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# THE IMPACT OF CORPORATE SOCIAL RESPONSIBILITY, ENVIRONMENTAL TAXE AND GOVERNANCE ON THE FINANCIAL PERFORMANCE OF FTSE100 LISTED COMPANIES IN UK.

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**Abstract:** *This research aims to iditenfy the link between corporate social responsability, environmental tax and national governance on the financial performance of FTSE100 listed companies in UK. The empirical analysis consists of a case study of 64 FTSE100 listed companies which generates a sample of 385 observations. A series of hypothesis are tested by the regression analysis which validates them in a great proportion. The paper concludes on the necessity to integrate the citizen's satsifaction as an inherent measure of the company's performance while admitting that the performance of public administration is complex, unpredictable and thus adjusting the performance to the hazards of the system.*

***KEY WORDS***: Environnemental Tax, Performance, Corporante Governance, Board of Directors

## 1. Introduction

The term "responsibility" has its origin in the law. For Friedman (1970), corporate responsibility is well defined and bounded. Responsible firm is the one that accepts to face the consequences of its activities. Indeed, in a context of globalisation, this notion is becoming

increasingly important as the setbacks of conventional management multiply and affect not only the environment but also societal relations. According to the Johannesburg conference in 2002, the firms assume to implement a true "business ethics" of intervening in society as a corporate citizen to influence national and international policy choices (Capron and al 2007). This means that companies should not only takes into account the negative influence but also it should minimize this influence. To fulfil this responsibility, legislation and collective agreements must be respected. And to do so fully, a process must be undertaken in close cooperation with stakeholders to integrate social, environmental, ethical, human rights and consumer concerns into business operations and core strategy. According to the iso 26000 standard (2010), organisational social responsibility is "the responsibility of an organisation for the impacts of its decisions and activities on society and the environment, resulting in transparent and ethical behaviour that contributes to sustainable development including the health and well-being of society. This behaviour must also take into account the expectations of stakeholders and comply with applicable laws. Furthermore, it must be compatible with international standards, integrated throughout the organisation and implemented in its relationships. In these two definitions, CSR particularly concerns the social and environmental dimensions of the activity of companies. But in practice, CSR is not only concerned with these two dimensions. Indeed, in order to cope with globalisation and market developments, it also advocates ethical business practices. In other words, CSR promotes dialogue and transparency between company stakeholders, customers, suppliers, shareholders, banks, local authorities, residents, the international community, etc.

To assume their responsibilities towards the community, companies must in a way assume the negative consequences on the environment that they exploit. In this context, companies must bear environmental taxes to help reducing the suffering of the community. Pigou (1960) proposes to take into account the external effects by a system of taxation. He sees that this tax is compensation for victims damaged by pollution. The polluter must bear the negative consequences of his activity. Pigou seeks through his proposal to increase social welfare. In a more in-depth analysis, he examines the differences between net social marginal product and net private marginal product. According to him, there are several types of divergence between social product and private product. For Fleckinger (2009), the social product always remains

superior to the private product. In conclusion, Pigou justifies possible state intervention and advises redistribution through premiums and taxes.

In this context, the leaders of the companies in collaboration with the stakeholders must behave in a responsible manner. Their behavior depends in fact on several characteristics such as internal governance mechanisms. According to Mercer (2009), by implementing a good environmental strategy, the company can also reduce certain costs and generate certain savings.

This research aims to identify thy impact of environmental taxe, the corporate social responsibility and the governance's mecanisms on the performance of British listed companies. From the questions posed by our theoretical framework, several research questions emerge. First, it is interesting to question the influence of corporate social responsibility on company performance on CSR. This link is, indeed, of primary importance since its existence is questioned by the literature but also by practitioners. Then, we will study the influence of the environmental tax on the performance and finaly, we will identify the effectiveness of governance mechanisms, through internal governance mechanisms in particular.

**2. Literature review and development of hypotheses**

The Stockholm Conference (1972) followed the publication of the Meadows report, under pressure from citizens of all generations (Faucheux et al, 2004). This report emphasised that the future of the planet and of the human species was threatened by the continued rate of economic and demographic growth. To remedy this fact, Aggeri (2001), sees that the disaster situation can be avoided through 'a state of equilibrium, which stipulates the maintenance of a constant level of population and capital'. This idea of 'zero growth' has been criticised as the environmental agenda of industrialised countries will clash with the political perspectives and priorities of developing countries. It is indeed impossible to reduce growth rates. After debates and discussions, the Stockholm conference resulted in the Stockholm Declaration which implements an action plan for the Human Environment.

The Rio Conference (1992) on the environment and development, in which 178 countries participated, was held twenty years after the Stockholm Conference. For Aggeri, "Rio gave rise to a broad definition that went far beyond the relationship between the environment and

development by encompassing North-South relations, the fight against poverty, women's rights, social equity, etc." Aggeri, (2001).

Economic theory recognises that environmental protection is beneficial to society as a whole, which justifies the imposition of environmental regulations to force or encourage companies to reduce their harmful impacts on the environment. However, for Lanoie et al (2005), this environmental protection objective is orthogonal to the profit maximisation objective of the company. As a result, environmental regulations are perceived as detrimental to the companies that are subject to them.

### 2.1. The relationship between CSR and financial performance

CSR stems from three primary schools of thought: corporate ethics, business and society, and social issue management (Gendron, 2004), as well as the separation of shareholding and management in corporations, which has made executives more attentive to societal issues (Gond and Igalens, 2008).

The discipline of the relationship between business and society (Business and society field) has been at the origin of the emergence of the concept of CSR and its development. Several authors have analysed this relationship. Indeed, Statman (2000) distinguishes three approaches to understanding this relationship. The institutional approach, which is a macro-economic analysis that states that the company has a responsibility towards society. The second method is an organizational approach, which includes a microeconomic examination of the company. It states that an organization's actions have an impact on the environment and vice versa.

These two techniques are concerned with describing social phenomena, whereas the third, the so-called philosophical or normative approach (Swanson, 1999), is concerned with analyzing the dos and don'ts.

In the same vein, Pasquero (2005) presented three categories of reasons that led to the emergence of CSR: philosophical, ethical and pragmatic reasons that are the result of company-society interactions. Table 1 summarises the main theoretical assumptions that researchers are trying to validate empirically. However, it is worth noting that the many studies that have been conducted in this direction do not allow for a clear-cut debate on the interactions between social and financial performance, given the different econometric

methods and data used. Some studies show positive correlations, others show negative correlations or even no correlation in some cases (Donaldson, 1999, Johnson; 2003).

Recent econometric studies show that CSR has a positive impact on financial performance (Allouche and Laroche, 2005; Wu, 2006; Margolis et al, 2007). This hypothesis has its theoretical basis in stakeholder theory, which states that CSR has a positive effect on financial performance. This can be justified by the fact that firms that do not meet the expectations of implicit stakeholders will be perceived by explicit stakeholders (shareholders) as more risky and will therefore incur costs that may affect their profitability (Cornell and Shapiro, 1987). In other words, the costs generated by good CSR may be minimal compared to the potential benefits generated (Moskowitz, 1972). In this sense, some authors consider that high levels of CSR are reliable indicators that can show a superior quality of company management compared to the average. This observation is in line with the "Good Management Theory" discussed by Waddock and Graves (1997). According to this theory, improved social activity leads to better relations with key stakeholder groups, thus generating greater performance (Freeman, 1984). However, CSR allows for the reduction of risks and costs through the control of energy consumption and the use of renewable energies, it also allows for the construction of a potential for innovation by attempting to make CSR the means for the implementation of a skill that carries a comparative advantage such as organic or green products. However, out of 127 studies, 54 found a positive relationship (Margolis and Walsh, 2003), as did Allouche and Laroche (2005), who listed 75 out of 82 studies confirming the positive association. According to thoses researches we can consider that the corporate social responsibility affect positivly the performance of the company (Donaldson & Davis, 2019)

**H 1: The Corporate social reponsability has a positive impact on company's performance.**

### 2.2. The Environmental taxes and the company's financial performance

Many authors have pointed out the inadequacies of the market to deal with the problems linked to the degradation of the environment, which affect the general interest. In particular, the problems of externality to which those of natural monopoly and collective goods and that of the fair distribution of income can be linked cannot be solved by market action alone.

The concept of externality, introduced by Pigou (1932), is the impact of the action of one economic agent on another which is exerted outside the market. It guides the implementation of environmental policies and its regulatory methods. Indeed, the economy reduces pollution problems to negative externalities.

According to Martinet et al (2004), the negative external effect indicates the collateral damage assumed by the stakeholders sitting in the business environment. For Bertrand (2008), negative external effects refer to the fact that during its production process, the company degrades the well-being of certain agents (residents, local authorities, employees, customers, suppliers, etc.) without offering them financial compensation. For Klassen et al (1996), stakeholders bearing negative externalities must have additional resources in order to regain an initial level of well-being. Air pollution is one of the negative externalities of business activities. Thus, pollution and resource taxes aim to reduce discharges of pollutants into water or air as well as extraction of natural resources (excluding oil and gas natural). The proceeds of these taxes constitute only 5% of environmental tax revenues in France for exemple. (**Arimura et al 2008)**. Taxes related to pollution and water withdrawal represent the major part. The introduction of the general tax on polluting activities (TGAP) in 1999 contributed little to increase the weight of taxes on pollution.

The environmental taxation covers, on the one hand, all taxes relating to products or assets having harmful effects on the environmental quality, such as consumption taxes energy, vehicle taxes, pollution taxation and waste, the taxation of water consumption; and other share of tax expenditures promoting sustainable development. (**Klassen et al, 1996)**

It was by virtue of a similar diagnosis that, in his latest report on the state of the environment in France, the OECD recommended already increasing the rates of taxes and fees environmental (OECD, 2005). Based on those defferent theories, we can say that environmental taxe can influence the companies's performance. Thus,

**H 2: The environmental taxe has a négative impact on company's performance.**

### 2.3. The mecanisms of Governance and the financial performance of the company

The impact of mecanisms's governance on the financial performance may be partly due to the fact that companies are increasingly under pressure from market forces and shareholders to be

well governed. Investors are demanding the application of rigorous corporate governance principles in order to achieve better returns. In other words, investors are willing to pay a premium for companies with high levels of governance. Indeed, Palmon and Wald (2002) note that the optimal governance structure depends critically on the size of the firm. A study conducted at a university in India on governance mechanisms and performance of Indian firms examined the relationship between four governance variables and performance: board size, board composition, board functioning and dual power (P. Varshny, V.K. Kaul and V.K. Vasal; 2012). These authors assume, taking into account the family character of Indian firms, that a certain size of the board can provide the company with more resources consisting of diversified expertise and which will contribute to performance improvement, according to the resource dependency theory.

They therefore formulated their first hypothesis: the existence of a positive relationship between board size and firm performance. Furthermore, the same theory is used to hypothesise the existence of a positive relationship between board functioning and the performance of Indian firms. With regard to the effect of dual powers, the presence of agency conflicts between the principal and the agent implies the separation of the functions of the CEO and the chairman of the board. In fact, if the CEO is also the chairman of the board, power is concentrated in the hands of the same person who can make decisions that serve his or her own interests rather than those of the shareholders (Jensen, 1993). Thus, regulatory changes in India have limited the powers of the chairman, especially as Indian firms are family-dominated. On the basis of these changes and the agency perspective, the authors posed the hypothesis that there is a negative link between multiple directorships and performance. Although the main performance measure in this study is EVA (economic value added), the researchers used other traditional performance measures such as ROCE and Tobin's Q. They found that when performance is high, it is more likely to be low. They found that when performance is measured by EVA, board size has a positive effect on it whereas when it comes to traditional measures such as ROCE, board size has no significant effect on performance. Finally, the study showed a weak negative relationship between multiple functions and performance. S. Bhagat, B.J. Bolton and R. Romano consider that the basic mechanisms of the different governance systems relate to the board of directors, the exercise of voting rights, the shareholders' meeting and executive compensation. For this reason, this

article focuses on the mechanisms of the board of directors. It should be noted that the academic debate on the relationship between firm value and governance started with the analyses of P.A. Gompers,

J.L. Ishii and A. Metrick in 2015. Their study on "Corporate Governance and the Cost of Capital" considers some of the performance measures adopted by other previous research (Bebchuk, Cohen and Ferrell, 2004): net margin, revenue growth and ROE (return on capital). This research shows that, with the exception of revenue growth, the other selected performance measures have a positive and significant correlation with governance. The study also highlights that the category of governance criteria related to the board of directors is strongly associated with performance. However, it has to be admitted that studies conducted on different company populations in different countries, over different time periods and measuring determinants that have different components, may not lead squarely to readable results.

**2.3.1 *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 Barkema and Gomez-Mejia (2002), executive compensation can encourage and motivate executives to make decisions that maximise firm value and subsequently profitability, Broye & Moulin (2014), Donaldson & Davis (2019)

**H 3: Executive compensation has a positive effect on financial performance**

**2.3.2 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 & Gasponer (2016) and Landrieux-Kartochian, (2019).

**H 4: Gender has a positive effect on on company performance**

### 2.2.3. Duality variable

Several studies have been carriying 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& Davis (2019).

**H 5: The duality affects negatively the performance of the company**

### 2.2.4. 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)

**H 6: Board size affects negatively the performance of the company**

### 2.2.5. 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). 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 G. Charreaux and Pitol Belin, (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. 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 & De Falco (2018)

**H 7: The independence of the board of directors affects positively the performance of the company**

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### 2.2.6. Variable sector of activity

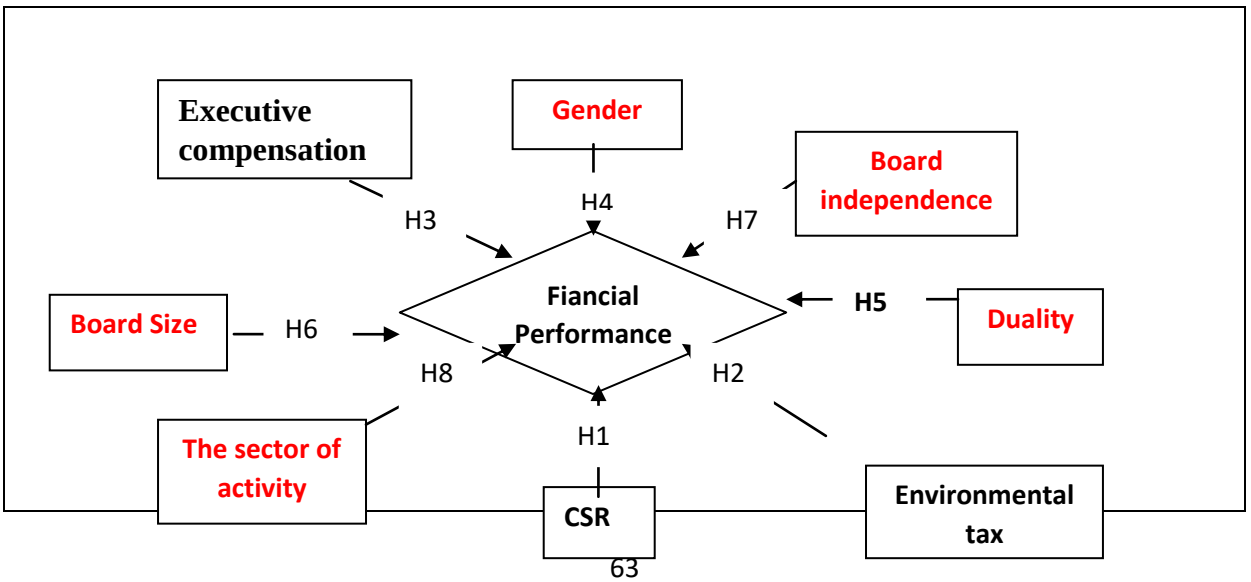
The sector of activity is a control variable, which, according to several empirical studies, has a different impact depending on its impact with the other variables. In the spirit of the structuralist approach to industrial economics, performance is supposed to express the interplay of a set of variables 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 & Estes (2015)

**Hypothesis 8: The sector of activity affects positively the financial performance of the company.**

## 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



### 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 carriying 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 | ROA | Economic | net income/total | Bastos (2019) |

| | | | | |
|---|---|---|---|---|
| profitability | | performance | assets | |
| Independent variables | | | | |
| Corporate social responsability | CSR | Corporate Responsability | | 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) |
| The Environnemental Tax | ENVTAX | The Environnemental Tax | Taxe Environnementaux = 1 otherwise = 0 | Sylvie Deffayet 2021 |

**Source: Made by searchers**

***Model 1: Return on Equity (ROE)***

$$ROE_{it} = \beta_0 + \beta_1 CSR_{it} + \beta_2 GEN_{it} + \beta_3 DUA_{it} + \beta_4 BSIZE_{it} + \beta_5 BINDEP_{it} + \beta_6 NAT_{it} + \beta_7 ENVTAX + \varepsilon_i$$

***Model 2: Return on Assets (ROA)***

$$ROEit = \beta 0 + \beta 1 CSRit + \beta 2 GENit + \beta 3 DUAit + \beta 4 BSIZEit + \beta 5 BINDEPit + \beta 6 NATit + \beta 7 ENVTAX + \varepsilon i$$

**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

**CSR**: The Corporate Social Gouvernance

**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)

**EnvTax:** Environnemental Tax

$\varepsilon_{it}$: Error term.

## 4. Rsults and interpretations

### 4.1 Descriptive statistics

Table n°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** | ***384*** | ***0. 246*** | ***0. 386*** | ***0. 114*** | ***0.473*** |
| **ROA** | ***384*** | ***0.256*** | ***0.379*** | ***0.029*** | ***0.867*** |

| | | | | | |
|---|---|---|---|---|---|
| **CSR** | ***384*** | ***0.350*** | ***0.114*** | ***0*** | ***0.67*** |
| **GEN** | ***384*** | ***0.2*** | ***0.401*** | ***0*** | ***1*** |
| **DUA** | ***384*** | ***11.422*** | ***1.878*** | ***7*** | ***16*** |
| **BSIZE** | ***384*** | ***4.766*** | ***8.924*** | ***0.231*** | ***569*** |
| **BIND** | ***384*** | ***0.466*** | ***0.745*** | ***0*** | ***1*** |
| **Nat** | ***384*** | ***0.466*** | ***0.500*** | ***0*** | ***1*** |
| **AGE** | ***384*** | ***20*** | ***13.312*** | ***11*** | ***35*** |
| **EnvTax** | ***384*** | ***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 | ENVTAX |
|---|---|---|---|---|---|---|---|---|---|
| ROE | 1 | | | | | | | | |
| CSR | -0.0014 | 1 | | | | | | | |
| GEN | 0.2806 | 0.1260 | 1 | | | | | | |
| DUA | 0.031 | - | - | 1 | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 3 | 0.0336 | 0.1911 | | | | | | |
| 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 | |
| ENVTAX | 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 | CSR | GEN | DUA | Bsize | BInd | IND | Age | ENVTAX |
|---|---|---|---|---|---|---|---|---|---|
| ROA | 1 | | | | | | | | |
| CSR | 0.0365 | 1 | | | | | | | |
| GEN | 0.3171 | 0.1260 | 1 | | | | | | |
| DUA | 0.0266 | -0.0336 | -0.1911 | 1 | | | | | |
| Bsize | - | 0.204 | - | - | 1 | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0.1505 | 8 | 0.2329 | 0.0435 | | | | |
| 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 |
| ENVTAX | 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 the table below. The estimates is 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 & Eicker (2018) and Modjarrad, Roberts, Mills, Castellano, Paolino, Muthumani & 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 |
| CSR | 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 |
| ENVTAX | 0.056 | 0.000 | 0.028 | 0.000 |
| R2 | 0.4586 | | 0.4631 | |
| R2 adjusted | 0.4333 | | 0.4539 | |
| F (p-value) | 18.070*** | | 14.16*** | |

***Source: Output STATA 14***

### 4.3.1 The Corporate Social Responsibility

***Model* 1:** We can point out that the regression coefficient of the Corporate Social Responsibility variable, designating CSR, is positive and significant at the 5% threshold (β1 = 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 Corporate Social Responsibility 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)

***Model* 2**: We can point out that the regression coefficient for the Corporate Social Responsibility variable, designating CSR, is positive and significant at the 5% threshold (β1 = 1.84; t-student = 0.068) for the M2 model. This postulate implies that an increase in the Corporate Social Responsibilityvalue of the listed company by one unit is worth the increase in performance of 1.84. We can confirm our first assumption that Corporate Social

Responsibility in listed companies has a positive effect on return on asset. Our result has been confirming by research conducted by Belot, & Ginglinger, (2013)

### 4.3.2 The Environnemental Tax variable

***Model 1*:** The regression coefficient of the agiity in Environnemental Tax 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 CE Zsambok, G Klein (2014)

***Model 2*:** The regression coefficient of the financial institution Environnemental Tax 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, Herrera (2013)

### 4.3.3. Mecanisms's Governance

**The Gender variable**

***Model* 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 & 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 & 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, & 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)

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 & 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 & 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, & 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 & 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, & Bobillier-Chaumon (2012)

**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, T. (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, K. A. (2021).

**4.4. Correlation analysis and VIF test**

The interpretation of the results presented in the table below 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 R2 model = 0.1352 reflects a good quality of the model. The pseudo adjusted R2 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 the table 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 & Eicker (2018) and Modjarrad, Roberts, Mills, Castellano, Paolino, Muthumani & 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).

**4.4. 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 the table 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:

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

$H_0 : a_1 = a_2 = ... = a_{n-i} = 0$

$H_1 : a_i \neq 0$ ; With: i = 1, 2…, N-1

The Fisher statistic is given by:

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

***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 |

***Source: Output STATA 14***

*** indicates a significance at the 1% level

**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) |
|---|---|---|
| ***χ2(k)*** | 55.23 | 66.00 |
| ***p-value*** | 0.0000 | 0.0000 |
| ***EF/EA*** | *FE* | *FE* |

***Source: Output STATA 14***

*** EF/EA : Fixed effects or random effects.*

*Si χ2(k) <χ2(Hausman)* ⟹ *FE*

*Si χ2(k) >χ2(Hausman)* ⟹ *FE*

**Model 1: Return On Equity (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***

| | χ2(k) | p-value | Heteroscedasticity |
|---|---|---|---|
| Model (ROE) | 5.05** | 0.0246 | Presence |

| | χ2(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 CSR in times of crisis has a positive impact on company performance | ***confirmed*** |
| *H2*.The environnemental tax has a negative effect on performance | ***Not confirmed*** |
| *H3*.Executive compensation has a positive effect on company performance | ***confirmed*** |
| *H4*. Gender has a positive effect on on company performance | ***confirmed*** |
| *H5*. The duality affects negatively the performance of the company | ***confirmed*** |
| *H6*. Board size affects negatively the performance of the company | ***confirmed*** |
| *H7*. The independence of the board of directors affects positively the performance of the company | ***confirmed*** |

| | |
|---|---|
| *H8.* the sector of activity has a negative impact on company performance | ***confirmed*** |

## 5. Conclusion

This paper examine the impact of the the CSR, Corporate Gouvernance and Environnemental Tax 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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