

A Merged Two-Dimensional Approach to Evaluating the Efficient Performance of Non-Financial Companies Listed on the Regional Securities Exchange SA (BRVM)

Amon Aniké DEH¹, & Kéba Aly GOUDIABY¹

¹ Department of Economics and Management, Assane Seck University, Ziguinchor, Senegal

Correspondence: Amon Aniké DEH, Department of Economics and Management, Assane Seck University, Ziguinchor, Senegal / LARSES-LFEFE-LAREM / E-mail: aa.d6@univ-zig.sn

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Abstract

The objective of this research is to study the internal and external factors that explain the efficient performance of companies listed on the BRVM using a merged two-dimensional approach. Efficient performance refers to the combination of high "financial performance and stock market performance". The results of the binomial logistic regression on a panel of companies over the periods 2011 to 2020 show that only internal factors, namely the company's flexibility in terms of financial communication, its ability to increase its intrinsic performance, its debt policy and its size, have a significant effect on the efficient performance of these companies. These results could not only serve as a frame of reference for investors to make optimal decisions (maximising both return on equity and capital gains on share sales), but also influence the management style of companies seeking to improve their attractiveness and reputation on the financial markets.

Keywords: Efficient performance, financial performance, stock market performance, investors, BRVM

JEL Classification : L25, M19, O16, G15

1. Introduction

In today's rapidly changing world, the financial system is becoming increasingly open thanks to the development of new communication and information technologies. This facilitates the free movement of capital between different economies, creating a situation of interdependence. Against this backdrop, companies face fierce competition at both national and international level. They therefore have to innovate constantly by making investments that require considerable financial resources from investors. They then have the choice of turning to banks or the market. Given the constraints and limitations of bank financing, some companies are turning to the market by listing their shares on the stock exchange. However, investors are increasingly interested in maximising shareholder value. For companies to benefit from their funds, they must inspire confidence and perform well. The notion of performance is polysemous, as it incorporates several criteria, leading Otley (1999) to say that performance is an ambiguous term that has no single definition. The evaluation of corporate performance remains an unsaturated field of research in the economic and social sciences. In the scientific literature, several theoretical and empirical studies have been carried out on the factors that explain this concept, such as those by (Andre and Schiell, 2004; Bauer et al, 2008; Gompers et al, 2003; Sogbossi Bocco, 2010). Within the WAEMU, the decision to create a regional financial market was taken on 17 December 1993, leading to the creation of the Regional Stock Exchange in Cotonou (Benin) in 1996. Despite its twenty-seven years of existence and its regional nature (a common stock exchange for eight countries), the number of companies listed on this stock exchange and the volume of securities traded remain very low compared with other African stock exchanges such as the Johannesburg Stock Exchange and the Nigerian Stock Exchange, which are not regional in nature. This lack of interest on the part of WAEMU investors in investing in the BRVM is due not only to a lack of stock market culture and a high level of information asymmetry, but above all to a lack of understanding of the factors that explain the performance of the companies listed there (Deh and Sall, 2021). In the literature, most researchers have used a simple, one-way calibration of performance into "good" and "bad" (Palepu, 1986, Agrawal & Jaffe, 2003, Powell & Yawson, 2007). For listed companies, the work putting forward this simplified classification of performance has consisted of analysing either the determinants of financial performance, as in

the work of (Deh, 2021; Matar & Eneizan, 2019; Khan et al, 2015), or the determinants of stock market performance, as in the work of Murcia (2014), Boachie et al (2016), Mansali, and Labegorre (2010). However, investors who buy shares on the stock market may be interested in a return on their capital in the form of dividends, which requires a good financial performance of the company, but they may also be interested in a capital gain if they sell all or part of their shares, which requires a good stock market performance. It is therefore necessary to adopt a merged two-dimensional approach to performance, which we will call efficient performance, to characterise companies whose financial and stock market performances are greater than or equal to the median performances. Accordingly, we pose the following central research question: What factors explain the efficient performance of companies listed on the BRVM? This central question leads to the following specific questions:

What internal factors influence the efficient performance of companies listed on the BRVM? What external factors influence this efficient performance? From a scientific point of view, this research will enrich the theoretical and empirical literature on the concept of performance by taking a global approach. From a managerial point of view, knowledge of these factors will enable managers not only to assess their level of performance in relation to other listed companies, but also to implement strategies and make the best decisions to make their company more attractive on the financial market. This knowledge will provide investors with benchmarks that could influence their investment decisions at BRVM, by reducing information asymmetry and improving their stock market culture. This could contribute to the dynamism of this regional stock exchange. Our work will be divided into three sections:

In the first section, we will review the literature, in the second section, we will describe the data and methodology, and finally, we will conclude with the results and discussions in the third section.

2. Literature Review

In this section, we will explain the theoretical framework of our research, summarize the empirical studies and formulate the research hypotheses.

2.1 Review of Theoretical Literature

The theoretical scope of the concept of performance is vast. According to Issor (2017), the concept can be found in physics, economics, management, politics, sport and more. Even in management science, its definition is polysemous and ambiguous. Several approaches exist, ranging from classical organizational theories (Taylor, 1911; Fayol, 1916), the human relations school (Elton, 1927; Mc Gregor, 1960; and Maslow, 1954), the organizational approach (Morin et al, 1994), strategic and competitive approaches (Sogbossi Bocco, 2010), the human approach (Descarpentries, 2007) to the financial and stock market approach (Walsh, 1987; Vogel, 2005; Ruthenberg, 2011). Although all these approaches have different conceptions of performance, they are nonetheless complementary when it comes to achieving the company's strategic objectives. Our theoretical framework is based on several theories, including shareholder value maximization, signal theory, agency theory and stakeholder theory. However, performance, whether financial or stock market, is first and foremost a matter of maximizing shareholder value, before maximizing partnership value. The fundamental difference between these two types of performance (financial and stock market) lies more in their orientation and horizon. According to Hoskinson et al (2013), financial performance is more focused on the past, while stock market performance is more oriented towards the future. For Albertini (2013), financial performance is a meta-construct that focuses on the firm's profitability variable. The author distinguishes between accounting profitability and stock market profitability, arguing that for financial performance, accounting measures (ROE, ROI, etc.) are the most widely used. Lubatkin and Shrieves (1986), on the other hand, use the share price as the only indicator capable of measuring a firm's stock market performance, with the managerial objective of maximizing shareholder wealth. Still analyzing the difference between these two categories of performance, other authors such as Tunyi et al (2019) go even further, arguing that companies that are more focused on financial performance are myopic (myopia being a visual pathology that results in a problem of vision for distant objects) while those focused on stock market performance are hyperopic (hyperopia being a visual pathology that results in a problem of vision for nearby elements). This myopia-hyperopia difference shows that managers who focus on financial performance are more focused on the short term, whereas those who focus on stock market performance are more focused on the long term. However, in our view, the ideal situation would be to have no visual pathology and to focus on both performances in order to optimise shareholder value (good financial profitability and good stock market profitability). We will now examine the internal and external factors likely to influence this dual performance, known as the "efficient performance" of the companies in our sample.

2.2 Internal and External Determinants of Efficient Performance

In the context of our work, we will focus on the determinants of financial and stock market performance derived

from empirical studies, even if we must acknowledge the predominance of studies on the first category of performance.

2.2.1 Internal Factors and Efficient Performance

Internal factors are more closely linked to managerial variables. Several studies have shown a significant influence of these factors on the company's financial or stock market performance (Wamba et al, 2020; Kim et al, 2021; Deh, 2021). Thus, we can formulate the following hypothesis:

H1: Internal factors have a significant influence on efficient performance.

The internal factors studied are the company's operating profitability rate, financial communication, level of liquidity, indebtedness and the size effect.

- *Operating return and efficient performance*

Operating performance is linked to return on invested capital. It measures the company's intrinsic performance, i.e. the profitability of its operating activities, which must be positive and sufficient to minimise economic and financial risks. An improvement in operating performance is likely to increase the company's self-financing capacity, giving it financial security. This variable is also widely used as having an impact on the risk of financial failure. Companies with high operational performance minimise operational risk and ensure their long-term survival. Some studies have even shown that the risk of financial failure increases when operating performance decreases and decreases when operating performance improves (Keasy and Mc Guinness 1990, Blazy, Chartely et al, 1993; Claveau et al, 2016). A company that manages to generate a net operating margin with all the resources used to finance its investments and working capital requirements is more likely to create wealth for its shareholders through the distribution of dividends and the realisation of capital gains in the event of share sales.

H1.1: Increasing operational efficiency has a positive impact on efficient performance.

- *Financial communication and efficient performance*

Financial communication via the Internet is today the main channel for disseminating information for both listed and unlisted companies. The relationship between a firm's communication and its performance has its theoretical underpinnings in signal theory, agency theory and stakeholder theory. By communicating, the company sends a signal to shareholders, financial creditors and investors. This reduces information asymmetry and agency costs between principal and agent. With easy access to information about the company, share value rises due to strong investor interest. Communication is also a source of discipline and motivation for the executive, who will tend to make the best decisions likely to increase both shareholder profitability and the company's market capitalization. Furthermore, according to stakeholder theory, the publication of information on a company's social responsibility improves its performance by enhancing its reputation among stakeholders. The work of Saada et al (2010) and Ory and Petitjean (2014) confirms this relationship between corporate financial communication and corporate performance.

H1.2: According to signal and stakeholder theory, financial communication has a positive influence on efficient performance

- *Liquidity and efficient performance*

Holding cash is essential for a company to meet its current expenditure and ensure its normal operation. According to the Keynesian liquidity preference approach, a company's ability to hold a certain stock of cash constitutes a barrier to protect itself against imbalances between incoming and outgoing flows of funds. Other authors also adopt this point of view (Back et al, 1996). Thus, a situation of illiquidity weakens the company and increases its risk of financial distress. Moreover, certain rating agencies, such as Moody's, note that liquidity is fundamental to the proper functioning of a company and consider that a company should hold net cash equivalent to at least 2 to 7% of pre-tax sales. Some authors, such as Kherrazi and Ahsina (2016), have used liquidity to measure a company's risk of financial failure. Thus, a liquid company is one that avoids not only short-term bank loans, which are costly for the company, but also the possibility of generating financial income through good management of this cash through short-term investments. A high level of liquidity is a guarantee that the company is running smoothly, and therefore a guarantee of high financial profitability and a good signal for stakeholders, increasing demand for the share on the market and therefore its stock market value.

H1.2: liquidity has a positive impact on efficient performance

- *Debt effect and efficient performance*

It measures the company's ability to repay its financial debt through good economic performance. When the

gross operating margin, i.e. the difference between operating income and operating expenses, falls relative to the level of debt, the company may become insolvent. Insolvency can lead to poor performance, or even default on payment through legal proceedings that may be initiated by lenders. Thus, a high level of debt relative to the company's EBITDA increases operational and financial risk. Liang and Wu (2003) use cash flows and consider that a default situation exists when cash flows are low. Some authors, such as Ben Jabeur (2011) and Boubakary (2020), argue that a high level of debt combined with a low repayment capacity deteriorates the company's performance. Low repayment capacity increases operational and financial risk, which reduces profitability and share value on the market.

H1.4: A deterioration in debt repayment capacity adversely affects efficient performance

- *Company size and efficient performance*

Several studies have shown the impact of size on performance. According to Honjo (2000), there is an inverse relationship between firm size and business paralysis. Smaller firms are more likely to fail than larger ones, because their financial resources are often limited and they lack a broad and diversified connection with the market. There is therefore a strong link between company size and the probability of failure (Lantin 2009, Paget-Blanc 2003). The size criterion provides information on a company's ability to cope with difficulties, and to withstand external shocks or economic downturns. In a Standard & Poor's document (2008), the rating agency explains that company size tends to be significantly correlated with rating level. The larger the company, the lower the probability of default, and the higher the rating. Larger companies are likely to capture more market share through colossal investments. They improve their performance through their strong ability to diversify and adopt powerful management tools such as dashboards, strategic plans and other innovative tools. Furthermore, size is a guarantee of security for financial creditors, who will tend to grant credit easily to the firm at preferential interest rates. This interest rate differential helps to minimize financial risk, improve financial profitability and generate positive leverage. Furthermore, the guarantee and notoriety generated by the company's size effect positively influence the market behavior of investors in their demand for shares. Moreover, Chorda and Perales (2005) find that large firms not only have lower debt ratios, but also higher profitability and productivity than small firms.

H1.5: Firm size positively influences efficient performance

2.2.2 External Factors and Efficient Performance

External factors generally refer to macroeconomic indicators. Several works have shown a significant influence of these indicators on the performance of firms through the channel of economic growth, with the supply-demand pair in particular (Omri, 2003; Amtiran et al, 2017; Egbunike and Okereoketi, 2018; Tiwari et al, 2022). Thus, we can formulate the following hypothesis:

H2: External factors have a significant influence on efficient performance

The external factors we will analyze in our study are: the inflation rate, the price of raw materials such as oil; and the rate of return of the BRVM stock market index.

- *The inflation rate and efficient performance*

Unanticipated increases in the rate of inflation are expected to have a negative impact on the performance of banks and companies through increased costs due to a non-optimal adjustment of interest rates. Inflation reduces savings and discourages lending and borrowing because of high interest rates and the unprofitability of what could be done with the loan. Moreover, the work of Ndjokou and Tsopmo (2017) has shown that inflation at a certain threshold becomes counterproductive for economic agents. Yet firms need to finance themselves at low, optimal interest rates to adequately cover their investment and operating needs, in order to be able to create wealth for shareholders. On the other hand, a high inflation rate reduces demand, which will result in a slowdown in economic activity and therefore a drop in productivity, corporate profitability and market demand for securities. Moreover, Nouaili et al (2015), find a negative impact of the inflation rate on the performance of Tunisian banks.

H2.2: The inflation rate has a negative impact on efficient performance

- *Oil price fluctuations and efficient performance*

According to fluctuation theory, there is a relationship between commodity prices and certain macroeconomic aggregates, such as GDP growth rates. An increase in the price of oil could influence the performance of companies heavily dependent on this raw material. In fact, the influence could be negative for industrial companies, which are affected by the increase in input prices and are unable to pass it on proportionally to the

final product, due to the state of competition, the nature of the product and government constraints limiting prices for basic necessities. On the other hand, the influence would be positive for companies in the oil and gas sector (Echchabi and Azouzi, 2017; Bagirov and Mateus, 2019). Given that most BRVM companies are dependent on this commodity and use it as an input in their production cycle, we expect the rise in the price of this commodity to have a negative impact on their profitability and therefore their performance.

H2.3: Rising oil prices have a negative impact on efficient performance

- *The growth rate of the stock market index and efficient performance*

The growth rate of the BRVM C index, as expressed by the variation in this index, has a positive impact on the performance of banks and companies. This positive impact is explained by the positive link between financial market development and economic growth. Bencivenga et al (1997) explain the positive impact of the stock market on the performance of listed companies in terms of the high liquidity of the stock market, an element that drives economic growth. For their part, Greenwood and Smith (1997) explain that a dynamic stock market boosts economic growth by reducing the cost of raising savings. This low-cost fund-raising increases productive investment.

H2.4: BRVM C index growth rate positively influences efficient performance

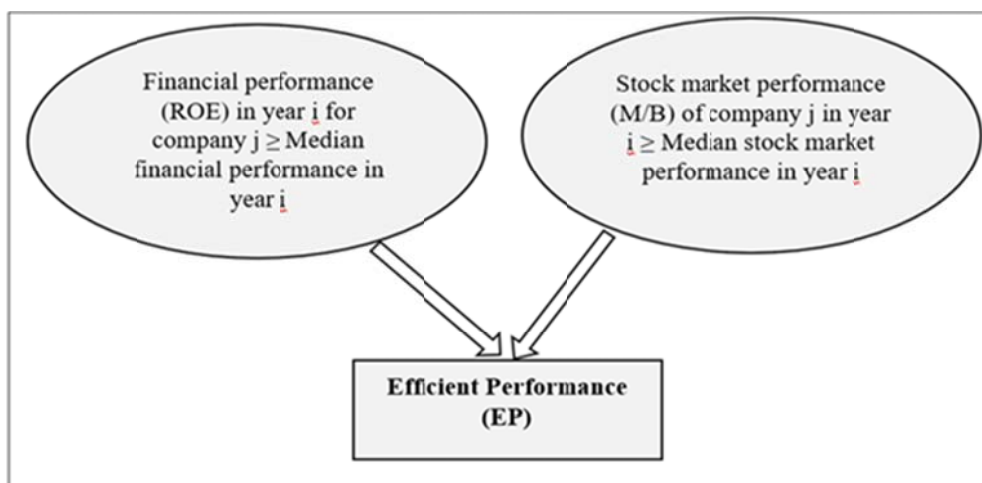
3. Data and Methodology

Our study covers twenty-two (22) companies listed on the BRVM from 2011 to 2020. We did not include companies in the finance sector because of differences in certain financial indicators. We also excluded other non-financial companies due to data unavailability or outliers. Secondary data relating to financial statements come from the BRVM database. Macroeconomic data come from the BCEAO and Investing databases. Our epistemological position is positivism with hypothetico-deductive reasoning and a quantitative approach.

3.1 The Dependent Variable

The dependent variable of our work is the efficient performance, which is a binary variable taking the value 1 when the financial and stock market performances of the company are both greater than or equal to the median values of each of these performances; 0 in the opposite case. Financial performance is measured by return on equity, which is the return on capital invested by shareholders (ratio between net profit and shareholders' equity). This variable measures each franc of profit generated per franc of capital invested. Several researchers have used the same variable to measure financial performance. These include Dkhili et al (2014), Mbaduet et al (2019), Kim et al (2021), Deh (2021), Matar and Enezian (2019). For stock market performance, we will use the Market to book variable, which is equal to the market capitalisation divided by the book value of equity. Some authors have used this variable to measure the stock market performance of banks or companies. This is the case of Omri 2003 and Ruthenberg et al (2011). Thus, a company has an efficient performance if and only if it combines a good financial performance with a good stock market performance. In other words, if both performances are greater than or equal to the median performances.

Table 1. Efficient performance framework



Source: the author

Table 1 above shows that efficient performance is a combination of high financial and stock market performance.

In other words, higher than median performance.

Table 2. Sample medians from 2011 to 2020

Years	Median	
	ROE	M/B
2011	14,18%	1,8574
2012	22,15%	1,9236
2013	17,01%	3,2399
2014	17,13%	3,3118
2015	18,15%	4,588
2016	18,08%	3,9317
2017	16,31%	1,8686
2018	13,96%	1,5729
2019	17,74%	0,981
2020	19,43%	0,8478

Source: The Author, Excel calculation

Table 2 above shows the median financial and stock market performance for each year. In 2011, the median financial performance was 14.18%, while the median stock market performance was 1.857.

3.2 Independent Variables

We need to distinguish between variables linked to internal factors, on the one hand, and those linked to external factors, on the other. For the former, we have operating profitability (OR), which is measured by the ratio of operating profit to economic assets. This measure was used in the work of Blazy et al, (1993); Claveau et al, (2016). For the measure of financial communication (FC), we calculated a score based on items taken from several empirical works (Boubaker et al, 2011; Saada et al, 2013; Ory and Petitjean, 2014). We have identified 10 preponderant items for financial information and 8 for non-financial information. However, from 2019, the number of items will increase from 10 to 14 for financial information, to take account of the requirement to present financial statements in accordance with IFRS imposed by the WAEMU Financial Markets Authority. Details of these items are summarised in the table below:

Table 3. Financial communication items on the Internet

Financial information items	Non-financial information items
<ul style="list-style-type: none"> ▪ Website accessibility ▪ Disclosure annual financial report ▪ Publication of key figures <p>Availability of financial statements on the BRVM website</p> <ul style="list-style-type: none"> ▪ Balance sheet ▪ Income statement ▪ Cash flow statement ▪ Notes in appendices ▪ Readability of financial statements ▪ Certification of financial statements ▪ Dividend disclosure <p>IFRS presentation from 2019</p> <ul style="list-style-type: none"> ▪ Balance Sheet ▪ Income Statement ▪ Cash flow statement ▪ Notes in appendices 	<ul style="list-style-type: none"> ▪ Presentation of objectives and missions ▪ Information on the composition of the Board of Directors ▪ Workforce information ▪ Environmental information ▪ Information on competitive position ▪ Outlook information ▪ Corporate responsibility disclosure ▪ Disclosure of environmental liability

The financial communication index for year k for company i is the ratio between the total score for year k obtained by company i and the total number of items. Knowing that the score for year k for company i , is obtained by the sum of the points of the items (1 point if the item is available; 0 otherwise) obtained by company i . The liquidity variable (L) is measured by the ratio of net cash to short-term debt. It was also used in the work of Kherrazi and Ahsina (2016). For the debt effect variable (DE), it is measured by the ratio of financial debt to gross operating margin. Firm size (S) is measured by the neperian logarithm of total assets. This variable has been used in the work of Deh (2023), Mbaduet et al (2019), Dkhili et al (2014) and Rachdi and El Gaied (2009). For external factors, we have, among other variables, the Inflation Rate (IR), the Oil Price Growth Rate ($OPGR$) and the BRVM Composite Stock Index Growth Rate ($SIGR$). These external factors have also been used in several works including those by Ndjokou and Tsopmo (2017), Echchabi and Azouzi (2017), Bagirov and Mateus (2019).

3.3 Analytys Model

Most of the work on the explanatory factors of company performance has been based on OLS models, random or fixed effects models and GMM models. However, in these studies, the variable explained was either financial performance, and/or stock market performance, but in a disaggregated way. In our study, however, this variable is aggregated (the fusion of the two performances). Thus, this endogenous variable becomes binary and explains the use of a logit model. This type of logit model has been used in several works, including those by Levy et al (2021), Tunyi et al (2019) and Boubaker and Hamza (2014). In our work, we wish to study a response variable Y (efficient performance) through explanatory variables X (operating rate of return, financial communication, liquidity, debt effect, firm size, inflation rate, oil price growth rate and BRVM C index growth rate).

$$P(Y = 1/X) = F(\beta_0 + \beta_p X_p)$$

This will give us:

$$P(EP = X) = F(\beta_0 + \beta_1 OR + \beta_2 FC + \beta_3 L + \beta_4 DE + \beta_5 S + \beta_6 IR + \beta_7 OPGR + \beta_8 SIGR + \epsilon_i)$$

With Y the variable to be explained and is binomial taking the value 1 if efficient performance; 0 otherwise. X: the explanatory variables, β_0 the constant, β_1 to β_8 the parameters to be estimated and ϵ_i which is the error term.

4. Results

We first present descriptive statistics, the correlation matrix, the variance inflation factor and a univariate analysis, before concluding with the results of binary logistic regression.

Table 4. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Median
EP	220	0.355	0.479	0	1	0
OR	220	0.114	0.625	-4.436	2.754	0.111
FC	220	0.504	0.237	0.056	1	0.444
L	220	0.115	0.131	0	0.644	0.066
DE	220	1.183	2.355	-6.612	20.014	0.684
S	220	24.668	1.436	18.885	28.271	24.721
IR	220	0.015	0.013	0.004	0.049	0.01
OPGR	220	0.008	0.301	-0.621	0.509	0.035
SIGR	220	0.001	0.203	-0.347	0.393	-0.052

Source: The author

The descriptive statistics table [Table 4] shows that the operating return is 11.4%, with a minimum of -443.6% and a maximum of 275.4%. Average liquidity is 11.5%, with a minimum of 0% and a maximum of 64.4%. The minimum number of directors is 3 (Movis CI) and a maximum of 12 (Bollore Transport CI). The average inflation rate is 1.5%, with a minimum of 0.4% and a maximum of 4.9%. The average financial communication index is 50.40%, with a minimum of 5.6% and a maximum of 100% for SONATEL SA.

Tableau n°5 : Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) EP	1.000								
(2) OR	0.187*	1.000							
	(0.005)								
(3) FC	0.473*	0.201*	1.000						
	(0.000)	(0.003)							
(4) L	-0.021	-0.015	-0.149*	1.000					
	(0.758)	(0.825)	(0.027)						
(5) DE	-0.089	0.034	-0.037	-0.095	1.000				
	(0.188)	(0.621)	(0.580)	(0.161)					
(6) S	0.343*	-0.026	0.528*	-0.380*	0.087	1.000			
	(0.000)	(0.697)	(0.000)	(0.000)	(0.198)				
(7) IR	0.006	0.110	0.002	-0.009	0.054	-0.082	1.000		
	(0.935)	(0.104)	(0.976)	(0.893)	(0.423)	(0.228)			
(8) OPGR	0.032	-0.057	-0.037	0.002	-0.071	-0.025	0.167*	1.000	
	(0.639)	(0.402)	(0.585)	(0.981)	(0.294)	(0.709)	(0.013)		
(9) SIGR	-0.011	0.164*	-0.045	-0.024	0.043	-0.042	0.120	-0.195*	1.000
	(0.876)	(0.015)	(0.502)	(0.722)	(0.530)	(0.531)	(0.077)	(0.004)	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: The author

Analysis of the Pairwise correlation at the 5% threshold [Table 5] reveals the low correlation between our variables, as the coefficients are all below 0.8. On the other hand, there is a positive correlation between operating performance and efficient performance.

Table 6. Variance inflation factor

	VIF	1/VIF
S	1.671	0.598
FC	1.52	0.658
L	1.184	0.845
OR	1.116	0.896
SIGR	1.097	0.912
OPGR	1.091	0.916
IR	1.079	0.926
DE	1.036	0.965
Mean VIF	1.224	

The table of variance inflation factors also shows the absence of multi-collinearity between our variables, since none of the VIFs exceeds the threshold of 5. Moreover, the average of these VIFs is less than 2 (Chatterjee et al, 2000). Following the multi-collinearity analysis, we will carry out a univariate analysis to verify whether or not there is an association between company size and efficient performance. Size is an important criterion in the classification of companies listed on the stock exchange, with a minimum capital requirement for inclusion in one of the three share compartments of the BRVM (Prestige, Principal and Growth). For the purposes of our study, we have divided companies into two compartments based on their size. Compartment A will be made up of large companies (those whose total assets are greater than or equal to the average total assets) and Compartment B will be made up of small companies (those whose total assets are less than the average total assets).

Table 7. Inter-subject factors

Performance	Number of Observations	Percentage
Compartment A	104	47,27 %
Compartment B	116	52,73 %

Table 7 above shows that 52.73% of the companies in our sample are in compartment B, compared with 47.27% in compartment A. According to this classification, the majority of companies in our sample are small. Furthermore, analysis of the test for equality of variances shows that the variances are not homogeneous, since the P-value associated with the Levene statistic is 0.000, which is below the significance threshold of 5%. However, the alternative statistics of Welch and Brown-Forsythe (P-value of 0.000); allow us to conclude that there is a significant association between the size of BRVM-listed companies and their efficient performance.

Table 8. Post-Hoc analysis with Tahmane comparison

(I) Compartment	(J) Compartment	Difference in averages (I-J)	Standard errors	Sig. ^b
Compartment A	Compartment B	0,258*	0,063	0,000
Compartment B	Compartment A	-0,258*	0,063	0,000

Pairwise comparison table 8 above shows that there is a difference in mean of 0.258 between the two sub-funds, which is significant at the 1% level. Size is therefore a factor in both financial and stock market performance. Companies with a lot of assets are therefore more likely to perform efficiently. We will now analyse the results of the binary logistic regression.

Table 9. Binary logistic regression results

EP	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
OR	1.112	0.413	2.69	0.007	0.303	1.922	***
FC	3.571	0.925	3.86	0	1.758	5.383	***
L	2.235	1.708	1.31	0.191	-1.114	5.583	
DE	-0.157	0.078	-2.01	0.045	-0.31	-0.004	**
S	0.479	0.188	2.55	0.011	0.11	0.848	**
IR	-2.488	14.049	-0.18	0.859	-30.024	25.049	
OPGR	0.433	0.597	0.73	0.468	-0.737	1.604	
SIGR	-0.118	0.841	-0.14	0.888	-1.766	1.529	
Constant	-14.58	4.599	-3.17	0.002	-23.594	-5.566	***
Mean dependent var	0.355		SD dependent var	0.479			
Pseudo r-squared	0.238		Number of obs	220			

Chi-square	38.827	Prob > chi2	0.000
Akaike crit. (AIC)	235.928	Bayesian crit. (BIC)	266.470

*** $p < .01$, ** $p < .05$, * $p < .1$

Analysis of the results of the binary logistic regression [Table 9], shows that the significant variables are: operating rate of return, financial communication, debt effect and company size. The first two are significant at the 1% level, while the last two are significant at the 5% level.

5. Discussion

Our results show that efficient performance is explained more by internal factors at the expense of macroeconomic factors, with a significant impact from operating performance, financial communication, the debt effect and company size. The positive effect of operating performance is in line with our hypothesis that companies with a high rate of return on assets are likely to have both a good financial performance and a good stock market performance. As for the causal relationship between operating performance and return on equity, this can be explained by the fact that an increase in economic profitability is a guarantee of control over operating activity, while a reduction in operating risk is a guarantee of the company's sustainability. In terms of impact on stock market performance, a good rate of return on assets reassures investors, who anticipate a low risk of default by the company, and therefore the possibility of benefiting from both dividends and capital gains. This will lead to an increase in demand and therefore an increase in share value. Our results are in line with those of Kim (2021) and Deh (2021), who found a positive impact of this variable on financial performance. For the variable financial communication, it significantly influences at the 1% threshold with a positive effect the efficient performance of companies listed on the BRVM. This result is in line with our hypothesis that financial communication improves firm performance through the reduction of information asymmetry, the reduction of agency costs, the entrenchment and reinforcement of managerial discipline, easier access to financing at preferential rates, the improvement of the company's image and investor attraction. Moreover, the work of Ory and Petitjean (2014), Saada et al (2010); confirms this causal relationship between this communication and firm performance. The effect of debt on efficient performance is negative at the 5% threshold. A 1% increase in the ratio of debt to EBITDA results in a 15.7% reduction in performance. This is in line with the hypothesis that the greater the ratio of financial debt to EBITDA, the greater the reduction in the company's ability to repay its debts, while at the same time increasing the burden of financial charges through new borrowings. Such a scenario increases both operational and financial risk. Indeed, when excess debt exceeds excess repayment capacity, this not only creates a solvency problem, but also a "sledgehammer effect" (when the cost of this additional debt is higher than the additional economic performance), negatively impacting return on equity with an increase in the cost of debt, and sending out the wrong signal to lenders and investors on the market. Moreover, the work of Mbaduet et al (2019) shows a negative impact of indebtedness on the financial performance of companies in Cameroon. For the company size variable, it positively influences the efficient performance of BRVM-listed companies at the 1% threshold. A 1% increase in company assets leads to a 49.90% increase in efficient performance. This is in line with our hypothesis that large companies are likely to achieve both a good return on equity, but also an excess of market value over the firm's book value. Indeed, companies with a large number of assets are likely to take much greater market share due to their size, while at the same time benefiting from economies of scale (Rachdi and El Gaied, 2009). Furthermore, company size affects the return on equity by minimizing the cost of financing. Indeed, banks tend to lower the cost of credit for companies with a large number of assets, as this is a guarantee and therefore a reassurance for the bank. This ability to raise funds at lower interest rates than smaller companies reduce financial risk while maximizing their capacity to cover their investment and operating needs. In addition, the adoption of advanced, complex and effective management control tools is more common in larger companies. A study by Speckbacher and Wentges (2007) shows that companies with over 100 employees use a range of strategic management tools, such as the Balanced Scorecard. Adopting these different tools puts the company on a constant strategic watch, enabling it to improve its management, which has a positive impact on its performance. The larger the company, the lower the cost of capital, the higher its profile, influencing its rating by the rating agencies and sending out a very good signal to investors, who will tend to want to buy the stock. This increase in demand for the share relative to supply leads to an increase in its stock market value.

6. Conclusion

Our article, which looked at the factors that explain the efficient performance of companies listed on the BRVM, showed that this performance is more closely linked to factors internal to the firm, to the detriment of external factors. Indeed, four of the five managerial variables are significant (operating return rate, financial communication index, debt effect and firm size), while none of the macroeconomic variables is significant. This

shows the importance and predominance of the positive impact of good management for better financial and stock market performance. Thus, even in difficult macroeconomic situations, competent managers are likely to ensure good firm performance through their flexibility and optimal decision-making. This is in line with the findings of Wagner (1994), Evina (2008), Ndjambou and Sassine (2014) and Boukary et al (2017); on the influence of the manager's skills, power style, vision, creativity, psychological profile on firm performance. Company managers will need to implement a number of strategies, from adopting innovative management tools to improving operating profitability. They must also set up a recurrent and up-to-date financial communication system to reinforce their reputation among stakeholders. They will need to have a flexible financial policy, controlling the perverse effect of indebtedness to minimize financial risk. They must ensure a certain asset size for the company through productive investment and good working capital management to maximize shareholder value. Furthermore, the significance of the constant at the 1% threshold in Table 9, shows that there are other variables that could explain the efficient performance of BRVM-listed companies and that were not taken into account in our study. In terms of managerial implications, this work could enable investors interested both in maximising the profitability of their invested funds through dividends and in capital gains in the event of the sale of their property title to make the best investment choices. This will also reduce information asymmetry and encourage more investment. In addition, this work could be useful to the managers of companies listed on the BRVM in being able to put in place the best strategies to perform better (better management of invested capital and operational risk, better financial and non-financial communication, better management of debt, etc.). The main limitation of this study is the size of the sample (22 companies). However, combined with the number of years (10 years), the results are statistically acceptable, since we will have two hundred and twenty observations (220 observations). In terms of future research, it would be interesting to carry out a complementary study analysing the impact of the firm's CSR policy, the crisis effect and the gender of the manager on this efficient performance.

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Authors contributions

Dr. DEH contributed to the formulation of the subject, the elaboration of the problematic, the framing of the theoretical and empirical literature review, the data collection, the methodology, the choice of the econometric model as well as the discussion of the results.

Dr. GOUDIABY contributed to strengthening the literature review, developing the methodology, cleaning up the database, econometric processing and strengthening the discussion.

We read and unanimously approved the final version of the manuscript.

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