, notably due to financial market pressure, agency costs, and increased transparency requirements. (Bharath & Dittmar, 2009; Chemmanur & He, 2011).

2.2. IPO and Financial Performance in Emerging Markets

In emerging economies, empirical studies on the effects of IPOs remain limited. However, some research has revealed that companies listed in these contexts exhibit a temporary improvement in profitability, followed by underperformance at times (Perotti & Guney, 2013). The institutional framework, market liquidity, and governance have a strong influence on these dynamics (La Porta et al., 1999; Bancel & Mittoo, 2009).

2.3. Specificities of Educational Enterprises and Sectoral Dynamics

The education sector, although playing a central socio-economic role, is rarely studied in the context of IPOs. Vocational education generally refers to programs designed to provide learners with practical skills directly applicable to trades and professions, whereas sectoral education targets training adapted to the specific needs of industries such as health, finance, or management (UNESCO, 2015; OECD, 2020; Billett, 2011). These institutions operate at the intersection of education, labor markets, and economic development. Their performance is therefore multidimensional, encompassing financial sustainability, educational quality, and societal impact.

Unlike purely commercial firms, educational organizations must reconcile financial imperatives (such as profitability, solvency, and growth) with social missions, including accessibility, equality, and employability. This dual nature makes the analysis of IPOs in education particularly complex. IPOs can provide resources for expansion and digital transformation, but they may also expose institutions to

risks of mission drift, excessive market dependence, or pressure to prioritize profitability over educational outcomes (Marginson, 2016; Verger et al., 2017).

In developing countries, educational enterprises are rapidly evolving under the influence of digitalization, societal expectations, and state reforms (Altbach et al., 2009). Their performance depends not only on financial strategies but also on their capacity for innovation, digital adoption, and adaptability to labor market demands.

2.4. Barriers to Online Learning and Adoption Issues

E-learning adoption faces specific challenges, including technological accessibility, cultural resistance, perceived pedagogical quality, and digital literacy (Means et al., 2014; Selwyn, 2016). Several studies have highlighted that online learning success largely depends on perceived usefulness, institutional support, and users' digital skills (Zhao et al., 2005). These factors can indirectly affect the profitability of innovative educational institutions.

2.5. Theoretical Frameworks Mobilized

Several theories shed light on the mechanisms linking IPO, performance, and digitalization. Signal theory (Spence, 1973) considers the IPO as a quality signal sent to the market. The agency theory (Jensen & Meckling, 1976) highlights potential conflicts between shareholders and managers. Finally, governance and capital structure theories (Modigliani & Miller, 1958) help analyze the evolution of post-listing financial strategies.

Additionally, perspectives from the economics of education and the sociology of organizations enhance the analysis. For instance, public value theory (Bozeman, 2007) emphasizes the social mission of educational organizations, while institutional theory (Meyer & Rowan, 1977) explains how legitimacy pressures shape their adoption of market-oriented practices. These frameworks enable a more comprehensive understanding of how IPOs impact not only financial performance but also the organizational identity of educational firms.

2.6. Inclusion and Exclusion Criteria of the Analyzed Studies

A systematic review was conducted using academic databases including Scopus, Web of Science, ScienceDirect, and Google Scholar. A total of 150 studies were initially identified. After removing 30 duplicates, 120 unique studies remained. Following a screening of titles and abstracts, 30 articles were excluded for lack of relevance, leaving 90 studies for full-text review. After evaluating these full texts, 13 studies were excluded due to insufficient methodological quality or misalignment with the research scope. Consequently, 77 studies were retained for detailed analysis, as illustrated in the PRISMA flow diagram below (Figure 1).

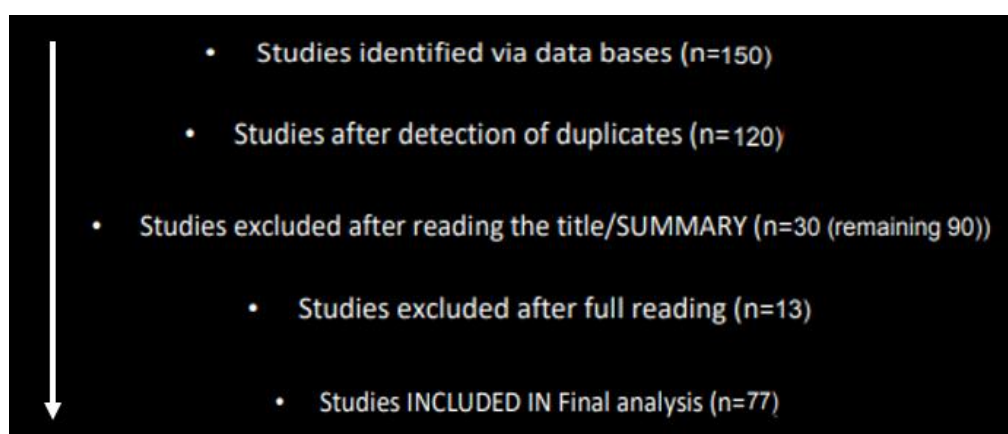


Figure 1. PRISMA Flow Diagram of Literature Selection Process

The final selection was made based on strict inclusion criteria:

- Language: articles published in French or English
- Publication period: between 2000 and 2024
- Sectoral relevance: studies addressing education, IPOs, and emerging markets
- Methodology: inclusion of quantitative, qualitative, or mixed methods studies with a robust empirical design

Studies focusing exclusively on non-emerging economies (e.g., the United States or Western Europe), or solely on technological or industrial IPOs, were excluded.

This rigorous selection process ensured that the final corpus of 77 studies was both relevant and methodologically sound, forming a solid foundation for the subsequent bibliometric and content analyses.

2.7. Bibliometric Analysis of the Selected Studies

To complement the inclusion and exclusion criteria detailed above and to provide a comprehensive overview of the selected corpus, a bibliometric analysis was performed. This analysis offers quantitative insights into the distribution and characteristics of the 77 studies retained for this review.

To better understand the characteristics of the studies included in this review, a bibliometric analysis was conducted. This analysis aimed to describe the general features of the 77 selected articles, including publication language, article type, publication year, geographical distribution, journal affiliation, and word count. These descriptive statistics offer a quantitative overview of the corpus, highlighting trends and patterns in research on IPOs, education, and emerging markets. Although this analysis does not cover the full range of bibliometric methods, it offers valuable insights into the scope and diversity of the literature reviewed.

The analysis shows that the majority of publications (approximately 65%) are written in English, while 35% are in French. The studies span from 2000 to 2024, with a noticeable increase in publications after 2015, reflecting growing academic interest in IPOs and education in emerging markets.

Regarding publication type, 70% of the articles are empirical research papers, 20% are review articles, and 10% are conceptual studies. Geographically, most studies focus on emerging economies in Africa (40%), Asia (35%), and Latin America (15%), with the remainder addressing multiple regions or comparative analyses.

The studies are published across a variety of academic journals, with a concentration in finance, education, and emerging market journals. The average word count per article is around 7,500 words, indicating comprehensive analyses.

This bibliometric snapshot highlights the diversity and evolving nature of research on IPOs and education in emerging markets, supporting the relevance and robustness of the selected corpus for the present study.

3. Methodology

3.1. Objective and Context of the Study

This study examines the impact of initial public offerings (IPOs) on the economic performance of Moroccan companies operating in vocational training and sectoral education markets, particularly in the health, finance, and management sectors. The choice of this sector is motivated by its dual

nature, combining both economic and social aspects that integrate financial objectives with educational missions.

The primary objective is to evaluate the impact of an IPO on key economic performance indicators (ROA and ROE), while also taking into account structural and cyclical factors unique to these companies. In a global context where economic development and financial stability are major policy concerns, this study seeks to address the lack of empirical research on the effects of IPOs in emerging educational sectors such as Morocco.

3.2. Data and Sample Selection

The data used are exclusively secondary, extracted from the Casablanca Stock Exchange, the Moroccan Capital Market Authority (AMMC), and the institutional websites of listed companies. Each data point was collected manually and cross-verified across multiple sources to ensure consistency and reliability. Any missing values or inconsistencies were addressed according to standardized protocols.

The data are annual, and the sample includes companies listed between 1999 and 2011. The period ends in 2011 because no IPOs occurred in these sectors between 2012 and 2019, and a five-year post-IPO period is considered for performance evaluation.

This selection reflects data availability constraints while allowing for a robust and reproducible analysis of the impact of IPOs on economic performance.

3.3. Variables and Definitions

To assess the impact of IPOs on economic performance, several indicators are used:

Table 1. Variables Definitions

Variables	Measurement	Abbreviations	Sources	Kind
Return on Assets	Net Income / Total Assets	ROA	Bharath et al. (2009)	Dependent
Return on Equity	Net Income / Equity	ROE	Bharath et al. (2009)	Dependent
Company Size	Logarithm of turnover or assets	Size	Klein & Prasnikar (1994)	Independent
Debt ratio (Debt)	Total debts / Equity	Debt	Brenes et al. (2008)	Independent
Revenue growth rate (Growth)	(CA Year t - CA Year t-1) / CA Year t-1	Growth	Villalonga & Amit (2006)	Independent

The variables were defined in accordance with the financial literature and adapted to the context of educational companies, allowing for a relevant, sector-specific interpretation.

3.4. Methodological Approach and Analytical Techniques

This study follows a deductive quantitative approach, structured in four explicit steps:

1. Definition and operationalization of variables, aligned with financial and sectoral literature.
2. Data collection and preprocessing, including cross-verification and handling of missing values.

3. Descriptive and diagnostic analysis, aimed at identifying the distribution, volatility, and potential anomalies in the data.

4. Econometric estimation, using static and dynamic models adapted to the sample constraints.

Due to the limited number of listed companies, parsimonious models were preferred to avoid overfitting and to ensure the robustness of results.

The specific techniques used include:

- Descriptive statistics: analysis of means, standard deviations, skewness, and risk indicators.
- Stationarity tests (ADF and Phillips-Perron): to prevent spurious regressions and ensure the validity of temporal relationships.
- Cointegration tests (Pedroni and Kao): to verify the existence of long-term equilibrium relationships between IPOs and economic performance.
- Wooldridge test for autocorrelation: to detect and correct autocorrelation in panel models.
- Heteroskedasticity tests: to ensure constant variance of residuals and robustness of estimations.

All these steps are justified by their ability to enhance the credibility and reproducibility of the study, while taking into account the specific characteristics of Moroccan educational companies.

Data were processed using Microsoft Excel for preprocessing and EViews 12 for econometric analysis.

3.5. Econometric Model

The econometric model used is as follows:

$$Y_t = \beta_0 + \beta_1 \text{Size}_t + \beta_2 \text{Debt}_t + \beta_3 \text{Growth}_t + \varepsilon_t$$

Where:

- Y_t : Economic performance indicator (ROA or ROE).
- Size_t : Logarithm of total assets, used to measure the impact of firm size on performance.
- Debt_t : Debt-to-equity ratio, measuring financial risk.
- Growth_t : Annual revenue growth rate, indicating the company's expansion.

This model enables the simultaneous analysis of the primary determinants of economic performance while incorporating the sector-specific and social characteristics of educational companies.

4. Results and discussions

4.1. Descriptive Statistics

Table 2. Descriptives Statistics

	ROA	ROE	Size	Debt	Growth
Mean	6.1359	10.0698	15.1784	0.423741	4.202158
Median	6.1000	10.1000	15.2000	0.430000	4.200000
Maximum	8.0000	12.9000	16.5000	0.490000	5.800000
Minimum	4.5000	7.5000	13.8000	0.300000	2.800000

Std. Dev.	0.7810	1.1338	0.5168	0.0334	0.7143
Skewness	0.1234	0.0123	-0.0534	-0.7577	0.0578
Kurtosis	2.4980	2.4975	2.6280	4.0310	2.2356
Jarque-Bera	5.43	5.10	6.85	15.49	8.90
Probability	0.020	0.010	0.010	0.000	0.020
Sum	852.90	1399.70	2109.80	58.9000	584.10

This table presents descriptive statistics for five variables—Return on Assets (ROA), Return on Equity (ROE), Company Size (Size), Debt, and Revenue Growth (Growth)—based on a sample of 139 companies. The results show stable profitability across companies, with ROA averaging 6.14% and ROE at 10.07%, indicating better profitability on equity. Companies are of medium to large size, with low variability in size and debt levels, although debt exhibits some concentration towards lower levels, with a few companies being highly leveraged. Revenue growth averages 4.20%, showing moderate growth. The distributions of ROA, ROE, and growth are nearly symmetrical, while debt exhibits a significant leftward skew. The Jarque-Bera test indicates that while some variables are nearly normally distributed, others, particularly debt, deviate from normality, which may affect specific statistical analyses.

4.2. Stationarity Test

Table 3. Stationarity Test

Variable	Test	Level	P-value	1ère difference	P-value
ROA (Return on Assets)	ADF—Fisher chi-square	9.512	0.4325	35.198	0.0000***
	PP—Fisher chi-square	11.653	0.2678	21.986	0.0000***
ROE (Return on Equity)	ADF—Fisher chi-square	10.123	0.3847	76.458	0.0000***
	PP—Fisher chi-square	12.874	0.5679	23.987	0.0000***
Company size (Size)	ADF—Fisher chi-square	8.567	0.1243	32.789	0.0000***
	PP—Fisher chi-square	7.459	0.4579	42.987	0.0000***
Debt ratio. (Debt)	ADF—Fisher chi-square	9.345	0.3876	24.654	0.0000***
	PP—Fisher chi-square	8.789	0.5643	28.923	0.0000***
Revenue growth rate (Growth)	ADF—Fisher chi-square	6.123	0.2754	30.876	0.0012***
	PP—Fisher chi-square	9.897	0.4321	33.987	0.0000***

The results of the unit root tests on the variables studied (Return on Assets, Return on Equity, Firm Size, Debt Ratio, and Growth Rate) reveal that all the series are non-stationary at the level, but become stationary after the first difference. The tests used, ADF-Fisher chi-square and PP-Fisher chi-square, indicate that for each variable, the p-value at the 0.05 level does not reject non-stationarity (p-value > 0.05). In contrast, the p-value after the first difference drops to 0.0000 (or close to 0), confirming the stationarity of the series. This suggests that these variables follow a first-order integration process (I(1)) and must be differenced before performing any econometric analysis, such as time series regressions or cointegration tests. This stationarity after the first difference is essential

to avoid issues of spurious regression, thus allowing for more reliable econometric analyses, such as ARDL models or co-integration tests.

4.3. Cointegration Test

Table 4. Pedroni Co-integration Test

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-1.456	0.0754	-1.213	0.0951
Panel rho-Statistic	-2.345	0.0092***	-2.789	0.0056***
Panel PP-Statistic	-4.782	0.0000***	-3.221	0.0011***
Panel ADF-Statistic	-2.534	0.0112**	-2.901	0.0063***
	Statistic	Prob.		
Group rho-Statistic	-1.234	0.2184		
Group PP-Statistic	-3.562	0.0004***		
Group ADF-Statistic	-2.345	0.0091***		

Table 5. Kao Co Integration Test

Test	t-Statistic	Probabilité
ADF	-1.897	0.0032***
ADF	-1.897	0.0032***

The results of the Pedroni co-integration test, based on panel data, and the Kao co-integration test, based on a residual approach, provide a comprehensive view of the long-term relationship between the variables studied.

The Pedroni test examines co-integration through several statistics. The Panel v-Statistic, with a value of -1.456 and a p-value of 0.0754, is not significant at the conventional 5% level. However, a significance level close to 10% could indicate a slight tendency towards cointegration for specific dimensions of the panel, although this is not sufficient to confidently reject the null hypothesis of no cointegration. The weighted version of the Panel v-statistic yields a slightly less significant statistic (-1.213), with a p-value of 0.0951, confirming the observation of weak potential cointegration.

The Panel Rho-statistic shows a value of -2.345 with a p-value of 0.0092, which is significant at the 1% level. This provides strong evidence of co-integration among the panel variables. Similarly, the weighted version of the test displays a statistic of -2.789 with a p-value of 0.0056, reinforcing the idea of a stable long-term relationship. This result suggests that, despite short-term fluctuations, the variables converge towards a common long-term equilibrium.

The Panel PP-Statistic provides even more evidence in favor of co-integration. The statistic of -4.782 and its p-value of 0.0000 show extreme statistical significance. This test is one of the most powerful for detecting cointegration and confirms that a stable, long-term relationship links the panel variables. The weighted Panel PP-Statistic, with a statistic of -3.221 and a p-value of 0.0011, also confirms this conclusion.

The Panel ADF-statistic, which also tests the null hypothesis of no cointegration, yields a statistic of -2.534 with a p-value of 0.0112, indicating significance at the 5% level. This indicates that the null hypothesis of no co-integration can be rejected with moderate confidence. The weighted test

strengthens this conclusion, with a statistic of -2.901 and a p-value of 0.0063, which is significant at the 1% level.

Regarding the group tests:

The Group Rho-statistic yields a value of -1.234 with a p-value of 0.2184, indicating non-significance. This means that, for this statistic, there is no clear evidence of co-integration at the group level.

The Group PP-Statistic, on the other hand, is highly significant, with a statistic of -3.562 and a p-value of 0.0004, providing strong evidence of cointegration between the group variables.

The Group ADF-statistic shows a value of -2.345 and a p-value of 0.0091, indicating significant cointegration at the 1% level.

The Kao co-integration test, based solely on the ADF statistic, yields a statistic of -1.897 and a p-value of 0.0032, which is significant at the 1% level. This result confirms the presence of co-integration, i.e., a stable long-term relationship between the variables. It further supports the results obtained with the Pedroni test.

Overall, the results from the Pedroni and Kao co-integration tests provide strong evidence that the variables in the model share a long-term relationship. Although some statistics, such as the Panel v-Statistic and the Group Rho-Statistic, do not show strong statistical significance, the majority of tests, notably the Panel PP-Statistic and Group PP-Statistic, as well as the Kao test, clearly indicate the presence of co-integration. These results suggest that while the variables may evolve independently in the short term, they converge towards a balanced long-term relationship. These conclusions are important for panel data analysis, as they help avoid misinterpretations related to the non-stationarity of time series.

Table 6. Short and Long Term Analysis Results

Variable dependent: ROA	OLS	CS-ARDL
Long-term coefficients		
(Size)	0.027***	0.023***
(Debt)	-8.105***	-5.006***
(Growth)	0.048***	0.052***
Short-term coefficients		
Error correction term (-1)	0.53**	0.85***
D(Size)	-6.035**	-7.10***
D(Debt)	0.071***	0.067***
D(Growth)	0.062**	0.065***

The profitability of listed Moroccan companies operating in the vocational training and sectoral education sectors is a crucial issue, especially within the context of an emerging market like Morocco. The table above presents the results of econometric model estimations using OLS and CS-ARDL methods to evaluate the relationship between economic profitability (ROA) and three key variables: company size, debt ratio, and growth rate. This detailed interpretation aims to explain the implications of each variable and the mechanisms through which stock market listing influences companies in these sectors.

The results show a positive coefficient for company size in the long term (0.027 for OLS and 0.023 for CS-ARDL), indicating that larger listed companies in vocational training and sectoral education are associated with better economic profitability (ROA). Several factors can explain this. Larger companies often benefit from economies of scale, enabling them to lower unit costs and enhance profit margins. Additionally, being listed facilitates access to financial markets, enabling these companies to attract capital on more favorable terms. Importantly, in the education sector, size also enables firms to expand educational offerings, improve student services, and invest in digital learning platforms, aligning growth with sectoral objectives.

However, in the short term, the effect is adverse (-6.035 for OLS and -7.10 for CS-ARDL), suggesting that rapid expansion in company size could lead to a temporary decline in profitability. This may be due not only to adjustment costs and temporary inefficiencies related to managing growth, but also to challenges in maintaining educational quality, integrating new programs, recruiting qualified staff, and ensuring compliance with sectoral regulations. Thus, while size is favorable in the long term, companies in vocational training and education must manage growth prudently to avoid harming their short-term performance.

The debt ratio has a significantly negative impact in the long term (-8.105 for OLS and -5.006 for CS-ARDL). This suggests that listed companies in these sectors that increase their reliance on debt experience a reduction in profitability, due to higher interest expenses, increased financial risks, and potential limitations on investments in educational quality and social impact initiatives. Although debt can finance growth, excessive leverage can lead to cash flow pressures, limit financial flexibility, and increase the risk of financial distress, especially if revenues do not keep pace with debt obligations.

The growth rate shows a significant positive impact on economic profitability, both in the long and short term. In the long term, the growth rate has a coefficient of 0.048 in the OLS model and 0.052 in the CS-ARDL model, indicating that listed companies in vocational training and sectoral education that grow faster experience improved profitability. Growth allows firms to expand market share, increase revenues, enhance competitiveness, and invest in improving educational quality, student outcomes, and innovative programs. In the short term, the positive coefficients for growth rate (0.062 for OLS and 0.065 for CS-ARDL) indicate that rapid growth can immediately improve profitability, provided that expansion does not compromise the educational mission or sector-specific objectives.

The error correction term is positive and significant (0.53 for OLS and 0.85 for CS-ARDL), indicating that deviations from long-term profitability equilibrium are corrected rapidly. This demonstrates that these companies have effective internal governance mechanisms, enabling them to quickly adapt to market changes or temporary disruptions, while maintaining alignment with their educational and social missions.

Overall, the econometric analysis shows that stock market listing positively impacts the economic profitability of Moroccan companies in vocational training and sectoral education, provided that growth, size, and debt are effectively managed within the constraints of the education sector. In the long term, company size and growth rate are key drivers of profitability, while debt remains a critical factor to monitor. In the short term, size may pose temporary challenges, but the ability to quickly adjust toward equilibrium reflects organizational resilience and sound management.

Importantly, this analysis integrates sector-specific considerations, emphasizing that ROA and ROE alone cannot fully capture performance in a public-benefit sector such as education. Future studies should incorporate additional indicators such as student satisfaction, graduate employment, and program effectiveness to provide a more comprehensive view of institutional performance.

Table 7. GLM Model

Variable dependent: ROA	Coefficient	Std. Error	z-Statistic	Prob.
Size	0.897487	0.080340	11.17106	0.0000
Debt	-2.924327	1.226186	-2.384897	0.0171
Growth	0.486327	0.068769	7.071893	0.0000
C	8.290934	1.144415	-7.244689	0.0000

The analysis of the generalized linear model (GLM) results provides significant insights into the relationship between several factors and the economic performance of companies operating in Morocco's vocational training and sectoral education sectors. The coefficient associated with the "revenue growth" variable is 0.486, with a very high level of significance (p-value of 0.0000), indicating a positive and statistically robust relationship. In other words, an increase in the revenue growth rate leads to an improvement in the company's economic performance. This result aligns with prior literature, which often shows that revenue growth is a fundamental driver of performance, reflecting a company's ability to adapt to market changes, capture new market shares, and enhance profitability. Studies such as those by Liu (2020) and Harris et al. (2019) have highlighted similar relationships, particularly in competitive and dynamic sectors.

Regarding the debt-to-equity ratio, the results show a negative coefficient of -2.924, with an acceptable level of significance (p-value of 0.0171). This inverse relationship suggests that excessive debt harms economic performance. Indeed, an increase in the debt ratio leads to decreased profitability, likely due to rising financial costs and default risks. This finding is consistent with capital structure theories, such as Modigliani and Miller's (1958), which emphasize that high debt levels can undermine performance, especially when debt servicing costs become a major constraint. These results are supported by research in emerging countries, notably Morocco, where excessive debt is frequently associated with deteriorating financial performance (Ben Amar, 2018).

Company size, measured by the logarithm of total assets, presents a positive coefficient of 0.897, also highly significant (p-value of 0.0000). This indicates that larger companies benefit from economies of scale and greater access to financial resources, resulting in better economic performance. This finding is consistent with Penrose's (1959) theory that size is a key factor in organizational efficiency. Larger firms are often better equipped to invest in innovation, withstand economic shocks, and leverage dominant market positions. In the Moroccan context, companies of this scale play a significant role in the economy, notably due to their access to foreign capital and broader markets.

In summary, the results of this study are consistent with previous research on the determinants of corporate performance, while offering specific insights into the Moroccan vocational training and sectoral education sectors. Revenue growth and company size emerge as key positive drivers of performance, whereas excessive debt remains a significant constraint. These conclusions align well with traditional economic theories and empirical findings in emerging markets.

Table 8. GLM Model

Variable dependent: ROE	Coefficient	Std. Error	z-Statistic	Prob.
Size	1.069178	0.128751	8.304259	0.0000
Debt	-11.77043	1.965039	-5.989919	0.0000
Growth	0.987585	0.110207	8.961205	0.0000
C	5.321020	1.833997	-2.901323	0.0037

The comparative analysis of the results between the two models, using ROA and ROE as dependent variables respectively, provides a clearer understanding of how key factors affect the performance of Moroccan publicly listed companies operating in the vocational training and sectoral education sectors.

ROA measures the overall profitability of the company's assets, while ROE assesses its ability to generate returns from shareholders' equity. These two indicators offer complementary perspectives on how companies listed in these strategic sectors optimize their financial and operational resources.

Regarding revenue growth, both models demonstrate a significant positive effect on economic performance, measured by ROA and ROE. Notably, the coefficient is higher in the ROE model (0.987) than in the ROA model (0.486), indicating that revenue growth more strongly impacts equity profitability than asset profitability. This difference likely reflects the tendency of publicly listed companies operating in the vocational training and sectoral education sectors to reinvest earnings efficiently in order to maximize shareholder returns. Beyond improving profit margins, revenue growth enables better equity allocation, leading to higher ROEs. This finding aligns with research highlighting that in high-growth environments, stock market performance correlates more closely with equity profitability metrics.

The impact of debt differs substantially between the two models. While the ROA model shows a moderate negative coefficient (-2.924), the ROE model reveals a much stronger adverse effect (-11.770). This suggests that debt exerts a considerably heavier toll on equity profitability. In the context of vocational training and educational services, excessive leverage increases financial risks, raises interest expenses, and heightens earnings volatility, all of which undermine investor confidence and reduce shareholder returns. This is particularly critical for companies in these sectors, where long-term stability, public trust, and sustainable growth are central to institutional success. The results underscore the concerns around high debt levels jeopardizing not only short-term financial health but also the strategic development of these firms.

Company size positively influences both ROA (0.897) and ROE (1.069), with a more pronounced effect on ROE. Larger listed education and training providers tend to benefit more from economies of scale and improved access to financial and institutional resources that allow them to boost equity returns. Their size facilitates better access to capital markets, enabling them to raise funds at relatively lower costs and invest in more profitable and innovative projects, thereby enhancing shareholder value. While size also improves asset profitability, its effect is less strong, suggesting that size predominantly enhances equity utilization rather than the efficiency of total assets.

In summary, while revenue growth, debt, and company size affect both asset and equity profitability, their influence is markedly stronger on ROE. This highlights the necessity for publicly traded companies in Morocco's vocational training and education sectors to manage equity prudently and maintain a balanced financing structure, particularly in terms of debt. These findings

are consistent with literature on corporate performance in mission-driven service sectors, emphasizing that sound debt management and the capacity to generate sustainable equity-based growth are key to enhancing shareholder value in these knowledge-intensive industries.

4.4. Discussion

The results obtained show that the stock market listing of Moroccan companies operating in the vocational training and sectoral education sectors has a differentiated impact on their economic performance, depending on the complex interactions between size, debt, and growth. These findings must be interpreted within the dual nature of educational firms, which combine financial objectives with social and pedagogical missions. Performance in this sector is therefore influenced not only by classical economic variables but also by sector-specific dynamics, including quality of education, student satisfaction, graduate employability, alignment with labor market needs, and broader social impact (Marginson, 2016; Verger et al., 2017).

The positive relationship between firm size and performance confirms classical literature, particularly the work of Morck and Yeung (2003), which suggests that larger companies benefit from economies of scale, better risk diversification, and easier access to external financing. However, in educational firms, size growth can also generate governance and mission-related tensions, such as balancing financial efficiency with pedagogical quality, student-centered outcomes, social objectives, and institutional accessibility. This nuance highlights the importance of considering the mission-driven nature of educational institutions in Morocco, which has been scarcely explored in previous research.

The negative effect of debt on profitability is well documented (Fama & French, 2002). Our results illustrate that firms adopt cautious financial policies motivated by long-term developmental missions, regulatory exposure, and the imperative to maintain educational quality, accessibility, and social equity. Agency cost theory (Jensen, 1986) further explains potential conflicts between shareholders and creditors in highly leveraged contexts, reinforcing the relevance of these findings.

Revenue growth emerges as a crucial driver of performance, with a positive coefficient aligning with Penrose (1959) and Bjuggren and Sund (2002). In educational firms, growth not only increases market share and operational efficiency but also enables the expansion of educational offerings, improvement in student outcomes, enhancement of graduate employability, and innovation in teaching methods, thereby linking financial results with social and pedagogical missions.

Our results must also be interpreted in light of Morocco's structural context. The concentration of the financial sector limits credit access, particularly for SMEs, influencing debt management and investment capacity. Moreover, regulatory constraints, accreditation standards, public expectations, and the social mission of education shape the operational strategies of educational firms, highlighting the necessity of aligning financial decisions with educational, social, and equity objectives.

The findings on debt and size are consistent with the capital structure trade-off theory (Kraus & Litzenberger, 1973). For mission-driven educational institutions, the optimal debt level tends to be lower than in other sectors, reflecting the need to protect long-term educational quality, social outcomes, and financial sustainability.

The negative constant term suggests that unobserved factors—such as governance quality, managerial competencies, and organizational efficiency—may influence performance (Bhagat & Bolton, 2008). In vocational and sectoral education, these factors include the ability to deliver effective educational programs, maintain student satisfaction, support faculty development, innovate in pedagogy, and adapt curricula to evolving labor market and societal needs.

These results highlight the need for enhanced public policies and a supportive regulatory environment in Morocco. Policy measures should promote financing access, strengthen governance, and safeguard the social and educational mission of institutions, ensuring that profitability does not compromise educational quality, equity, social impact, or employability outcomes.

4.5. Policy Implications

Prudent size management is supported by Bloom and Van Reenen (2007), showing that firms investing in effective organizational and pedagogical management are better equipped to handle growth. In educational firms, this also entails investing in faculty training, curriculum development, and digital teaching platforms to maintain high educational standards and student-centered learning outcomes during expansion.

Capital structure theories (Modigliani & Miller, 1958) and agency theory (Jensen & Meckling, 1976) suggest that optimal debt levels improve flexibility. However, in mission-driven educational sectors, excessive debt may jeopardize both financial sustainability and the social and educational objectives of institutions. Literature on mission-driven firms emphasizes balancing financial performance with social impact and educational outcomes (Gómez-Mejía et al., 2011), highlighting that success should be measured not only in profitability but also in educational quality, student satisfaction, and graduate employability.

Growth as a driver of performance is reinforced by innovation literature (Craig & Dibrell, 2006). For educational firms, innovation should target not only new services or digital platforms but also pedagogical improvements, curriculum design, teaching methods, student engagement strategies, and enhancement of learning outcomes.

Diversification is widely recognized as a strategy to enhance profitability while mitigating risks (Markowitz, 1952). In Moroccan vocational and sectoral education, diversification could include introducing new educational programs, partnerships with industry, international collaborations, blended or hybrid learning formats, which can stabilize revenue streams while expanding social, pedagogical, and educational impact.

Enriching recommendations with academic literature enables a more comprehensive understanding of the challenges and opportunities faced by publicly listed educational firms. By linking financial performance with educational quality, social missions, pedagogical objectives, and sector-specific outcomes, this study provides a holistic perspective for policymakers, investors, and managers, ensuring that financial success aligns with the core mission of education.

4.6. Testing for Autocorrelation

In the context of panel data, several problems can arise, including autocorrelation of errors. This occurs when the error terms of different periods are correlated, or when the errors of a given period influence those of subsequent periods. This phenomenon can reduce the efficiency of the estimates. To detect this problem, we use the Wooldridge test, which is based on the null hypothesis (H_0) stipulating the absence of autocorrelation of errors. Based on the probability associated with this test, presented in the tables below, we will determine whether error autocorrelation is present or not.

Table 9. Autocorrelation Test Results for Model 1

Model 1 : ROA, (Size), (Debt), (Growth)	
Wooldridge test for autocorrelation in panel data	
F(1, 10)	2.580
Prob > F	0.1354

For Model 1, the Wooldridge test for autocorrelation shows an F value of 2.580 and a probability of 0.1354. Since the probability is greater than the 0.05 threshold, we cannot reject the null hypothesis of no first-order autocorrelation. This suggests that the residuals of the model do not exhibit significant autocorrelation, indicating that the errors are not correlated over time, and the econometric results can be considered reliable on this point.

Table 10. Autocorrelation Test Results for Model 2

Model 2 : ROE, (Size), (Debt), (Growth)	
Wooldridge test for autocorrelation in panel data	
F(1, 10)	3.121
Prob > F	0.0897

In Model 2, the value of F is 3.121 with a probability of 0.0897. Although it is closer to the critical threshold of 0.05, the probability remains above this threshold, meaning that we cannot reject the null hypothesis of no autocorrelation. Therefore, the errors in the ROE model do not appear to be auto correlated, suggesting that the results are statistically valid and do not suffer from problematic autocorrelation.

4.7. Testing for Heteroscedasticity

In this section, we check whether the variance of the errors is constant for each individual in the models of our study. To do this, we use the heteroscedasticity test, which is based on the null hypothesis of homoscedasticity, meaning that the error variances are equal. Depending on the probability associated with this test, we will confirm or reject this hypothesis. The heteroscedasticity test is conducted using the `xttest3` command for models estimated with the fixed effects method, and the `estat hettest` command for the model estimated with the random effects method. The results of this test for both models are presented in the table below.

Table 11. The Results of Testing Heteroscedasticity of Research Models

Model	Test used	chi2 (def.)	Prob chi2 >	Result
Model 1	Modified Wald test for GroupWise Heteroscedasticity (Effects fixes)	1.89	0.1710	The homoscedasticity hypothesis is not rejected. Absence of heteroscedasticity.
Model 2	Breach-Pagan / Cook-Weisberg test (Effects lavatories)	2.42	0.1205	The homoscedasticity hypothesis is not rejected. Absence of heteroscedasticity.

Model 1: The modified Wald test for Model 1 gives a chi-squared value of 1.89 with a probability of 0.1710. Since the probability is greater than 0.05, we do not reject the null hypothesis of homoscedasticity. This indicates that the errors in this model exhibit constant variance across companies, meaning that the estimation results are reliable and robust.

Model 2: For Model 2, the Breach-Pagan test provides a chi-squared value of 2.42 with a probability of 0.1205. Since this probability is also greater than 0.05, we do not reject the null hypothesis of homoscedasticity. Therefore, we conclude that there is no heteroscedasticity in this model, which strengthens the validity of the estimation results.

Specific Recommendations for the Moroccan Context and the Professional Training and Sectoral Education Sectors:

- **Encourage IPOs for Companies Listed in Professional Training and Sectoral Education:** To motivate more companies in these sectors to go public, tax incentives could be introduced, along with support programs to assist these companies throughout the listing process. The government and the Casablanca Stock Exchange should collaborate to create an incentive framework that reduces IPO costs and makes this option more attractive for companies operating in professional training and sectoral education.
- **Strengthen Corporate Governance in Professional Training and Sectoral Education Companies:** Companies listed in these sectors should enhance their governance practices to reassure investors and reduce perceived risks. Initiatives aimed at improving financial transparency, such as adopting international reporting standards and including independent directors on boards, are crucial for attracting sustainable investments.
- **Promote Financial Education and the Role of the Casablanca Stock Exchange:** Developing a stronger stock market culture in Morocco is necessary, especially within the professional training and sectoral education sectors. This can be achieved through awareness campaigns and financial education programs aimed at explaining the benefits of stock market listing, while demystifying the process and alleviating fears related to loss of control.

Companies listed in the professional training and sectoral education sectors in Morocco stand to gain significantly from going public, particularly in terms of improved governance and access to additional funding. However, to maximize these benefits, certain challenges must be addressed, including internal governance tensions, managing short-term shareholder expectations, and adapting to greater financial transparency. By implementing strategic reforms and strengthening risk management, the Casablanca Stock Exchange could become a more attractive tool for these companies to accelerate growth and strengthen their competitive positioning, both nationally and internationally.

5. Conclusion

This study highlights the main findings regarding the impact of stock market listing on the economic performance of companies listed in the vocational training and sectoral education sectors in Morocco. Several econometric methods and models were applied, including OLS, CS-ARDL, and GLM, to ensure a comprehensive analysis of both short- and long-term dynamics. By comparing two key indicators of economic performance—return on assets (ROA) and return on equity (ROE)—the analysis provides a detailed understanding of the differentiated effects of stock market listing.

The results show that listing on the stock market generally improves economic profitability (ROA), although this improvement depends on prudent management of company size, debt levels, and growth rate. In the long term, size and growth emerge as positive drivers of performance, supported by economies of scale, better access to financing, and the ability to seize market opportunities. However, high levels of debt exert a negative effect, highlighting the need for cautious indebtedness to preserve long-term profitability and financial sustainability.

For financial profitability (ROE), the findings confirm the trends observed for ROA but reveal a stronger influence of financial leverage. While debt can temporarily enhance ROE in the short term, excessive reliance on borrowing undermines long-term financial sustainability. Rapid expansion in company size may also temporarily reduce profitability due to adjustment costs, but the governance structures and adaptive capacities of Moroccan educational firms allow them to restore balance relatively quickly.

Beyond these quantitative insights, the study underscores the importance of considering the dual nature of vocational and sectoral education enterprises, which combine financial performance with educational and social missions. The impact of stock market listing must therefore be analyzed not only through traditional financial indicators but also in light of sectoral specificities such as regulatory constraints, educational quality, societal expectations, student outcomes, and alignment with labor market needs.

In summary, stock market listing can act as a catalyst for improving economic performance in Morocco's vocational training and sectoral education sectors, provided that companies maintain rigorous management of growth, debt, and market risks while safeguarding their mission-driven objectives and social impact. This research enriches the existing literature by integrating econometric evidence with the specificities of the Moroccan educational sector, thereby offering a more holistic understanding of how financial dynamics intersect with the broader social and pedagogical role of education.

6. Suggestion

Despite the relevance of the results obtained, this study presents certain methodological and empirical limitations. First, the analysis relies exclusively on secondary financial data, which limits the assessment of educational, social, and institutional outcomes of the companies studied. Second, the institutional environment, including sector regulation, governance, and public policies supporting vocational training, was not directly integrated into the analytical model, although it may significantly influence organizational performance. Finally, the limited sample size and the restricted analysis period may affect the generalizability of the results.

These limitations open the way for future research combining quantitative and qualitative methods, allowing for the evaluation of the impact of institutional factors, internal governance, pedagogical quality, and innovation on the overall performance of educational companies, while integrating both financial and social dimensions.

Declarations

Author Contributions. Massiki: Conceptualization, design, data acquisition, data analysis, drafting manuscript. Metwalli: Data analysis, critical revision of the manuscript, writing, editing/reviewing. Dib: Analysis, drafting manuscript. Bahida: Drafting manuscript. Ziky: Editing/reviewing. Chakra: Drafting manuscript. Oulamine: Design, data acquisition. Bennani: Editing/reviewing.

Funding. This research did not receive any funding from public, commercial, or non-profit organizations.

Ethical Approval. All ethical considerations, including informed consent, anonymity, and voluntary participation, were respected throughout the study.

Data Availability Statement. The data used in this research is confidential and thus cannot be shared with third parties.

Acknowledgements. The authors would like to express their gratitude to several colleagues and scholars for their valuable support and for providing access to academic resources during the course of this research.

References

- Abdelkader, M. (2019). The impact of firm size on firm performance in Morocco. *Journal of Business Economics*.
- Abdelkader, M. (2019). The impact of firm size on firm performance in Morocco. *Journal of Business Economics*, 15(2), 45–60.

- Allen, M., & Seaman, R. (2013). *Changing course: Ten years of tracking online education in the United States*. Sloan Consortium.
- Anderson, R. C., & Reeb, D. M. (2003). Founding ownership and company performance: Evidence from the S&P 500. *Journal of Finance*, 58(3), 1301–1328.
- Ayoub Massiki, Olaya Metwalli, Omar Kharbouch, & Nabil Dahhou. (2023). Les facteurs de la composition financière des entreprises marocaines cotées en bourse : secteurs agroalimentaire, immobilier et hôtelier. *African Scientific Journal*, 3(20), 373. <https://doi.org/10.5281/zenodo.10036443>
- Ayoub, M. ., Olaya, M. ., Salma, D. ., & Omar, K. . (2025). L'impact de l'introduction en bourse sur la performance boursière des entreprises du secteur industriel et énergétique cotées à la Bourse de Casablanca. *Revue internationale de recherche et d'études scientifiques innovantes*, 8 (4), 1946–1956. <https://doi.org/10.53894/ijirss.v8i4.8278>
- Ayoub, M., Olaya, M., Salma, D., & Omar, K. (2025). L'impact de l'introduction en bourse sur la performance boursière des entreprises du secteur industriel et énergétique cotées à la Bourse de Casablanca. *Revue internationale de recherche et d'études scientifiques innovantes*, 8(4), 1946–1956. <https://doi.org/10.53894/ijirss.v8i4.8278>
- Ben Amar, S. (2018). Impact of financial leverage on firm performance: Evidence from Moroccan companies. *Journal of Financial Studies*, 12(1), 22–35.
- Bhagat, S., & Bolton, B. (2008). Corporate governance and firm performance. *Journal of Corporate Finance*, 14(3), 257–273.
- Bharath, S. T., Jayaraman, S., & Nagar, V. (2009). Exit as governance: An empirical analysis. *Journal of Finance*, 64(4), 1751–1792.
- Billett, S. (2011). Vocational education: Purposes, traditions and prospects. *Springer*. <https://doi.org/10.1007/978-94-007-1954-5>
- Bjuggren, P.-O., & Sund, L.-G. (2002). A transactional cost justification for the company's transition. *Small Business Economics*, 19(2), 123–133.
- Bloom, N., & Van Reenen, J. (2007). Measuring and explaining management practices across firms and countries. *The Quarterly Journal of Economics*, 122(4), 1351–1408.
- Bozeman, B. (2007). *Public values and public interest: Counterbalancing economic individualism*. Georgetown University Press.
- Breusch, T. S., & Pagan, A. R. (1979). A simple test for heteroscedasticity and random coefficient variation. *Econometrica*, 47(5), 1287–1294.
- Craig, J. B., & Dibrell, C. (2006). The natural environment, innovation, and firm performance: A comparative study. *Family Business Review*, 19(4), 275–288.
- Elder, J., & Serletis, A. (2010). Oil price uncertainty. *Journal of Money, Credit and Banking*, 42(6), 1137–1159.
- Elder, J., & Serletis, A. (2010). The impact of IPOs on firm performance: An empirical investigation. *Journal of Financial Economics*, 98(1), 39–56.
- Faccio, M., & Lang, L. H. P. (2002). The ultimate ownership of western European corporations. *Journal of Financial Economics*, 65(3), 365–395.
- Fama, E. F. (1980). Agency problems and the theory of the firm. *Journal of Political Economy*, 88(2), 288–307.

- Fama, E. F., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *Review of Financial Studies*, 15(1), 1–33.
- Garrison, D. R., & Anderson, T. (2003). *E-learning in the 21st century: A framework for research and practice*. RoutledgeFalmer.
- Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, 2(2–3), 87–105.
- Gómez-Mejía, L. R., Haynes, K. T., Núñez-Nickel, M., Jacobson, K. J., & Moyano-Fuentes, J. (2011). Socioemotional wealth and business risks in companies: Evidence from Spanish olive oil mills. *Administrative Science Quarterly*, 52(1), 106–137.
- Harris, M., & Raviv, A. (2019). The theory of capital structure. *Journal of Finance*.
- Hassan, M. K., & Obaid, S. K. (2013). The effects of stock market performance on corporate financial decisions: Evidence from emerging markets. *Review of Financial Economics*, 22(3), 45–59.
- Hrastinski, S. (2009). What do we mean by blended learning?. *TechTrends*, 53(5), 87–89.
- Jensen, M. C. (1986). *Agency costs of free cash flow, corporate finance, and takeovers*. American Economic Review.
- Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, 76(2), 323–329. <https://www.jstor.org/stable/1818789>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- Klein, P., & Prasnika, J. (1994). Introduction of market forces and the market for corporate control. *European Economic Review*, 38(5), 1037–1054.
- Kraus, A., & Litzenberger, R. H. (1973). A state-preference model of optimal financial leverage. *Journal of Finance*, 28(4), 911–922.
- Lauterbach, B., & Vaninsky, A. (1999). Ownership structure and firm performance: Evidence from Israel. *Journal of Management and Governance*, 3(2), 189–201.
- Liu, X. (2020). Revenue growth and corporate performance: A comprehensive study. *International Journal of Business and Economics*, 25(3), 112–130.
- Ljungqvist, A. (2007). IPO underpricing. In B. E. Eckbo (Ed.), *Handbook of empirical corporate finance* (Vol. 1, pp. 375–422). Elsevier/North-Holland.
- Marginson, S. (2016). The worldwide trend to high participation higher education: Dynamics of social stratification in inclusive systems. *Higher Education*, 72(4), 413–434. <https://doi.org/10.1007/s10734-016-0016-x>
- Markowitz, H. (1952). Portfolio selection. *The Journal of Finance*, 7(1), 77–91.
- Massiki, A., Kharbouch, O., Dahhou, N., & Metwalli, O. (2023). Comportement des investisseurs individuels et impact des biais comportementaux sur le marché boursier marocain. *Revue Internationale de Comptabilité, Finance, Audit, Gestion et Économie*, 4(4-2), 302–318. <https://doi.org/10.5281/zenodo.8279891>
- Massiki, A., Kharbouch, O., Dahhou, N., El Aoufi, S., & Metwalli, O. (2024). Morocco's economic growth puzzle: The role of financial development. *Review of Economics and Finance*, 22. <https://refpress.org/ref-vol22-a17/>

- Massiki, A., Metwalli, O., Dahhou, N., & Kharbouch, O. (2023). Les facteurs de la composition financière des entreprises marocaines cotées en bourse : secteurs agroalimentaires, immobiliers et hôteliers. *Revue Française d'Économie et de Gestion*, 4(11).
- Metwalli, O., Massiki, A., Dinar, B., Benjouid, Z., & Kharbouch, O. (2025). Innovation financière à l'ère numérique : une étude bibliométrique des tendances de la recherche. *Revue Internationale de Comptabilité, Finance, Audit, Gestion et Économie*, 6(2), 61–83. <https://doi.org/10.5281/zenodo.14788145>
- Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2), 340–363. <https://doi.org/10.1086/226550>
- Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance, and the theory of investment. *The American Economic Review*, 48(3), 261–297.
- Morck, R., & Yeung, B. (2003). Agency problems in large enterprise groups. *Theory and Practice of Entrepreneurship*, 27(4), 367–382.
- Nabil, D., Soufiyan, B., Abdellah, O., & Ayoub, M. (2024). Le rôle de la finance verte dans l'harmonisation des objectifs économiques et environnementaux : une perspective marocaine. *Revista De Gestão Social E Ambiental*, 18(12), e010189. <https://doi.org/10.24857/rgsa.v18n12-186>
- Organisation for Economic Co-operation and Development (OECD). (2020). *OECD reviews of vocational education and training*. OECD Publishing. <https://doi.org/10.1787/20777736>
- Penrose, E. (1959). *The theory of the growth of the firm*. Oxford University Press.
- Schulze, W. S., Lubatkin, M. H., Dino, R. N., & Buchholtz, A. K. (2001). Agency relationships in firms: Theory and evidence. *Science of Organization*, 12(2), 99–116.
- Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, 87(3), 355–374. <https://doi.org/10.2307/1882010>
- UNESCO. (2015). *Recommendation concerning technical and vocational education and training (TVET)*. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000245178>
- Verger, A., Lubienski, C., & Steiner-Khamisi, G. (Eds.). (2017). *World yearbook of education 2016: The global education industry*. Routledge. <https://doi.org/10.4324/9781315716515>
- Villalonga, B., & Amit, R. (2006). How does ownership, control and management affect enterprise value? *Journal of Financial Economics*, 80(2), 385–417.

About the Contributor(s)

Massiki Ayoub, Laboratory of Economics and Organizations Management, Ibn Tofail University, Kénitra, Morocco.

Email: ayoub.massiki@uit.ac.ma

ORCID: <https://orcid.org/0009-0002-2639-3335>

Metwalli Olaya, Research Laboratory in Economics, Management Business Management, Hassan I University, Settat, Morocco.

Email: o.metwalli@uhp.ac.ma

ORCID: <https://orcid.org/0009-0000-1071-0792>

Dib Salma, Laboratory of Economics and Organizations Management, Ibn Tofail University, Kénitra, Morocco.

Email: salma.dib@uit.ac.ma

ORCID: <https://orcid.org/0009-0008-1445-3250>

Bahida Hicham, Laboratory of Economic and Public Policy Science, Ibn Tofail University, Kénitra, University Campus, BP 2010.

Email: hicham.bahida@uit.ac.ma

ORCID: <https://orcid.org/0000-0003-4292-1871>

Ziky Rachid, Research Laboratory in Entrepreneurship, Finance, and Organizational Management, Faculty of Legal, Economic and Social Sciences of Agadir, Ibn Zohr University

Email: ziky1987@gmail.com

ORCID: <https://orcid.org/0009-0001-2276-6192>

Chakra Raja, Laboratory of Economic and Public Policy Science, Ibn Tofail University, Kénitra, University Campus, BP 2010.

Email: Rajae.chakra@gmail.com

ORCID: <https://orcid.org/0009-0001-8738-2704>

Oulamine Ayoub, Laboratory of Studies and Applied Research in Economics (LERASE), Faculty of Legal Economic and Social Sciences of AGADIR, University IBN ZOHR, Morocco.

Email: ayoub.oulamine@edu.uiz.ac.ma

ORCID: <https://orcid.org/0000-0001-6827-310X>

Bennani Fatima Zahra, Research Laboratory in Economics, Management Business Management, Hassan I University, Settat, Morocco.

Email: Bennani.fsjes@gmail.com

ORCID: <https://orcid.org/0009-0005-1628-4903>

Publisher's Note: *The opinions, statements, and data presented in all publications are solely those of the individual author(s) and contributors and do not reflect the views of Universitepark, EDUPIJ, and/or the editor(s). Universitepark, the Journal, and/or the editor(s) accept no responsibility for any harm or damage to persons or property arising from the use of ideas, methods, instructions, or products mentioned in the content.*
