The Effects of Executives' Agility Decision-Making
in COVID-19 Pandemic Period on Companies' Performance

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Abstract:

Purpose: *The main objective of this article is to study the effect of the aglity decision-making of managers on performance of the company during the COVID-19 pandemic period.*

Design/Methodology/Approach: *The empirical tests were carried out on panel data of companies belonging to the FTSE 100 (15 institutions for 9 years means 15*9=135 observations). In order to address this research problem, we formulated a set of hypotheses regarding the influence of compensation, board size, the presence of women board independence and agility in decision making on performance.*

Findings: *The results of the empirical tests indicate that the size of compensation has a positive effect on performance. Conversely, the empirical tests show that board size and dual function have a positive effect on performance and dual function had negative effects on performance. Finally, the results relating to agiity in decision-making variable shows a positive effects (0.056) and is significant at the 1% level (t-student= 0.000) for the ROE and ROA model.*

Practical Implications: *The board of directors becomes responsible for controlling the way in which the management manages the activities of the company. However, in a context where the stakes are so high, the board of directors must follow more closely the important decisions taken by the management, to remain in regular contact with the latter and to ensure that a process is been followed for making important decisions, even in an emergency situation like the pandemic crisis.*

Originality/value: *The contribution of the article lies in its originality. Thus, the article has methodological limitations. We have analysed the performance through descriptive statistics and graphical analysis. While, we can apply other measures of performance such as Alpha coefficient. This study opens up other research perspectives for researchers interested in this topic, in particular the application of the aforementioned performance measurement ratios as well as the analysis of performance in post-crisis periods.*

Keywords: *Agility Decision-making, Performance, Compensation, Board of Directors, Duality, Gender, COVID-19, ROA, ROE.*

JEL classification: *G0, G01.*

Paper Type: *Research study*

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1. Introduction

The economic impact of the health crisis could lead to fears of widespread default. However, the scope of the conventional and unconventional measures taken to date by the European Central Bank and other regulatory bodies make this unlikely. On the other hand, the risk of bank insolvency is real.

The COVID-19 crisis will reveal the effectiveness of the post-2008 Basel measures. Are the banks sufficiently capitalised? While, an answer could only be givening at the end of this crisis, with a mandatory capital adequacy ratio of 15 on average, French banks are undoubtedly more resilient and robust than in 2008. However, we do not know how long the pandemic will last or what health measures will be taken against it. A lasting deterioration in the economy would effectively send banks into a deficit spiral.

The 50 FTSE 100 companies have interrupted their usual reporting schedules to make announcements about the impact of the virus on their businesses. Not surprisingly, these companies operate in some of the most affected sectors: travel and leisure, house building and general distribution. The majority of FTSE 100 companies used planned announcements to provide an update on COVID-19. Companies with September and December year-ends and with operations or a strong presence in China were among the first to point to the increased uncertainty and likely impact on their business in February.

The remaining FTSE 100 companies have not yet made any announcements regarding the impact of COVID-19 or provided any market updates on the subject. In particular, companies that expected a significant positive impact, or in some case a limited impact, have apparently chosen to wait for greater visibility. We note that the financial situation of financial institutions is not the same. Ghaeli (2017) advances that banking system inificiencies, for exemple, were primarily attributing to country-specific circonstances.

For all those that did communicate, whether on a planned or unplanned basis, management teams sought to calm market jitters, emphasising the strength of their long-term strategy, the robustness of their liquidity, the robust nature of their operating models and their ability to adapt quickly and deploy resources and investment if necessary. The managemeny team should be, according to Makui *et al.* (2021), like a government. The government is a leader in such crisis.

Executives are the subject of numerous financial scandals concerning the awarding of exorbitant remuneration. The 2000s saw a large increase in the number of bankruptcies of large groups. We can cite, for example, the collapse of the Enron Empire followed by WorldCom, dragging Andersen down with them. The latter, one of the Big Five, considered a reference in financial and accounting auditing, put an end to the American dream. Financial abuses have led to a loss of credibility in the

publication of results and in the role of managers in creating value. The sometimes-sluggish performance of companies, coupled with the ever-increasing remuneration of their executives, has fuelled contestation.

In view of the above-mentioned findings, we chose to question the importance of the behavioural dominance of managers on the profitability of companies. In particular, we wanted to focus on the managers of large listed companies in the banking and insurance sector (notably the FTSE100) because these companies have been the most contested and questioned in recent years regarding the remuneration of their executive directors.

We will also focus our research on the remuneration of the most senior executives of these companies. This choice can be explained by the fact that they play a key role in strategic decision-making and in the creation of value that follows financial and economic performance. This institutional and cultural anchoring seems important and scientifically interesting.

The United Kingdom is undergoing an important transition from financial core capitalism to new forms of capitalism (Morin and Rigamontti, 2002). These are characterised by a greater dispersion of corporate capital and the growing influence of institutional and foreign investors, particularly under the impact of globalisation. This is all the more important as little work has been done on this subject in a non-Anglo-Saxon context (Alcouffe, 2004).

While several studies have looked at the influence of behavioural dominance on the performance of firms, we have chosen to adopt a different perspective here. In particular, we wish to understand how the behavioural dominance of managers is been formed by studying its different variables. This research object could, in fact, shed light on why the behavioural dominance of managers has soared in recent times and explain the logic underlying this phenomenon.

Thus, Amara and Ncib (2021) identify that managerial behavioural dominance has an effect on the financial and economic performance of UK FTSE100 listed companies in the banking and insurance sector.

Several theoretical fields have focused on the behavioural dominance of managers. We can contrast, in a caricatured way, two groups of theories that give a respectively passive or active role to managers in the formation of their remuneration and in their relations with capital providers.

The agency theory, which is the main theoretical basis of our work (Jensen and Meckling, 1976), is based on the hypothesis of the existence of conflicts of interest between the manager, an opportunist wishing to maximise his personal interest, and the shareholder wishing to optimise the financial profitability of his investments (Boyer, 2005).

Agency theory approaches the shareholder-manager relationship from a contractual perspective (Fama and Jensen, 1983a). The formalisation, by contract, of the reciprocal obligations of the two parties makes it possible to frame the expected results, i.e. a performance. However, as it is not possible to guarantee total control of managers, we note an incompleteness of the contracts, which thus allows the exercise of discretionary power by managers, particularly with regard to the amount of their remuneration.

Control mechanisms for man In the presence of efficient control mechanisms, the discretionary space of the manager would therefore be reduced and the shareholders would be protected from possible divergences of interest and forms of opportunism. However, practice and several empirical studies have highlighted the difficulties of maximum control of managers by shareholders and the reopening, for the latter, of space for freedom. The theory of managerial power is also developing by the observation of the imperfect character of the control mechanisms of managers (Bebchuk and Fried, 2002).

According to managerial power theory, behavioural dominance would be a part of agency problems and not a potential instrument for solving agency problems (Bebchuk and Fried, 2003), Stern and Sagot, (2010) and entrenchment (Weil, 2014). In this respect, entrenchment theory shows how managers manage to make themselves irreplaceable, and thus retain through substantial remuneration, by developing specific assets (Dekker *et al.,* 1992; Schleifer and Vishny, 1989).

In a complementary way, tournament theory (Barget, Llorca, and Teste, 2011) reflects on the influence of competition between managers in setting their remuneration, taking into account their personal characteristics and their comparative skills.agers must therefore be introduced to regulate their actions (Rioedan, 1985).

Decision-making in a company is never a process to be taken lightly, especially in a context of the coronavirus crisis. In fact, with such period of crises, managers are facing with the obligation to decide in complex and urgent situations, the process to be following when decision-making becomes important. The potentially concomitant influence of these elements and their links will also be examining.

Our research question will therefore be as follows: *What is the effect of managers's agility in decision-making in period of corona virus pandemic on company performance?*

2. Literature Review and Development of Hypotheses

Thus, we will set out the most important behavioural and structural variables that inform the business manager's decisions. These variables concern, on the one hand, the company and mainly its size, age and ownership structure and, on the other hand,

the manager and more particularly his age, his experience in managing the company, his training, and his agility in terms of decision-making (Pekovic and Rolland (2012).

2.1 The Variable Agility in Decision- Making

The importance of the strategic role of the board of directors is been reinforcing in times of crisis when the risks for the company and its stakeholders are aggravated. In the context of the Covid-19 crisis, the board of directors should take first the responsibility for employee health and safety and financial matters in order to ensure the continuity of the business. The board of directors must also acting with prudence and vigilance, despite a difficult decision-making context. Moreover, in a "post-crisis" context, it will be important to be able to demonstrate that the board of directors has been diligent despite the crisis context.

Deffayet (2021) said that Quebecers even speak of "management skills". This is because there is no need to exercise high responsibilities to exercise leadership. Putting meaning where it is lacking, that is the primary function of the leader like what as Lacan, 2021 advance. According to Cabrelli (2021), the crisis is also an opportunity to redefine the positioning of the company, even to reinvent it

According to Gelding, (2020), the Covid-19 crisis and the massive recourse to teleworking have led to a decentralization of information. It leds consequently to a decentralization of power, and highlighted the need to adopt an agile vision for the entire organization. For the author, the company, physically decentralized during the lockdown, has realized a reality: agility is in fact a new key success factor.

Magne *et al.* (2017), advance that when the decision-maker encounters a major obstacle, he changes direction. When the signal is too weak, he evacuates it, unless an error of representation confirms his choice, through an erroneous interpretation. Human reliability studies have described it well. The art consists in avoiding two pitfalls. This type of blocking leads to change course with each signal. Between the two lies the agile decision. Cannot be improvised but depends on provisions that create the conditions.

H1: The agility in decision making in times of crisis has a positive impact on company performance.

2.2 Variable Executive Compensation

Governance theories present the executive compensation policy of companies as a governance mechanism that can steer the behaviour of the executive in a desired direction. These studies by Jensen and Murphy (1990) were the first to focus on the sensitivity of executive pay to firm performance. Furthermore, according to Grabke *et al.* (2002), executive compensation can encourage and motivate executives to

make decisions that maximise firm value and subsequently profitability, Broye and Moulin (2014), Donaldson and Davis (2019).

H2: Executive compensation has a positive effect on company performance.

2.3 Variable Gender of Leader

Inequalities in the performance of firms managed by individuals of different genders may be due to the respective sectors in which their firms operate; these inequalities are discussed by both the theory of labour market segmentation and the theory of compensatory differences Lorber and Gasponer (2016) and Landrieux-Kartochian, (2019).

H3: Gender has a positive effect on on company performance.

2.4 Duality Variable

Several studies have been carrying out to investigate the relationship between board size and firm performance. The first trend considers that the relationship between board size and performance is negative. Thus, the larger the board of directors, the less effective it is and the less the company performs. In this sense, studies in psychology show that smaller groups are better able to make good decisions.

According to Yermak (1992), companies with small boards perform are better than others. He also states that small boards are able to dismiss managers when the company becomes underperforming. Eisenberg, Sundgren and Wells (2020) analyse a sample of small and medium-sized Finnish companies and find a negative relationship between board size and performance. In the same vein, Sarkar et al (2019) consider duality as an obstacle to the board's role since it weakens control by making directors dependent on the manager and therefore a failing control system encourages managerial opportunism (Donaldson and Davis, 2019).

H4: The duality affects negatively the performance of the company.

2.5 Variable Board Size

The board of directors, as an internal governance mechanism, has a primary function of reducing the discretionary power of managers and subsequently managing the agency relationship between shareholders and managers as well as the different stakeholders of the company. Its composition should therefore allow for an efficient management of this relationship.

Indeed, a scan of the main studies on the subject of the board of directors has enabled us to identify several indices associated with the effectiveness of the control exercised by this mechanism. These are mainly the independence of the directors

sitting on the board and the various board committees, the combination of the roles of CEO and chairman, and the size of the board of directors, in accordance with the study by Mohcen *et al.* (2006), Szambelan, Jiang and Maue (2020).

H5: Board size affects negatively the performance of the company.

2.6 Variable Independence of the Board of Directors

A number of studies have developed the importance of external directors on the board of directors. Thanks to their relevant knowledge and their complementarity with the company, they play the role of independent management controllers. The significant presence of independent outside directors reinforces the degree of autonomy of the controlling entities (Rosenstein and Wyatt, 1990; Byrd and Hickman, 1992; Morck and Nakamura, 1999; Kaplan and Minton, 1994). In this respect, the degree of independence of a board of directors is closely relating to its composition (John and Senbet, 1998; Norena-Chavez and Thalassinos, 2021; 2022).

However, a reading of the financial literature has led us to conclude that the link between board independence and control effectiveness leads to contradictory conclusions. For Charreaux (1990), Charreaux (2009), and Del Vecchio (2010), as long as they can be appointed based on a proposal from the directors, they are unable to question the skills or choices of a manager who has selected them. Their neutrality is thus biased.

Entrenchment theory suggests that managers will, for example, try to paralyse the control systems of the firm by putting in place directors who will support their decisions (Pichard-Stamford, 1998). In this perspective, Alexandre and Paquerot (2000) consider that "cross-shareholdings in boards of directors are also an excellent way to paralyse the critical spirit of boards. This reciprocal exchange of services between managers does not favour the exercise of control and its efficiency.

Consequently, the absence of a hierarchical or commercial link does not necessarily guarantee the independence of directors from management. On the other hand, there are divergent views on the relationship of board members to performance. Some studies defend the hypothesis that the presence of outside directors improves performance (Rosenstein and Wyatt, 1990; Byrd and Hickman, 1992; Morck and Nakamura, 1999; Kaplan and Minton, 1994). Others, however, demonstrate the negative impact on performance. (Yermack, 2017; Adams and Mehran, 2012) concluded that increasing the percentage of independent directors does not improve firm performance.

In this way, we see the strong ambiguity in the relationship between board composition and firm performance. Should we therefore follow an agency logic regarding the weight of outsiders or rather deny their action on organisational performance? (Cucari and De Falco, 2018),

H6: The independence of the board of directors affects positively the performance of the company.

2.7 Variable Sector of Activity

The sector of activity is a control variable, which, according to several empirical studies, has a different impact depending on its impact with the other variables. In the spirit of the structuralist approach to industrial economics, performance is supposed to express the interplay of a set of variables relating to the structures of the sector and the behaviour of its firms. This is why performance analysis is usually the last part of a sector study. In the 'evolutionary' design presented in Moati (2011), performance is the subject of the penultimate part of the study, before the analysis of coping strategies, which constitute the responses of firms to performance (McMahan and Estes, 2015).

H7: During the covid 19 pandemic, the sector of activity has a negative impact on company performance.

2.8 Variable Age

The age of such a listed company,the business manager also takes into account the age of the firm when assessing applications for financing (Watanabe, 2004). The age of the firm can influence the criteria for applying for and offering credit.

However, while it is acknowledging that younger firms are the most dependent on their banker to meet their financing and development needs, the literature does not agree on the relationship between the age of the firm and the facilities obtained when negotiating the terms of the credit.

On the one hand, several authors, such as Hooks (2003), point out that younger firms have difficulties in formulating their loan applications when they do not have sufficient past financial statements. On the other hand, more experienced firms may not be able to overcome systematically these difficulties if they do not present a level of collateral commensurate with their level of risk of default (Robb and Wolken, 2002).

In the Bahrain context, Bellouma, Ben Naceur and Abdelwahab (2005) find, for the period 2012-2020 and based on a sample of 15 firms, that the age of the firm positively affects the credit supply by banks. In the light of these results, the authors argue that the age of the firm should therefore refer more to the degree of informational opacity than to the question of the presence or absence of investment opportunities.

*H8: The age of company has a positive effect on performance.*

3.   Research Methodology

In this part of the research paper, we explore the methodological approach, present the results of the study and their interpretation. The research hypotheses presented earlier will be tested through multiple regressions. To do this, we will first present the selection of the sample and the source of the data collections. Then, we focus on the measurement of the variables and the presentation of the econometric models. Finally, we present the results and their interpretations without forgetting the impact of COVID-19 on the performance based on these different variables.

3.1 The Conceptual Research Model

The conceptual research model is presented in the following scheme.
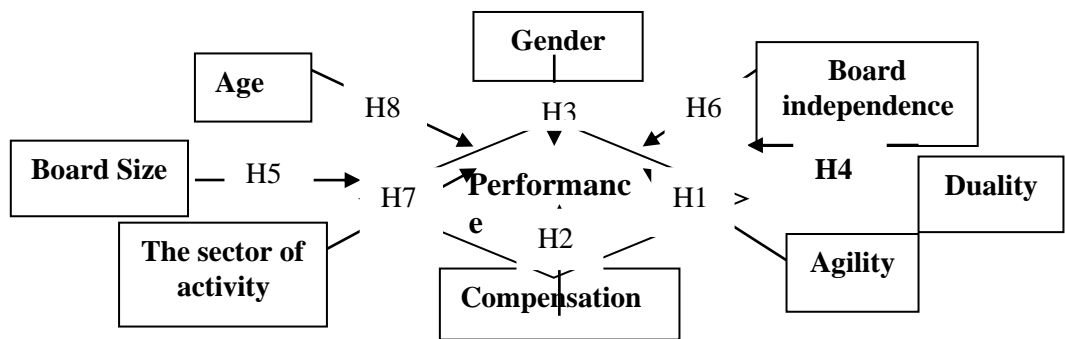
3.2 Measurement of Variables

Through this research, we aim to test whether the valuation model better reflects the economic and financial performance of the company. These will be carrying out through multiple regressions. The objective is testing the functional type relationships between the dependent and independent variables that subsequently form the econometric models in order to test the research hypotheses. Meanwile, we will not ignoring the effect of the control variables on these relationships.

3.3.1 Definition and measurement of dependent variables: performance (ROE and ROA)
ROE: Return on Equity
The return on equity corresponds to the return on money broughted by shareholders to the company. It quantifies the amount of profit made in percentage of the capital investment, and therefore the company's ability to remunerate shareholders
ROE = Net Income/Equity
ROA: Return on Asset:
It measures in percentage the ratio between the net result and the total assets. It represents the capacity of the company to generate a result by using all its resources
ROA = Net Income/Total Assets

3.3.2 Définitions and measures of independent variables

Table 1. *Summary of research variables*

Variables	Symbol	Definition of variables	Measures	Previous research
Dependent variables				
Financial Profitability	ROE	Financial performance	net income/equity	Anderson, Duncan (2018)
Economic profitability	ROA	Economic performance	net income/total assets	Bastos (2019)
Independent variables				
Compensation	CEORem	Total executive remuneration	Sum of wages	Frydman, Jenter (2010)
kind	Gender	Presence of women on the Board	% of women on the Board	Lorber (1994)
Duplicity	Duality		Combining the functions of CEO and Chairman of the Board	Milne (2006)
Board size	Bsize	Total of the Board member	Number of directors on the Board	Nicholas (2011) Spring, Chatterton (2016)
Board indépendante	Bindep	Independence of the Board of Directors	% of independent directors	Wen-bin (2006)
Industry	Industry	Membership of the business sector	Banks =1 Other =0	Moati et Pouquet (2005)
Age	Age	Age of the company	Age < 30 years = 1 Otherwise = 0	Hooks (2003)
Agility in decision-making	ADM	the decision to increase the capital	Agility presence = 1 otherwise = 0	Sylvie Deffayet 2021

Source: *Own study.*

Model 1: Return on Equity (ROE)

$$ROE_{it} = \beta_0 + \beta_1 CEO_{it} + \beta_2 Gen_{it} + \beta_3 Dua_{it} + \beta_4 BSize_{it} + \beta_5 BInd_{it} + \beta_6 Nat_{it} + \beta_7 Age_{it} + \beta_8 ADM_{it+_{it+}} + \varepsilon_{it}$$

Model 2: Return on Assets (ROA)

$$ROA_{it} = \beta_0 + \beta_1 CEO_{it} + \beta_2 Gen_{it} + \beta_3 Dua_{it} + \beta_4 BSize_{it} + \beta_5 BInd_{it} + \beta_6 Nat_{it} + \beta_7 Age_{it} + \beta_8 ADM_{it+_{it+}} + \varepsilon_{it}$$

With:

ROE_{it} : The financial profitability of firm i for 9 years of t

ROA_{it}: The economic profitability of firm i for 9 years of t

CEO: The remuneration of managers i for 9 years of t

Gen: Gender of the company's manager (male/female)

Dua: Duality of CEO and chairman of the board

BSize: Board size (total number of board members)

BInd number of independent members/total number of board members
Nat: The sector of activity (banking and insurance / other sectors of activity)
ADM: Agility in decision-making
ε_{it}: Error term.

4. Rsults and Interpretations

4.1 Descriptive Analyses

Table 2 summarizes the trend of each variable of the economic performance model from these outputs. We can retain that the average, min and max values of the dependent variable are respectively of the order of (0.029), (0.114) and (0.867) during the period (2012-2020). The average value of the Executive Compensation variable has a value of 0.350 and the min and max values are respectively between 0 and 0.67. For the Gender variable, the average is equal to 0.2 and the min and max values have increased, respectively, from 0 to 0.6.

As for the control variable, i.e., the company's sector of activity, the average is equal to 72.133, means that almost 72% of these listed companies are in banking and insurance, and the min and max values are between 9 and 196 respectively.

Table 2. *Descriptive statistics*

Variables	Obs	Mean	Standard deviation	Minimum	Maximum
ROE	135	0. 246	0. 386	0. 114	0.473
ROA	135	0.256	0.379	0.029	0.867
CEO	135	0.350	0.114	0	0.67
GEN	135	0.2	0.401	0	1
DUA	135	11.422	1.878	7	16
BSIZE	135	4.766	8.924	0.231	569
BIND	135	0.466	0.745	0	1
Nat	135	0.466	0.500	0	1
AGE	135	20	13.312	11	35
ADM	135	0.387	0.500	0	1

Source: *Output STATA 14.*

4.2 Correlation Analysis: Bivariate Analysis (M1) and (M2)

Correlation Analysis aims to identify the relationships between variables. For the period from the year 2012 to the year 2020, the results show the existence of a positive correlation between the dependent variable (ROE) and the independent variables: Remuneration (CEORem), Gender and the independent Board variable (B indep) in the order of 0.0663.

This can be explained by the behavioral dominance of managers, remuneration and the gender of the company's management in explaining financial profitability. In addition, we detected the presence of à positive and statistically significant

correlation between the gender variable and the independance variable of the order of 0.0663, which explains the positive influence between the gender of the executive and independance. The correlation analysis between the control variable and the board size variable shows a weak positive correlation (r = 0.3129).

Table 3. *Correlation matrix Analysis (M1)*

Variable	ROE	CEO	GEN	DUA	Bsize	BInd	IND	AGE	ADM
ROE	1								
GEO	-0.0014	1							
GEN	0.2806	0.1260	1						
DUA	0.0313	-0.0336	-0.1911	1					
Bsize	0.0317	0.2048	-0.2329	0.0.435	1				
BInd	-0.2054	0.1679	0.3010	-0.1886	-0.1109	1			
IND	0.5950	-0.2838	-0.0663	0.0890	0.0825	-0.3689	1		
AGE	0.0981	-0.0875	0.3129	-0.0401	-0.0468	0.2417	0.2373	1	
ADM	0.2857	-0.1643	-0.0448	0.1442	0.0843	-0.2497	0.1253	0.1049	1

Source: Output STATA 14.

Table 4. *Correlation matrix Analysis (M2)*

Variable	ROA	CEO	GEN	DUA	Bsize	BInd	IND	Age	ADM
ROA	1								
CEO	0.0365	1							
GEN	0.3171	0.1260	1						
DUA	0.0266	-0.0336	-0.1911	1					
Bsize	-0.1505	0.2048	-0.2329	-0.0435	1				
BInd	-0.1120	0.1679	0.3010	-0.1886	-0.1109	1			
IND	0.3714	-0.2838	0.0663	0.0890	0.0825	-0.3689	1		
AGE	-0.0263	-0.0875	0.3129	-0.0401	-0.0468	0.2417	0.2373	1	
ADM	0.1205	-0.1643	-0.1643	-0.0448	0.1442	0.0843	-0.2497	0.1253	1

Source: Output STATA 14.

4.3 Correlation Analysis: Multivariate Analysis (M1) and (M2)

These regression results will be summarizing in Table 5 below. The estimates have been performed using Stata 14 data analysis software. Econometric tests applied to the models showed that M1 and M2 is a fixed-effects model. The variance-covariance matrix cannot be systematically estimating and the generalized least squares estimator, which is an efficient estimator, cannot be computing.

Rodríguez, Ramos, Domínguez and Eicker (2018) and Modjarrad, Roberts, Mills, Castellano, Paolino, Muthumani and Lamarre (2019) have proposed an asymptotically validated estimator of the covariance matrix of the estimated parameters entitled "Heteroskedasticity Consistent Covariance Matrix Estimator: HCCME".

This estimator provides a valid estimate in the presence of Heteroskedasticity in the model: it is a robust estimation method (Godfrey *et al.,* 2005; Hodoshima and Ando, 2008; Lima *et al.,* 2010).

Table 5. *Multivariate regression analysis*

Variables	Model 1 (ROE)		Model 2 (ROA)	
	β	t- stat	β	t- stat
Constant	1.93**	0.056	3.28*	0.083
CEO	4.55***	0.000	1.84**	0.068
GEN	3.46**	0.046	3.38***	0.002
DUA	2.05***	0.004	3.38***	0.002
BSIZE	1.35	0.179	0.91**	0.365
BIND	9.00***	0.000	-3.61***	0.000
NAT	3.14***	0.000	4.31***	0.000
AGE	3.45***	0.000	2.15***	0.000
ADM	0.056	0.000	0.028	0.000
R^2	0.4586		0.4631	
R^2 adjusted	0.4333		0.4539	
F (p-value)	18.070***		14.16***	

Source: *Output STATA 14.*

The Compensation variable:

<u>Model</u> 1: We can point out that the regression coefficient of the compensation variable, designating executive compensation, is positive and significant at the 5% threshold (β_1 = 4.55; t-student = 0.000) for the M1 model. This postulate implies that an increase in the compensation value of the executives of the listed company by one unit is worth the performance increase of 4.55.

We can confirm our first assumption that executive compensation in listed companies has a positive and significant effect on financial performance. Our result has been confirming by research conducted by Pascal Back, Kathrin Rosing, (2020).

<u>Model</u> 2: We can point out that the regression coefficient for the compensation variable, designating executive compensation, is positive and significant at the 5% threshold (β_1 = 1.84; t-student = 0.068) for the M2 model. This postulate implies that an increase in the compensation value of the executives of the listed company by one unit is worth the increase in performance of 1.84. We can confirm our first assumption that executive compensation in listed companies has a positive effect on return on asset. Our result has been confirming by research conducted by Belot and Ginglinger, (2013).

The Gender variable:

<u>Model</u> 1: The regression coefficient associated with the variable "Gender" during the period 2012-2020, designating the presence of women on the Board of Directors, is positive (3.46) and significant (t-student = 0.046). We can confirm our second hypothesis that the presence of women on the Board of Directors has a positive and significant effect on financial performance. Our result has been confirming by research conducted by Tulandi and Closon (2016).

Model 2: The regression coefficient associated with the variable "Gender" during the period 2012-2020, designating the presence of women on the Board of Directors, is positive (3.38) and not significant (t-student = 0.002). We can confirm our second hypothesis that the presence of gender of women on the Board of Directors has a positive effect on economic performance. Our result has been confirming by research conducted by Bauweraerts, Colot, Dupont, Giuliano and Henry (2017).

The Duality variable:

Model 1: As for the "Duality" variable, designating the duality of the functions of Chief Executive Officer and Chairman of the Board of Directors of the listed company during the period (2012-2020), it has a positive regression coefficient (2.05) and is statistically insignificant (t-student = -0.004). This postulate shows the duality of the functions of the chief executive officer who holds the position of chairman of the board of directors at the same time. This result shows that the dependent variable is negatively associated with the dependent variable. We can confirm our third hypothesis, which states that the duality of the functions of chief executive officer and chairman of the board of directors in listed companies has a negative effect on financial performance. Our result has been confirming by research conducted by Mkadmi, and Halioui, (2013).

Model 2: As for the Duality variable, designating the duality of the functions of Chief Executive Officer and Chairman of the Board of Directors of the listed company during the period (2012-2020), it has a positive regression coefficient (3.38) and is statistically significant (t-student = 0.002)

This postulate shows that an increase in the number of CEOs holding the position of chairman of the board of directors at the same time. This result shows that the dependent variable is positively associated with the independent variable. We can confirm our third hypothesis, which states that the dual functions of chief executive officer and chairman of the board of directors in listed companies have a negative and insignificant effect on economic performance. Our result was confirming by research conducted by Rachdi and El Gaied, (2009).

The Board size variable:

Model 1: The Board size variable has a positive coefficient of (1.35) and t-student (0.179). This explains why the size of the board has an insignificant positive effect on the financial performance of listed companies, and this for British companies (ftse100).We can confirm our fourth hypothesis stipulating that the size of the board of directors in listed companies has a negative effect on financial performance. This results confirms the previous research of Morgan and Rose (2009).

Model 2: The Board size variable, witch designating the size of the board of directors, has a positive coefficient of (0.91) and (t-student = -0.365), which explains why board size has a significant negative effect on the economic performance of listed companies. We can confirm our fourth hypothesis that board size in listed

companies has a negative effect on economic performance. This result confirms previous research conducted by Godard (2002) and Aumont (2012).

The Independent Board variable:

Model 1: The variable Independent Board, designating the number of independent members/number of members sitting on the Board of Directors during the period 2012-2020, has a positive coefficient of β= 9.00 and t-student = 0.000. This explains the positive effect of the independent members of the Board of Directors on the performance of the company. We can confirm our fifth assumption that the independence of the members of the Board of Directors has a positive effect on financial performance. Several authors have confirmed these results, including Barkema (2018), Bernhart (2019) and others.

Model 2: As for the variable Independent Board, designating the number of independent members/number of members sitting on the board of directors during the period 2012-2017, it has a negative coefficient of (β= -3.61) and (t-student = 0.000) which explains the positive effect of the independent members of the board of directors on the economic performance of the company. We can confirm our fifth assumption that the independence of the members of the board of directors has a positive effect on economic performance. Everal authors confirm these results, including Bouaziz and Triki, (2012).

The Control variables (industry or sector of activity):

Model 1: The regression coefficient of the industry variable (industy), designating the banking and insurance sector, is positive (3.14) and is significant at the 5% threshold (t-student= 0.000) for the M1 model. This result shows that firms in the banking sector have significant opportunities for financial performance. We can confirm our last hypothesis that the nature of listed companies' activity has a positive effect on financial performance. These results confirm previous research by Morgan and Rose (2009) and Commons (2001).

Model 2: The regression coefficient of the industry variable (industy), designating the banking and insurance sector, is positive (4.31) and is significant at the 1% threshold (t-student= 0.000) for the M2 model. This result shows that firms in the banking sector have significantopportunities for financial performance. We can confirm our last hypothesis that the nature of activity of listed companies has a positive effect on economic performance. These results confirm previous research by Ciobanu and Bobillier-Chaumon (2012).

The Age variable:

Model 1: The regression coefficient of the variable age of the financial institution, denoting the banking and insurance sector, is positive (3.45) and is significant at the 1% level (t-student= 0.000) for the M2 model. This result shows that companies in the banking sector have significant financial performance opportunities. We can

confirm our last hypothesis that the age of listed companies has a positive effect on economic performance. These results confirm previous research by Stephane (2012).

Model 2: The regression coefficient of the age variable of the financial institution, denoting the banking and insurance sector, is positive (2.15) and is significant at the 1% level (t-student= 0.000) for the M2 model. This result shows that companies in the banking sector have significant financial performance opportunities. We can confirm our last hypothesis that the age of listed companies has a positive effect on economic performance. These results confirm previous research by Toi (2021).

The Agiliy in decision-making variable:
Model 1**:** The regression coefficient of the agiity in decision-making variable, denoting the banking and insurance sector, is positive (0.056) and is significant at the 1% level (t-student= 0.000) for the ROE model. This result shows that firms in the banking sector have significant financial performance opportunities, which lead to an increase in the firm's capital. We can confirm our last hypothesis that the agiity in decision-making has a positive effect on financial performance. These results confirm previous research by Zsambok and Klein (2014).

Model 2*:* The regression coefficient of the financial institution decision making variable, denoting the banking and insurance sector, is positive (0.028) and is significant at the 1% level (t-student= 0.000) for the ROA model. This result shows that firms in the banking sector have significant economic performance opportunities that lead to an increase in the firm's capital. We can confirm our last hypothesis that the decision making to increase the capital of listed companies has a positive effect on economic performance. These results confirm previous research by Rodríguez, Martínez, and Herrera (2013).

4.4 Correlation Analysis and VIF Test

The interpretation of the results presented in Table 5 allows us to advance some analysis concerning the general characteristics of the empirical models as well as the validation of the research hypotheses carried out by the multivariate analysis. Indeed, the value taken by the explanatory power of the first adjusted R^2 model = 0.1352 reflects a good quality of the model. The pseudo adjusted R^2 from the estimation of the second model takes the value of 0.1352. This postulate implies that the integration of the different explanatory variables makes it possible to explain 13.52% of the variation in the accounting conservatism of the firms in the sample.

This postulate is also confirmed by the Fisher statistic result which confirms the capacity of the independent variables of our econmetric model to explain the variation in economic profitability (F= 10.98; p-value=0.0000).These regression results will be summarized in Table 6 below. The estimates were performing using Stata 14 data analysis software. Econometric tests applied to the models showed that M1 is a fixed-effects model.

The variance-covariance matrix cannot be estimating systematically and the generalized least squares estimator, which is an efficient estimator, cannot be computing. Rodríguez, Ramos, Domínguez and Eicker (2018) and Modjarrad, Roberts, Mills, Castellano, Paolino, Muthumani and Lamarre (2019) have proposed an asymptotically validated estimator of the covariance matrix of the estimated parameters entitled "Heteroskedasticity Consistent Covariance Matrix Estimator: HCCME". This estimator provides a valid estimate in the presence of Heteroskedasticity in the model; it is a robust estimation method (Godfrey *et al.,* 2005; Hodoshima and Ando, 2008; Lima *et al.,* 2010).

4.5 Specification Test

The sought-after objective of carrying out the specification test, also known as the "Fisher homogeneity test" is to accept or reject the null hypothesis of a perfectly homogeneous structure i.e. the constants and coefficients are identical against the hypothesis of the presence of an individual effect on the panel data.

Based on the results in Table 6 below it can be determined whether a specific effect exists or not. The p-value associated with the Fisher statistic calculated for our model is well below 1%. This means that these are models with specific individual effects. The use of panel data is therefore well suited to the situation we describe.

However, this specific effect can be individual or random. A second specification test is important to decide whether the specific effects are random. The most common test to solve this kind of problem is the Hausman test.

Homogeneity test:
The homogeneity test is theoretically carried out as follows:

Taking the following model:

$$y_{it} = a_i + x_{it}\beta + \varepsilon_{it} \qquad \text{with : i = 1…, N ; t =1…, T}$$

$$H_0 : a_1 = a_2 = ... = a_{n-i} = 0$$
$$H_1 : a_i \neq 0 \qquad \text{with: i = 1, 2…, N-1}$$

The Fisher statistic is given by :

$$F \frac{\left(TN - N - K\right)\left(\hat{\varepsilon}_{MCO}^{'}\hat{\varepsilon}_{MCO} - \hat{\varepsilon}_{W}^{'}\hat{\varepsilon}_{W}\right)}{\left(N-1\right)\left(\hat{\varepsilon}_{MCO}^{'}\hat{\varepsilon}_{MCO}\right)} \qquad F\left(N-1, TN-N-Z\right)$$

Table 6. *Homogeneity test*

	Model 1 (ROE)	**Model 2 (ROA)**
Fisher statistics	23.59	16.92
P-value	0.0006***	0.000***
Specific effects	Existence of effects	Existence of effects

*Note: *** indicates a significance at the 1% level.*
Source: Output STATA 14.

Hausman test:

Since this study covers data over a period of ten years, we performed a panel regression analysis controlling the year effect. In addition, we performed Hausman tests to specify the models by taking into account either fixed or random individual effects.

Table 7. *The Hausman test*

	Model 1 (ROE)	**Model 2 (ROA)**
$\chi^2(k)$	55.23	66.00
p-value	0.0000	0.0000
EF/EA	*FE*	*FE*

*Note : ** EF/EA : Fixed effects or random effects.*
Source: Output STATA 14.

Si $\chi^2(k) < \chi^2(Hausman)$ $\Longrightarrow$ *FE*
Si $\chi^2(k) > \chi^2(Hausman)$ $\Longrightarrow$ *FE*

Model 1 (ROE):

The Hausman test we performed on the parameters of our model gave a chi-square value equal to 55.23 and a probability equal to 0.000. This result suggests the presence of a fixed effect for all industries for our model.

Model 2 (ROA):

The Hausman test we performed on the parameters of our model gave a chi-square value equal to 66.00 and a probability equal to 0.000. This result suggests the presence of a fixed effect for all industries for our model.

Table 8. *Heteroscedasticity test*

	$\chi^2(k)$	**p-value**	**Heteroscedasticity**
Model (ROE)	5.05**	0.0246	Presence

	$\chi^2(k)$	**p-value**	**Heteroscedasticity**
Model (ROA)	152.09***	0.000	Presence

Source: Output STATA 14.

Several tests, including the Breush-Pagan test, the modified Wald test, and the White test, can be used to determine heteroscedasticity. In general, the purpose of this test is to see if the independent variables can explain the square of the residuals. We can therefore conclude that there is a heteroskedasticity issue. This test uses an N-degrees-of-freedom chi-square distribution. The Hausman test revealed that the M1 model has fixed effects, whereas the M2 model has fixed effects as well.

The modified Wald test was applied to the M1 model with fixed effects, yielding a chi-square value of 5.05 and a probability p-value of 0. 0246. This demonstrates the presence of a heteroscedasticity issue. Because the chi-square value is 152.09 and the p-value is 0.000, the Breush-Pagan test performed to the M2 model discovered a heteroskedasticity problem.

Table 9. *Hypotheses and results*

Hypotheses	Results
H1. The agility in decision making in times of crisis has a positive impact on company performance	confirmed
H2. Executive compensation has a positive effect on company performance	confirmed
H3. Gender has a positive effect on on company performance	confirmed
H4. The duality affects negatively the performance of the company	confirmed
H5. Board size affects negatively the performance of the company	confirmed
H6. The independence of the board of directors affects positively the performance of the company	confirmed
H7. During the covid 19 pandemic, the sector of activity has a negative impact on company performance	confirmed
H8. The age of company has a positive effect on performance	confirmed

Source: *Own study.*

5. Conclusion

This paper examine the impact of the the agility decision – making on the performance of companies. The board of directors becomes responsible for controlling the way in which the management manages the activities of the company. However, in a context where the stakes are so high, the board of directors must follow more closely the important decisions taken by the management, to remain in regular contact with the latter and to ensure that a process is been followed for making important decisions, even in an emergency situation like the pandemic crisis.

The manager's authorities should monitor potential threats to systemic stability so that corrective action can be taken (possible institutionalisation of a supervisory procedure, so-called prompt corrective action).

In pandemic crisis, the Excutives of companies require better coordination for solving problems. Better coordination in all authorities would be desirable. In

addition, the effective management of lender of last resort instruments would require more transparency and a better organisation of the current procedures.

The business leaders need to be aware in times of crisis. Their agility to make the right decisions can save the continuity of the company. Finally, the fact that the existing Deposit Guarantee Directive is incomplete and that the ECB has no specific role in financial supervision

The contribution of our article lies in its originality. Thus, our article has methodological limitations. We have analysed the performance through descriptive statistics and graphical analysis. While, we can apply other measures of performance such as Alpha. This study opens up other research perspectives for researchers interested in this topic, in particular the application of the aforementioned performance measurement ratios as well as the analysis of performance in post-crisis periods.

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