

# The Relationship Between Capital Structure And Firm Performance of French Firms: Under the Moderating Role of Corporate Social Responsibility (CSR)

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## Abstract

This article studies the moderating effect of the social responsibility relationship between the capital structure and the financial of listed French companies.

To achieve this objective, we performed a regression on panel data relating to 57 listed companies over the period 2010-2020.

First, the results of this study suggest that the debt ratio has a significantly negative effect on the financial performance of firms.

Second, our sample confirmed a significantly positive relationship between corporate social responsibility and corporate financial performance.

Third, the results reveal that social responsibility can moderate the relationship between corporate debt and financial performance.

**Keywords:** capital structure, corporate social responsibility, financial performance, ROA, csr score.

## 1. Introduction

The theory of capital structure is a key subject in contemporary Western financial research, particularly since Modigliani and Miller (1958) introduced the well-known MM theory. Their theory suggests that, in a world without taxes (i.e., a perfect capital market), the value of a company is unaffected by its capital structure. However, since perfect capital markets do not exist in reality, as every company's income is subject to taxation, the MM theory has certain limitations. These limitations have led to increased interest in the study of capital structure and its various contexts. Scholars have approached the relationship between capital structure and firm value from different perspectives. Since Jensen and Meckling (1976) proposed agency theory (Ahmad Sheikh and Wang, 2013) in connection with capital structure and corporate performance, a growing number of researchers have undertaken empirical studies on this relationship. As a result, the link between capital structure and corporate performance has become a debated issue in modern financial studies.

Due to differing perspectives on the influence of capital structure on firm performance, Faulkender et al. (2012) argue that the direct impact of capital structure on firm performance may not yield reliable conclusions, as other factors could mediate this relationship. Building on this, Yang (2015) contends that

previous research has overlooked the role of corporate social responsibility (CSR) in examining how capital structure influences corporate performance. Yang (2015) further observes that, for Chinese-listed firms, the effect of capital structure on performance differs based on the level of CSR. Consequently, this paper seeks to investigate the relationship between capital structure and corporate performance, with corporate social responsibility acting as a moderating factor.

Understanding this relationship can help French companies take CSR into full consideration and adopt appropriate strategies to determine the optimal capital structure, ultimately enhancing corporate performance. This paper is organized into five sections: Introduction, Literature Review with Hypothesis Development, Research Methods, Empirical Analysis, and Conclusions and Discussion. The first section outlines the background, problem statement, and overall structure of the paper. The second section reviews key theories and perspectives on the relationship between capital structure, CSR, and corporate performance, and presents hypotheses. The third section describes the research methodology used to ensure reliable results. The fourth section details the empirical analysis process. Finally, the last section summarizes the major findings and discusses their implications for French companies.

## **2. Literature review and hypothesis development**

### **2.1. The impact of debt on the financial performance of firms**

The existing literature has predominantly centered on examining the impact of debt on a firm's financial performance. A review of economic and financial research indicates that the relationship between debt and financial performance leads to conflicting conclusions, with no consensus reached on this matter.

Holz (2002) found a positive relationship between the debt ratio and financial performance, suggesting that managers are inclined to borrow funds for project financing and effectively utilize these funds to "maximize performance." Similarly, Dessi and Robertson (2003) demonstrated that debt positively influences financial performance, explaining that companies with low growth tend to borrow in anticipation of future growth opportunities. These companies then invest the borrowed capital in profitable ventures, thereby enhancing their performance. In line with these findings, Margraves and Psillaki (2010) also showed that debt ratios are significantly and positively correlated with financial performance.

In a related study, Endri, Ridho, and Harahap (2019) used three performance indicators—ROE, ROA, and EPS—as dependent variables. Their analysis concluded that the most profitable companies in the mining industry from 2014 to 2018 were those with higher debt ratios. Moreover, Taqi, Khan, and Anwar (2020) investigated the impact of debt on the profitability of the Indian oil industry between 2008 and 2017. Using the "debt-to-equity" and "debt-to-total asset" ratios to measure debt, and ROA to assess profitability, the study found a positive correlation between leverage and the performance of Indian oil firms. The authors suggest that financial managers should judiciously use leverage to enhance company performance.

Conversely, Majumdar and Chhibber (1997) and Ghosh (2007) argued that higher debt levels are negatively associated with firm performance. This outcome holds particular relevance for creditors who use debt as a disciplinary mechanism. Creditors may impose restrictions, such as raising interest rates or limiting lending, to prevent the firm from distributing profits to shareholders. These constraints force firms to prioritize debt repayment over profitability. Additionally, Rao, Hamed, Al-yahee, and Syed (2007) found a negative relationship between debt and the financial performance of Omani firms, attributing this to the high borrowing costs and limited activity in Oman's debt market.

Rao, Hamed, Al-yahee, and Syed (2007) further suggested that the tax benefits derived from using debt are insufficient to offset the associated costs, implying that the cost of debt exceeds the rate of return.

Similarly, Kithandi (2020) studied the effect of debt on the financial performance of five oil companies listed on the Nairobi Stock Exchange. Using the leverage ratio to measure debt and ROA as the performance indicator, the study employed regression analysis, revealing a negative and significant impact of leverage on the firms' performance.

It is wise to test the findings of these studies by the following hypothesis:

<b>H 1: Debt negatively affects the financial performance of firms.</b>
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### ***2.2. The impact of CSR on the financial performance of companies***

Corporate social responsibility (CSR) is a concept that has gained increasing attention from both practitioners and scholars. Over the past few decades, numerous studies have examined this idea, particularly focusing on the relationship between CSR and financial performance (see, for instance, Griffin and Mahon, 1997; Margolis and Walsh, 2003; Orlitzky et al., 2003; Portney, 2008; Scholtens, 2008; Van Beurden and Gössling, 2008).

The surge in research on this topic has only deepened the confusion and debate over the impact of CSR practices on corporate performance. Several studies have identified a positive correlation between CSR and financial performance. For example, Posnikoff (1997) found a positive relationship between CSR and financial outcomes using corporate reputation assessments alongside both market-based and accounting-based performance measures.

Waddock and Graves (1997), using KLD rating data from various industries, concluded that corporate social responsibility is positively linked to both past and future financial performance. Similarly, Orlitzky (2001) demonstrated that CSR consistently shows a positive relationship with financial performance when firm size is controlled for. Shen and Chang (2008), using four different matching methods, also confirmed that CSR is positively correlated with metrics such as pre-tax income, net sales, and profit margin. In a study of China's mining industry, Pan et al. (2014) found a positive relationship between CSR and company performance. Likewise, Choi et al. (2018) and Laskar (2018) confirmed through empirical research that CSR positively affects financial performance.

On the other hand, some researchers have identified a negative relationship between CSR and financial performance. Vance (1975), for instance, extended the observation period in Moskowitz's (1972) study from 6 months to 3 years, ultimately concluding that there is a negative relationship between CSR and financial performance. Wright and Ferris (1997) similarly found a negative correlation between CSR and financial outcomes.

Brammer et al. (2006), using reputational indices from British firms, reported a negative impact of CSR on stock returns. Surroca and Tribó (2008), in a cross-country analysis, also found that firms' social performance was negatively correlated with their financial results. Additionally, Makni et al. (2009) found no significant positive relationship between CSR and financial outcomes, and in fact, identified a strong negative impact of the environmental dimension of CSR on financial performance.

Further studies by Han et al. (2016) and Ngoc (2018) empirically confirmed that CSR can negatively influence financial performance.

Through these studies we can formulate our second hypothesis as follows:

<b>H2: Social responsibility positively affects firms' financial performance.</b>
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### ***2.3. The moderating effect of CSR between debt and corporate financial performance***

According to Agency Theory, debt can either discipline or motivate managers to enhance their efforts in maximizing shareholder value. Debt is often regarded as an effective governance mechanism that can improve a firm's performance (Jiang and Kim, 2015). However, an excessive amount of debt can lead to

increased external agency costs, raising both financial and operational risks, which in turn may reduce a firm's performance. As a result, the impact of debt on firm performance is complex, and fluctuations in agency costs can influence this relationship.

On the other hand, there is a widespread belief that companies with higher levels of corporate social responsibility (CSR) can enhance their competitiveness and improve their performance (Famiyeh, 2017). CSR is seen as a useful tool for reducing conflicts among stakeholders, lowering information asymmetry, cutting agency costs, and boosting a company's brand and reputation (Xiao, 2017). However, Barnea and Rubin (2010) argue that when insiders, such as executives or major shareholders, invest excessively in CSR or use it to conceal inappropriate corporate behavior for personal gain, CSR can actually harm the company's performance. This perspective suggests that CSR increases the company's costs, thereby straying from the primary goal of maximizing profit.

In light of this, Yang (2015) posited that the level of CSR can moderate the effect of capital structure on firm performance.

Therefore, this paper adhered to Yang's (2015) study and proposed the following hypothesis:

**H 3: Increasing the level of CSR can moderate the negative effect of debt on financial performance.**

### 3. Research methodology

#### 3.1. Data and sample

The study was conducted on a sample of 57 French companies belonging to the SBF120 index over the period 2010-2020. We excluded banks, insurance companies and financial firms (SIC codes 6000-6900). We also excluded companies with incomplete financial information during the analysis period. Thus, the moderating role of CSR in this relationship has not been sufficiently developed in previous researches and to our knowledge no research has studied the moderating effect of CSR between capital structure and financial performance in the French context.

#### 3.2. The analysis model

In order to study the moderating effect of CSR on the relationship between capital structure and firm financial performance, we will perform an econometric regression on panel data covering 57 French listed firms during the period 2010-2020. Thus, this two-dimensional model that can be tested is as follows:

$$ROA_{it} = \beta_0 + \beta_1 \text{Endet}_{it} + \beta_2 \text{RSE}_{it} + \beta_3 \text{Endet} * \text{RSE}_{it} + \beta_4 \text{TE}_{it} + \beta_5 \text{Liq}_{it} + \varepsilon_{it}$$

Where  $i = 1 \dots 57$  denotes the firms and  $t = 2010 \dots 2020$  denotes the period.

Thus for each firm  $i$  and each period  $t$ , we have:

ROA : Financial performance

Debt: Debt ratio

CSR: Corporate Social Responsibility

TE: Size of the firm

Liq: Firm's liquidity

$\beta_0$  : the constant for firm  $i$

$(\beta_1 \dots \beta_5)$ : is the vector of coefficients of the exogenous variables

$\varepsilon_{it}$ : represents the error term

### 3.3. Variables

**Table 1 : Definition and measurement of variables**

Variables	Authors	Measurement of variables
ROA	Frooman (1997) ;Simionescu and Gherghina (2014); Jianwei (2015) ; Rodriguez-Fernandez (2015) ;Choi and al. 2018 ; Ngoc (2018) ; Ta and Bui (2018).	ROA=Net income/net assets
The debt ratio	John and Litov (2010) ; Jiraporn and <i>al.</i> (2012) and Precions Angelo Brenni (2014= .	The debt ratio =total debt/total assets
CSR	Ioannou and Serafeim (2012) and Huang and al. (2014).	CSR=CSR score
Firm size	Brown and Caylor (2006); Ben Cheikh and Zarai (2008) ;Setiadharm et Machali(2017) and Hirdinis( 2019)	FS = Log (book value of total assets)
Liquidity	Adams et Buckle (2003), Goddard and al. (2005), (Serrasqueiro, 2009) and Rahaman (2011).	Current Ratio = Current Assets/Current Liabilities

#### Dependent variable

**Return on Assets (ROA )** :It measures the ratio of net profit (a tool used to determine whether a business is making a profit or loss) to total assets (all items that generate resources). It expresses the ability of a company to generate income from its resources. Financial analysts often consider a low ROA (below 5) to indicate that a company is not making enough money from its physical and financial resources. This measure has been used by numerous authors such as Aupperle et al. used. (1985); Wood and Jones (1995); Fruman (1997); Simionescu and Gergina (2014); Jianwei (2015); Rodriguez-Fernandez (2015); Choi et al. . 2018; Jade (2018); Tower and Bui (2018). It is one of the most widely used and accurate measures of financial performance (Boaventura et al., 2012; Griffin and Mahon, 1997).

It is calculated as follows:

$$\text{ROA} = \frac{\text{Net income}}{\text{net assets}}$$

#### Independent variables

**The debt ratio (Debt)**: The debt of a firm is an indication of the debt burden undertaken by the firm, which can affect management discipline (P. Andres, Azofra, and Lopez (2005); Peter, Young, and Shapiro (2005); Hergli, Bellalah, and Abdennadher (2007). ). To explain the effect of debt on performance, we use the ratio of book value of debt to total assets. This approach has been used by several authors including John and Litov (2010); Girapong et al. (2012) and Precions Angelo Brenni (2014).

The measure we will use is the following:

$$\text{The debt ratio} = \frac{\text{total debt}}{\text{total assets}}$$

**Corporate Social Responsibility (CSR)**: as in the work of Ioannou and Serafeim (2012) and Huang et al. (2014),we will adopt a score developed by ASSET4 which consists of a series of items that represent the CSR practices of firms.



CSR measures a firm's ability to generate trust and loyalty (Ioannou and Serafeim 2012; Huang et al. 2014). It also measures the ability to reduce environmental risks and generate environmental opportunities.

## CSR = CSR score

### Control variables

**Firm size (FS):** Firm size was also identified as a key variable in explaining performance. This variable can have both direct and indirect effects on performance. A number of measures were selected to assess firm size. S Bahagat and Black (2001), Durnev and Kim (2003), P Andres et al. (2005) and Hergli et al. (2007) use the "log(sales)" measure. Other authors such as Brown and Caylor (2006), Ben Cheikh and Zarai (2008), Setiadharmas and Machali (2017), and Hirdinis (2019) have used "log (total wealth)" values.

We adopt the following measure:

## FS = Log (book value of total assets)

**Liquidity (Liq):** Liquidity measures a firm's ability to meet its short-term obligations (Raykov, 2017; Abubakar, Sulaiman, & Haruna, 2018; Lyndon & Payeur, 2016; Syed, 2015; Bragg, 2018; Ejike & Agha, 2018; Burke, 2019). The liquidity indicators used in this study are current indicators. This measure is taken from Adams and Buckle (2003), Goddard et al. used. (2005), (Serrasqueiro, 2009), Rahman (2011). According to Weston and Copeland (1997), the current ratio is the ratio of current assets to current liabilities. The current ratio reflects a company's ability to pay its current liabilities with its current assets. Current assets generally include cash, marketable securities, accounts receivable and inventories, and current assets include short-term bank loans or other debts with a maturity of less than one year. The higher the current ratio, the better the company's ability to meet its short-term financial obligations.

## Current Ratio = Current Assets/Current Liabilities

## 4. Findings

### 4.1. Descriptive Statistics

**Table 2 : Descriptive statistics**

Variable	Average	Standard deviation	Minimum	Maximum
ROA	4,320558	4.963651	-22,16	37,61
Debt	28.30	0.1452	0.71	75.84
CSR	54.97	0.266892	0	99.67
FS	16,66	1.1374	14,11	19,28
Liq	1,341451	0,5204774	0,55	3,62

According to the table, which describes the descriptive analyses of ROA, we find that the average of financial profitability measured by ROA is about 4.32%, which indicates that the companies in our sample withdraw a sufficient profitability in relation to their resources. The minimum is -22.16%, which is an alarming negative percentage that shows that on the contrary, some companies are deficient in relation to the use of their resources to generate profits. The maximum is 37.61%.

The debt ratio has an average level of 28.30% and a minimum of 0.71%. The highest level of debt is about 75.84%.

The table of descriptive statistics shows that the social responsibility of companies has a minimum of 0 and a maximum of 99.67 with an average of 54.97.

As for the size of the company, it has a maximum of 19.28 and a minimum of 14.11 with an average of 16.66.

The table also shows that the average liquidity ratio of the companies is 1.3414 with a maximum of 3.62 and a minimum of 0.55.

## 4.2. Correlations

**Table 3: Pearson correlation matrix**

	ROA	Debt	CSR	FS	Liq
ROA	1.0000				
Debt	-0.3851	1.0000			
CSR	-0.1384	0.1472	1.0000		
FS	-0.1530	0.0884	0.4020	1.0000	
Liq	0.2122	-0.0932	-0.2025	-0.2613	1.0000

**Table 4: Multicollinearity test**

Variable	VIF	1/VIF
Debt	1.03	0.970652
CSR	1.14	0.879429
FS	1.10	0.909997
Liq	1.06	0.943329
Mean VIF	1.08	

To test for multicollinearity, two techniques are typically used: performing a correlation matrix and calculating VIFs (De Bourmont, 2012).

To test for the absence of multicollinearity between independent variables, we calculated the Pearson correlation coefficients between the independent variables and also calculated the "variance Inflation Factor" (VIF). Examination of the Pearson correlation coefficients in Appendix 2 shows that no critical correlation can be found from this table. In fact, according to Kevin (1992), in order to decide on a serious collinearity problem between the independent variables included in a regression model,  $r \geq 0.8$  is required. Moreover, Appendix 6 shows that none of the VIFs exceed 5, which leads us to conclude that there is no multicollinearity problem.

## 4.3. Multivariate analysis

**Table 5: Multiple Regression Analysis**

Variable	Z	P> z
Debt	-1.69	0.091
CSR	2.67	0.008
Debt*CSR	-3.35	0.001
FS	-1.45	0.147
Liq	1.74	0.082

### ***The debt ratio***

By estimating the model using appropriate methods, we can conclude that debt ratio has a significant negative impact on the financial performance of French companies, which is consistent with our predictions. These results are consistent with previous work done by Rajan and Zingales (1995) for G7 countries and with Booth et al. (2001) who studied 10 developing countries, where debt and financial performance measured by ROA consistently showed a negative relationship. They are consistent with both the financing hierarchy hypothesis (according to which profitable companies prefer self-financing to debt financing) and the stakeholder theory, since the risk of major defaults and their consequences make external financing costly and encourage companies to use external financing. Limit their own resources.

### ***Corporate social responsibility***

The table shows that the 'corporate social responsibility' variable has a clear positive effect on financial performance in France. This allows us to confirm Hypothesis 2. This is consistent with the work of Saleh et al. (2011), Witzick et al. (2012), Sun (2012), Mwangi and Jerotish (2013), Bidhari (2013), Pan et al. (2014), Xiantao et al. (2014), Jiang and Yang (2015), Rodriguez-Fernandez (2015), Chtourou (2016), Kablan (2017), Maqbool and Zameer (2017), Choi et al. (2018). We specifically refer to the study of Ta and Bui (2018), who analyzed the impact of CSR on ROA using panel data using the generalized method of moments (GMM). They came to the same conclusion for the positive impact of CSR on the FP of Vietnamese firms during 2006-2016. Our results support the social influence hypothesis based on the positive relationship between CSR and FP. This theoretical hypothesis states that socially responsible companies build good relationships with their stakeholders and thus build a good image, thereby increasing profits. Good management practices account for this observation. The good practices implemented by these companies have earned the CSR label, enabling them to develop healthy relationships with stakeholders, which has a positive impact on ROA. Labeled companies are able to gain stakeholder trust and increase revenue.

### ***The moderating effect of CSR***

The interaction coefficient is significant, indicating that CSR can influence the relationship between capital structure and corporate performance. In particular, increasing CSR can mitigate the negative impact of debt on financial performance. This is consistent with the views of Yang Wenhao et al. (2015) and Wenhao et al. (2020) who believe that CSR, as an effective tool to reduce stakeholder conflicts, can reduce information asymmetry, reduce agency costs, and improve corporate reputation and performance (Xiao, 2017).

### ***The size of the firm***

Regarding firm size, the results show that there is a negative relationship between firm size and firm performance, but it is not significant. This result is consistent with the work of Whittington (1980); Goneck et al. (2007); Becker-Bress et al. (2010); Niresh and Thirunavukkarasu (2014); Hatem (2014) and Abeyrathna and Priyadarshana (2019), which leads to an insignificant relationship between firm size and its financial performance.

### ***The liquidity of the firm***

Liquidity has a clear positive impact on the performance of French companies. This is consistent with the findings of Mehmet et al. (2018), Swagatika and Ajaya (2018), Ejike and Agha (2018), M. Mohammed and Yusheng (2019) that companies with higher liquidity ratios perform best. In fact, holding cash has many benefits: on the one hand, it can guarantee the payment of daily expenses such as wages, materials, and taxes. On the other hand, since future cash flows are uncertain, holding cash can provide a safety



margin for possible economic recessions. After all, cash guarantees profitable investments that need to be withdrawn immediately.

## 5. Conclusion

It is vital for a company to choose an optimal capital structure and to improve its CSR practices.

This attitude is the best guarantee of achieving good long-term financial performance.

Indeed, our research has attempted to examine empirically the moderating effect of social responsibility in the relationship between debt and corporate performance.

First, the results of this study show that the debt ratio has a significant negative impact on the financial performance of firms.

Second, our sample confirmed a significantly positive relationship between corporate social responsibility and corporate financial performance.

Third, the results showed that CSR can moderate the relationship between capital structure and firm performance, which implies that CSR could be a useful business strategy.

It will be useful to extend this analysis by studying not only the effect of total debt on profitability, but also through the different components of debt (long-term and short-term debt).

It would also be better to carry out our research on other companies listed on the stock market within the EU to compare the moderating effect of CSR and governance between debt and the financial performance of companies in countries within the same region.

Similarly, we can introduce the effect of COVID-19 on business performance as well as on the strategies followed in terms of financing.

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