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Impact of Governance Mechanisms on Agency Costs in CAC 40 Listed Firms: An Empirical Analysis (2005-2023)

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Abstract: This empirical investigation examines the influence of corporate governance mechanisms on agency costs among firms listed on the CAC 40 index from 2005 to 2023. Agency costs were evaluated using three proxies: asset turnover ratio, selling, general and administrative expenses, and the interaction between free cash flow and Tobin's Q ratio. The findings suggest that larger board sizes are more effective in reducing agency costs within the studied French firms. Contrary to traditional agency theory predictions, higher managerial ownership did not correlate with reduced agency costs; rather, it was associated with increased costs. However, at high levels of managerial ownership, a reduction in agency costs was observed, challenging the notion of managerial entrenchment behavior within these firms. The analysis also indicates that CEO duality, board independence, ownership concentration, and institutional ownership contribute negatively to asset utilization efficiency, thus increasing agency costs. These results raise questions about the effectiveness of these governance mechanisms in the French regulatory and corporate environment. Furthermore, the study reveals that the effectiveness of specific governance mechanisms, such as board size and independence, as well as executive and non-executive ownership, is contingent upon the firm's growth opportunities. Specifically, board size appears more effective in low-growth firms, whereas mechanisms like board independence and diverse ownership structures benefit high-growth firms. This study enhances understanding of how corporate governance can influence agency costs, emphasizing the importance of aligning governance structures with firm growth trajectories.

Keywords: Corporate governance; Agency costs; Growth opportunities; Board of directors; Ownership characteristics; French firms

1. Introduction

Consistent with Jensen & Meckling (1976), a firm can be reduced to a set of internal and external contractual relationships characterized by many conflicting interests, especially between managers and shareholders, giving rise to agency problems as critical challenges to the firm's continuity. Berle & Means (1932) addressed this debate early in their celebrated work "The Modern Corporation and Private Property", stating that the firm law structure in the United States imposed a separation of control from ownership in the 1930s, which increased doubts about the compatibility between shareholders and managers regarding their interests. Hence, this is an explicit statement that agency problems arise when managers prioritize their own interests at the expense of shareholders' interests when ownership and management are separated.

Brudney (1985) argues that corporate governance structures provide substantial discretion for managers, often exceeding investors' expectations. Although market forces can impose constraints on that discretion, it still enables management to reward itself by transferring assets. Additionally, Ang et al. (2000) contend that empirical studies have consistently shown that agency cost is a relevant framework for explaining managerial decisions, such as dividend policies, executive compensation, capital structure choices, etc. They stated that bad decisions made by firms as a result of insufficient managerial efforts may lead to increased agency costs, as well as the excessive use of executive perquisites. Furthermore, Fleming et al. (2005) argue that incentive alignment problems become more

prominent and are significantly influenced by changes in ownership structure and the separation of management from ownership.

Measuring agency costs is a widely explored issue in the literature, and Ang et al. (2000) were among the first researchers to address it. They noted that the measurement of agency costs, both in absolute and relative terms, has not received sufficient attention. Depending on the assumption of Jensen & Meckling (1976) that firms wholly owned by management are characterized by zero agency costs, they examined whether there are differences between owner-managed firms and those where management is separate from ownership regarding management cost and asset utilization ratio.

Ang et al. (2000) proposed two indicators for assessing agency costs. The first is a direct metric, represented by the proportion of operational expenses to sales, to facilitate cross-sectional comparisons. The second indicator pertains to the ratio of sales to assets, reflecting the revenue loss stemming from management's inefficient utilization of assets (e.g., investments in assets with negative or lower net present value and low efforts by managers in supporting the revenue-generating process). According to Ang et al. (2000), the first proxy measures the ability of managers to control operating expenses, while the second proxy evaluates how efficiently management utilizes the firm's resources. Most researchers agree that the high asset turnover ratio reflects management's efficiency in utilizing assets to maximize sales. Conversely, the low ratio suggests that managers may implement policies harmful to the firm and demonstrate inefficiency in asset utilization. However, they emphasize certain drawbacks of this ratio; for instance, generating sales might not necessarily reflect shareholders' wealth, and managers can easily expropriate cash flows generated from sales. Despite these limitations, they still regard this proxy as a relevant indicator of agency costs.

In contrast, McKnight & Weir (2009) utilized three proxies of agency costs, including the number of acquisitions, the ratio of asset turnover, and the interplay of growth prospects with free cash flow. They acknowledge that acquisitions may be proceeding for the sake of maximizing managerial utility, as they offer managers the opportunity to spend firm resources instead of rewarding shareholders. This practice can lead to an unfair reduction in shareholders' wealth, ultimately resulting in increased agency costs. Similarly, a large free cash flow can increase agency costs, as shareholders generally prefer to receive it as dividends or through share repurchase operations, while managers may have a different perspective (Lin & Lin, 2014).

To address agency problems, Jensen & Meckling (1976) suggested several mechanisms, including separating the CEO and board chairman roles, involving external auditors and institutional investors, monitoring by non-executive directors, and promoting managerial ownership. Additionally, Fleming et al. (2005) mentioned the ownership and managerial structures that are likely to monitor the behavior of managers and reduce agency costs. These structures encompass concentrated ownership, family ownership, business associates, banks, and providers of venture capital. Aligned with agency theory, Ang et al. (2000) emphasized that the efficiency of related parties, along with the effectiveness of monitoring by outside directors, may limit agency costs. Furthermore, Rashid (2013) argues that three critical roles can be assigned to the board of directors: service, control, and strategic, and the ability to reduce agency costs closely ties to its effectiveness in fulfilling these roles.

For their part, McKnight & Weir (2009) argue that, within the agency model, some governance mechanisms allow a convergence of interests between managers and owners, thereby reducing agency costs. They emphasize that the classical agency model distinguishes effective governance mechanisms from less effective ones, leading to a set of optimal governance structures that effectively reduce agency costs while maximizing performance. In a different context, Doukas et al. (2000) provided significant evidence that security analysis can serve as a monitoring tool to mitigate agency costs associated with manager-shareholder conflicts.

In the French context, governance mechanisms are distinct from the Anglo-American model, where the hypotheses of agency theory have been widely explored. The business environment in France tends to be more oriented towards entrepreneurship and managerial power, thus the entrepreneur or founder family, as a major shareholder, often dominates the board of directors and directly controls the financial information preparation process (Piot, 2001). Corporate governance in French firms appears as an insider model with weak investors' protection in the legal system and regulations and more concentration of ownership (Ammari et al., 2014). Further, the role of financial markets as a source of financing for French firms is relatively limited, leading to weak monitoring of managers' behavior by market forces in addition to marginal external monitoring mechanisms (Piot, 2001). According to the findings of La Porta et al. (2000), French legislation as a civil law country provides weak protection for outside shareholders and creditors, which can be a source of interest conflict, thus generating agency problems and increasing capital costs.

The corporate governance model in France prevents the development of capital markets and the dispersion of ownership compared to Anglo-American countries. Therefore, corporate governance has known several developments in France during the past few years, starting with the first report of Viénot (1995), which was primarily interested in the mission and effectiveness of the board of directors. Specifically, it proposed reducing the number of board seats, resorting to independent directors, suppressing cross-memberships, and establishing board committees. The second report of Viénot (1999) adopted a wide perspective; it proposed separating the functions of the CEO from those of the board chairman and extending the role of independent directors. The report

proposed recommendations regarding financial reporting, information about remuneration, and the general meetings of shareholders. Following the several scandals (Enron, WorldCom, Vivendi, etc.) at the beginning of the 2000s, the report of Bouton (2002) was developed to provide certain improvements regarding the board of directors (more independence, high level of formalization, information quality, assessment), board committees (nominating, remuneration, and audit committees), auditors' independence, and financial reporting.

The regulatory framework of corporate governance in France was mainly inspired by the directives of the European Parliament, derived from the Report of Winter et al. (2002). The report focused on improving corporate governance practices with ten key priorities, especially reporting for governance, shareholder rights, transparency, and executive remuneration. The reports of Viénot (1995) and Bouton (2002) were complemented by the New Economic Regulations Act, which requires separating management from control to improve supervision by the board members. Later, the law of financial security was adopted in 2003 to strengthen the role of supervisory authorities in protecting investors, improving the auditors' independence, and enhancing the reporting quality. In 2005, the framework of corporate governance in France was ameliorated by the introduction of the law on the modernization of the economy. The law requires the disclosure of information about the components of executive compensation and their assessment criteria (Dabboussi, 2018).

Previous studies have concluded that corporate governance mechanisms are effective in constraining managers' inclination to advance their interests, moderating agency costs, and improving long-term firm performance. Good governance practices promote optimal resource allocation, lower capital costs, and better relations between shareholders, managers, and other stakeholders. Thus, the purpose of this study is to investigate whether improvements made to France's corporate governance framework during the early 2000s have improved business practices and moderated agency costs. Furthermore, this study investigates the influences of debt financing and growth prospects on agency costs, given the growth opportunities of the French economy. Additionally, the business environment in France has some specificities regarding corporate financing, where the role of financial markets is still under expectation, which makes firms more dependent on bank debt.

2. Review of the Literature and Hypotheses

2.1 Agency Costs and Board Characteristics

According to several previous studies, a board's effectiveness is largely dependent on its characteristics, including size, independence, and CEO duality.

2.1.1 Board size

Previous research has delineated two contrasting perspectives regarding the potential influence of board size on firm performance and efficiency. Advocates of the first viewpoint argue that smaller boards of directors are more able to limit agency costs than larger boards (e.g., see Chaudhary, 2022; Guest, 2009; Owusu & Weir, 2018; Rutledge et al., 2016; Singh & Davidson III, 2003). Conversely, proponents of the second viewpoint argue that larger boards foster better strategic decision-making. Florackis (2008) suggests that larger boards are crucial for effective management and supervision. This stance finds support in studies by Andreou et al. (2014), Boussenna (2020), and Setia-Atmaja (2008), which have illustrated that larger boards can enhance firm performance and mitigate agency costs. Consistent with previous studies, we expect that agency costs in French firms can be constrained by extending the board of directors.

H1: *Larger boards of directors relate to lower agency costs.*

2.1.2 Board independence

Regarding the potential impact of directors' independence, the literature also distinguishes two different viewpoints: stewardship theory and agency theory. From the perspective of agency theory, the supervisory activities of the board are enhanced when independent members control the board of directors. Florackis (2008) emphasizes that board effectiveness depends on the ratio of non-executive directors, given their ability to curtail management discretion. Additionally, Jensen & Meckling (1976) argue that such directors are less susceptible to conflicts of interest, which enables them to carry out the monitoring function more effectively.

Several studies agree that the independence of board members positively affects firm performance and reduces agency costs, including those by Haslindar & Abdul Samad (2011), McKnight & Weir (2009), Nguyen et al. (2020), Rutledge et al. (2016), Shan & McIver (2011), and Zhao (2003). According to the findings of these studies, highly independent boards of directors tend to improve the board's effectiveness, mitigate agency costs, and advance shareholder interests.

From another view, stewardship theory notes that executive directors are more able to attain organizational goals, and their private information about the firm can enhance the process of decision-making (Davis et al., 1997). Therefore, boards of directors with lower independence are inclined to exhibit greater efficiency, resulting in reduced agency costs. In this context, Haslindar & Abdul Samad (2011) found that a higher agency cost is

associated with higher board independence in family-owned firms. Nevertheless, several studies contradict the preceding viewpoints, showing that the relationship between board independence and firm efficiency is not significant (Andreou et al., 2014; Dian, 2014; Goh et al., 2014).

Consistent with agency theory, we expect that increasing board independence generates a reduction in agency costs in French firms, and we assume that:

H2: *A board of directors marked by a high proportion of independence relates to reduced agency costs.*

2.1.3 CEO duality

CEO duality manifests when a CEO is appointed as a board chairman, which creates a complicated issue (Aktas et al., 2018). Overall, the literature distinguishes two perspectives concerning the relationships between agency cost and firm performance and CEO duality. Aktas et al. (2018) argue that managers have opportunistic tendencies and make decisions that serve their interests at the detriment of shareholders. Therefore, CEO duality is deemed undesirable because it results in serious consequences, such as heightened managerial entrenchment, diminished effectiveness of board monitoring, and decreased firm performance.

In line with this perspective, McKnight & Weir (2009) contend that when an individual simultaneously occupies the positions of board chairman and CEO, it confers significant authority to the CEO, which negatively affects the effectiveness of monitoring. Therefore, it becomes necessary to separate the two roles to maintain the independence and effectiveness of the board. Numerous studies have substantiated the agency theory viewpoint, demonstrating that the separation of the chairman and CEO roles limits agency costs and improves firm performance (e.g., Rutledge et al., 2016; Zhao, 2003). Additionally, Aktas et al. (2018) found that CEO duality results in firm inefficiency and investment misallocation, particularly when external monitoring is ineffective.

On the other hand, stewardship theory assumes that firms with a unified structure of leadership (CEO duality) are more effective in dealing with their strategic challenges. Many studies, such as those by Guillet et al. (2013) and Manafi et al. (2015), have confirmed the stewardship theory view and acknowledged the existence of advantages associated with CEO duality.

Contrary to the above, other studies showed no significant relationship between CEO duality and firm efficiency (e.g., Andreou et al., 2014; Dian, 2014; Goh et al., 2014). On their side, Mubeen et al. (2021) found that CEO duality negatively influences the performance of Chinese firms. However, it can play a pivotal role beneficial to firm performance, given that the sign of the relationship between the performance of Chinese firms and CEO duality is mainly determined by the effect of social responsibility and the firm's size as moderating variables, both of which positively affect this relationship.

In line with the assumptions of agency theory, we argue that if a CEO was simultaneously appointed as board chairman, this would lead to decreased board effectiveness and thus increased agency costs in French firms, and we hypothesize that:

H3: *CEO duality affects agency costs positively.*

2.2 Ownership Characteristics and Agency Costs

2.2.1 Managerial ownership

The fraction of managerial ownership indicates the degree of compatibility between the interests of directors and shareholders (Singh & Davidson III, 2003). According to Jensen & Meckling (1976), lower managerial ownership makes the managers less motivated to put in more effort, while higher managerial ownership is likely to push managers to work harder, leading to lower agency costs. Florackis (2008) further contends that managerial ownership can serve as a mechanism to align the interests of directors and shareholders.

Several studies have shown that managerial ownership can minimize agency costs and enhance firm efficiency, including those by Fleming et al. (2005), Florackis (2008), Owusu & Weir (2018), Rashid (2015), Schäuble (2019), and Singh & Davidson III (2003). In this context, McKnight & Weir (2009) state that, within the agency model, increasing managerial ownership leads to a convergence of interests between directors and shareholders. When members of the board hold the firm’s shares, they are motivated to act as shareholders, so higher managerial ownership will moderate agency costs.

However, Florackis (2008) and King & Santor (2008) state that excessive managerial ownership can generate entrenchment effects and negative consequences due to the ability of managers to defend their interests to the detriment of those of other owners. Furthermore, some studies (e.g., Bonardo et al., 2007; Doukas et al., 2000; Jelinek & Stuerke, 2009; Nguyen et al., 2020; Rashid, 2016) found a non-linear relationship between managerial ownership and firm efficiency, which aligns with the view that higher managerial ownership is linked with a high level of agency costs.

In line with agency theory predictions, we expect that board members’ ownership will achieve a kind of convergence between their interests and those of shareholders’, causing a lower agency cost in French firms, and we assume that:

H4: *Managerial ownership negatively affects agency costs.*

2.2.2 Ownership concentration

According to Singh & Davidson III (2003), holding a higher fraction of a company's shares (blockholder or ownership concentration) reflects the degree of external monitoring. Florackis (2008) argues that, given the position of equity owners and their ownership of the shares, they must actively participate in management control. Thus, concentrated ownership is an important governance mechanism for controlling management and mitigating agency problems. There are many previous studies supporting the assumption that ownership concentration is effective in monitoring management, enhancing firm performance, and reducing conflicts of interest (e.g., Ang et al., 2000; Florackis, 2008; Heugens et al., 2009).

Nevertheless, Florackis (2008) argues that the benefits arising from shareholders' control differ depending on the size of their equity stakes; for example, shareholders with small equity stakes have less incentive to exercise control behavior than other shareholders. Heugens et al. (2009) also argue that concentrated ownership provides better protection for shareholder interests when legal protections are relatively weak. Florackis (2008) states that despite the advantages of concentrated ownership, many associated costs manifest themselves clearly in the agency problems arising between minority and majority holders.

Based on previous research, we argue that an increase in ownership concentration will increase the effectiveness of external monitoring over management actions, leading to lower agency costs in French firms in the CAC 40 index. Therefore, we expect that:

H5: *Ownership concentration affects agency costs negatively.*

2.2.3 Institutional ownership

Gilson & Gordon (2013) argue that institutional investors should mitigate managerial agency problems, given their ability to generate more active monitoring. They also point out that intermediary institutional investors are an effective tool for financial intermediation and risk-bearing. However, they include negative aspects that can be avoided by strengthening the role of activist investors, which can interact with institutional ownership to enhance corporate governance effectiveness and reduce costs related to agency conflicts. Several studies (e.g., Chaudhary, 2022; Owusu & Weir, 2018; Rashid, 2013) found that institutional investors can enhance firm efficiency and reduce agency costs due to their expertise, financial resources, and material components that allow them to effectively control management actions.

In addition, Chung et al. (2012) indicated that institutional investors can improve firm performance, and that heterogeneity exists among their roles. Furthermore, some institutional investors (such as investment advisors and long-term institutional investors) can enhance firm efficiency compared to other institutional investors. McKnight & Weir (2009) showed that a higher fraction of shareholding by institutional investors tends to be less effective in monitoring the decisions of the board and thus may not mitigate agency costs. Doukas et al. (2000) indicated that institutional investors are less effective and have a weak influence on agency costs.

Consistent with Chaudhary (2022), Owusu & Weir (2018) and Rashid (2013), we argue that increasing institutional ownership is likely to contribute effectively to monitoring managers' actions and thus reducing agency costs in French firms, and we expect that:

H6: *Institutional ownership affects agency costs negatively.*

2.3 Agency Costs and Debt Financing

According to Florackis (2008), agency problems depend on the issues of information asymmetry and free cash flow. He suggests that debt service obligations can help reduce these issues and that bank debts are more advantageous than debt securities in monitoring firm activities. Ang et al. (2000) emphasize that the ability of banks to monitor managers complements the monitoring imposed by shareholders, indirectly reducing agency costs. This corresponds to the reality that banks push firms to operate more efficiently through optimal exploitation of their resources and judicious consumption of perquisites, intending to enhance firm performance.

Additionally, Fleming et al. (2005) indicated that debt financing furnishes complementary and/or alternative control mechanisms for family and managerial ownership, which result in reducing agency costs. Fleming et al. (2005), McKnight & Weir (2009), and Owusu & Weir (2018) have presented evidence suggesting that lender monitoring leads to more efficient asset utilization and reduces agency problems. Ang et al. (2000) revealed that default risk increases with the rise in financial leverage, motivating lenders to monitor the firm more closely to prevent the transfer of risks from shareholders to debtholders. Doukas et al. (2000) also found that increased levels of debt are instrumental in mitigating agency costs and boosting firm value.

Consistent with Fleming et al. (2005), McKnight & Weir (2009), and Owusu & Weir (2018), we expect that the monitoring imposed by lenders can enhance firms' efficiency and reduce agency costs in French firms, and hence we assume that:

H7: *Firms with high levels of bank debt relates to lower agency costs.*

2.4 Agency Costs and Growth Opportunities

Many research studies have confirmed that firms' growth prospects are likely to influence the association of firm performance and agency costs with corporate governance. For instance, Chen (2003) demonstrated a strong relationship between equity value and the annual stock bonus for firms with higher growth opportunities. Florackis (2008) suggests differences between higher-growth firms characterized by agency problems related to underinvestment or asymmetric information and lower-growth firms characterized by agency problems related to potential disagreements about using free cash flow. In addition, the effectiveness of governance mechanisms is expected to differ according to the growth opportunities.

Doukas et al. (2000) found that the interplay of growth opportunities with free cash flow can affect agency costs. Consequently, firms experiencing lower growth prospects and greater free cash flow tend to have more agency costs. In particular, Florackis (2008) expects that corporate governance will effectively moderate agency problems that relate to underinvestment or asymmetric information in higher-growth firms. Also, he estimates that these mechanisms will play a more effective role in moderating agency problems associated with disagreements about using free cash flow in lower-growth firms.

Consistent with Florackis (2008), we argue that higher-growth French firms are characterized by higher agency costs; therefore, we expect that:

H8: *Firms with higher levels of growth prospects relates to higher agency costs.*

H9: *The influence of governance mechanisms on agency costs varies depending on the growth prospects of firms.*

3. Results

3.1 Data Sources

To analyze the association of agency costs with ownership structure and board characteristics, we used a dataset of French firms quoted on the stock exchange from 2005 to 2023. The reason for starting the data series in 2005 is that, as of January 1, 2005, it became necessary for European Union firms quoted on the stock exchange to prepare their financial reports following the IASB reference. Thus, prior to this year, the financial reports of French firms were prepared according to local accounting standards. The disparity in accounting systems between the two periods (pre- and post-2005) is very likely to affect the estimation of agency costs, which is undesirable. Data was manually collected from two sources: the first consists of the reference documents of firms, while the second comprises the Universal Registration Document (URD) of French firms that became applicable in France starting in 2019. These sources provide financial information that helps estimate agency costs, information about the board of directors' characteristics and ownership structure, as well as firm characteristics.

The initial sample consisted of all firms quoted on the CAC 40 index, comprising 40 major French firms. Subsequently, the sample was reduced to 31 firms after excluding nine for practical and methodological reasons (financial firms and firms with accounting closing dates other than December 31). After data collection, we observed some missing values, especially for selling, general and administrative expenses (SGA), and institutional ownership. Concerning SGA expenses, we sometimes encountered difficulties in separating this type of expense from the operating expenses due to insufficient disclosure by some French firms in their financial reports. Regarding information related to institutional ownership, it was observed that many firms quoted on the CAC 40 index neglect to disclose information about this element in their annual reports. This lack of disclosure reduced the sample size to 22 firms for the asset turnover model (AST), for the interplay of growth prospects with the free cash flow model (FCFQ), and to 20 firms for the selling, general, and administrative expenses model (SGA). Consequently, an unbalanced dataset was generated.

3.2 Regression Model Specification

To measure the impact of the characteristics of the board of directors and ownership structure on agency costs in French firms quoted on the CAC 40 index, we adopt the following Eq. (1) and Eq. (2):

$$AC_{it} = \alpha + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 DUAL_{it} + \beta_4 EO_{it} + \beta_5 NEO_{it} + \beta_6 CON_{it} + \beta_7 INST_{it} + \beta_8 FSIZE_{it} + \beta_9 BANK_{it} + \beta_{10} FGP_{it} + \beta_{11} MAN_{it} + \beta_{12} MAN^2_{it} + \beta_{13\text{-}21} \textit{Industry FE} + \varepsilon_{it} \quad (1)$$

$$AC_{it} = \alpha + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 DUAL_{it} + \beta_4 EO_{it} + \beta_5 NEO_{it} + \beta_6 CON_{it} + \beta_7 INST_{it} + \beta_8 FSIZE_{it} + \beta_9 BANK_{it} + \beta_{10} FGP_{it} + \beta_{11} BS*FGP + \beta_{12} BI*FGP + \beta_{13} DUAL*FGP + \beta_{14} EO*FGP + \beta_{15} NEO*FGP + \beta_{16} CON*FGP + \beta_{17} INST*FGP + \beta_{18} MAN_{it} + \beta_{19} MAN^2_{it} + \beta_{20} MAN*FGP + \beta_{21\text{-}29} \textit{Industry FE} + \varepsilon_{it} \quad (2)$$

where, AC represents the agency costs proxies. BS is the directors' board size. BI is the board of directors'

independence. DUAL represents the combination of CEO and chairperson roles. MAN is the managerial ownership. MAN^2 represents the square of MAN. EO is the executive managerial ownership. NEO is the non-executive managerial ownership. CON represents ownership concentration. INST is the institutional ownership. FSIZE is the firm size. BANK represents bank debts. FGP represents growth opportunities for the firm. ε represents the error term. β represents the coefficients. α is the constant. *Industry FE* represents the industry fixed effects.

3.3 Dependent Variable (Agency Costs)

In our study, we employed three indicators to represent agency costs. The initial indicator is the asset turnover, which has a negative relationship with agency costs and serves as a measure of management's efficiency in utilizing assets. According to Fleming et al. (2005) and Florackis (2008), firms with lower asset utilization efficiency are likely to incur higher agency costs. This proxy is measured by dividing a firm's annual net sales by its total assets at the end of the period. The second indicator is the ratio of SGA expenses, which is directly related to agency costs and encompasses expenditures that afford management a wide range of discretion. According to Ang et al. (2000) and Singh & Davidson III (2003), management can use SGA expenses to conceal expenses related to perks. Therefore, firms with higher SGA expenses are expected to have higher agency costs. This proxy is measured by dividing the amount of the firm's SGA expenses by the annual sales at the end of the year.

The third measure is the interplay of free cash flows with growth prospects. McKnight & Weir (2009) and Doukas et al. (2000) contend that substantial free cash flows enable managers to exert greater discretion, leading to increased agency costs. Furthermore, high-growth firms tend to manage their resources more efficiently, reducing the likelihood of having surplus free cash flow, as available cash is directed towards projects with positive net present value. Consequently, agency costs are more likely to be high in firms that combine high free cash flow with low-growth opportunities. Following the approach of Allam (2018), Doukas et al. (2000), and McKnight & Weir (2009), we introduced a dummy variable to denote the level of the firm's growth. Low-growth firms are assigned a value of 1, whereas high-growth firms are assigned a value of 0. We used the median growth rate for all firms for each year to distinguish firms experiencing high growth opportunities from those with low growth opportunities. If a firm's growth rate exceeds the sample median for a given year, it is classified as a high-growth firm and takes the value 0. Conversely, it is classified as a low-growth firm and takes the value 1. We then multiply the value of free cash flow for each firm and for each year by the growth dummy variable, which allows us to identify firms characterized by both high free cash flows and low-growth prospects.

Growth opportunities were assessed using Tobin's Q, expressed by the market capitalization plus the book amount of debt weighted by the amount of assets. Consistent with Doukas et al. (2000) and McKnight & Weir (2009), the (Q) dichotomous variable takes the value 1 if the sample median is greater than the firm's Tobin's Q, and 0 otherwise. Moreover, free cash flow (FCF) is measured by profit from operations before amortizations and taxes plus dividends and interest paid, standardized by market capitalization (McKnight & Weir, 2009). As a final step, we multiply the value of free cash flow (FCF) by the variable (Q). An interactive variable (FCF*Q) with a high value signifies elevated agency costs.

3.4 Independent Variables

Our empirical models encompass three sets of independent variables. The first set pertains to the characteristics of the board, comprising board size, CEO duality, and board independence. The size of the board (BS) is calculated as the total number of directors. CEO duality (DUAL) is represented by a dichotomous variable, with 1 if the CEO also keeps the position of chairman and 0 in the other case. Board independence (BI) is calculated as the percentage of independent directors on the board. The second set concerns ownership structure, including managerial, executive, non-executive, institutional, and ownership concentration. Managerial ownership (MAN) is expressed by the portion of all shares owned by board members relative to the total number of shares issued by the firm. Executive ownership (EO) represents the portion of equity controlled by executive members of the board (insider directors) of the total number of firm shares. Non-executive ownership (NEO) denotes the portion of equity owned by non-executive directors within the board of the total equity of the firm. Managerial ownership squared (MAN^2) is calculated by squaring the managerial ownership ratio. Ownership concentration (CON) represents the ratio of equity owned by shareholders with more than 5% ownership of the capital to the total number of shares. Institutional ownership (INST) is defined as the portion of equity controlled by institutional investors in the total shares.

The last set includes variables of control, like firm size, bank debts, and growth opportunities, along with industry-fixed effects. Firm size (FSIZE) is measured by the natural logarithm of total assets at the end of the year. Bank debts (BANK) are determined by the total of short- and long-term bank debts relative to the total firm assets at the closure date. Firm growth opportunities (FGP) are assessed using Tobin's Q. In alignment with prior research, such as Fleming et al. (2005) and Rashid (2013), and to control the potential impact of industry on agency costs, we included a control variable termed "*Industry FE*", which represents the industry to which the firm

belongs. This variable encompasses a set of nine industries, excluding the technology and telecommunications industry, enabling us to account for industry-specific effects in our analysis of agency costs across French firms quoted on the CAC 40 index.

The study variables, their definitions, and measurement methods can be summarized in Table 1.

Table 1. Study variables and their descriptions

Variable	Description	Consistent with
AST	The yearly sales weighted by the total asset	Ang et al. (2000), Fleming et al. (2005), Florackis (2008), Singh & Davidson III (2003)
SGA	Selling, general, and administrative expenditures as a percentage of annual sales	Fleming et al. (2005), Florackis (2008), Singh & Davidson III (2003)
FCFQ	The interplay of growth prospects with free cash flow	Allam (2018), Doukas et al. (2000), McKnight & Weir (2009)
BS	The number of directors on the board	Florackis (2008), Owusu & Weir (2018), Rashid (2015), Singh & Davidson III (2003)
BI	The number of independent members on the board	McKnight & Weir (2009), Owusu & Weir (2018)
DUAL	A dichotomous variable takes the value 1 if the CEO serves as the board chairman; otherwise, it takes the value 0	Florackis (2008), McKnight & Weir (2009), Owusu & Weir (2018), Rashid (2013)
EO	The ratio of shares owned by executive members of the board	Singh & Davidson III (2003)
NEO	The ratio of shares owned by non-executive board members	Singh & Davidson III (2003)
MAN	The portion of firm equity owned by all members of the board	Rashid (2013), Rashid (2016), Singh & Davidson III (2003),
MAN^2	The square value of the managerial ownership ratio	Florackis (2008), Jelinek & Stuerke (2009), McKnight & Weir (2009), Doukas et al. (2000)
CON	The ratio of equity owned by shareholders with more than 5% of the capital	Florackis (2008), Heugens et al. (2009), Singh & Davidson III (2003)
INST	The ratio of ownership equity owned by institutional investors	McKnight & Weir (2009), Rashid (2013)
FSIZE	Firm size, represented as the natural logarithm of total assets	Florackis (2008), Haslindar & Abdul Samad (2011), Rashid (2013), Singh & Davidson III (2003)
BANK	Total short and long-term bank debt	Ang et al. (2000), Florackis (2008)
FGP	Firm's growth prospects	Allam (2018), Anderson et al. (2018), Chaudhary (2022), Florackis (2008)
Industry FE	Industry fixed effects	Fleming et al. (2005), Guest (2009), Rashid (2013), Setia-Atmaja (2008)

3.5 Data Analysis

Considering the underlying characteristics of the dataset, which involve cross-sectional and time series components, and to better investigate the association of agency costs with ownership structure and board of directors' characteristics in French firms quoted on the CAC 40 index during the period 2005-2023, it is preferable to utilize panel data models. These models encompass the three approaches: pooled regression, random effects, and fixed effects. The comparison between them relies on the outcomes of several statistical tests: the Fisher F-test (pooled OLS vs. fixed effects model), the Breusch-Pagan LM test (pooled OLS vs. random effects model), and the Hausman test (fixed effects vs. random effects). These tests aid in identifying the most suitable model for analyzing the data in the study. It's important to mention that the data analysis and all tests were performed using Stata 17 software.

4. Findings and Discussion

4.1 Sample Characteristics

Table 2 displays the variables' descriptive statistics, revealing that the average values for the asset turnover ratio, the SGA expenses ratio, and the interaction of Tobin Q with free cash flow among French firms quoted on the CAC 40 index are 66.2%, 23.3%, and 05.6%, respectively. The average number of board members is 13.46, with an average independence ratio of 57.6%. Furthermore, 54.4% of French firms quoted on the CAC 40 index separate the roles of board chairman from those of CEO.

Regarding ownership structure, the average managerial ownership ratio in the French firms quoted on the CAC 40 index is 1.1%, with approximately 0.2% as the average ratio of shares held by executive members and 0.9% as the average ratio of shares owned by non-executive members. The average ratio of ownership concentration is approximately 27.2%, while institutional ownership averages 64.6%. Additionally, the average short- and long-term bank debt ratio stands at 21.7%, while the Tobin's Q reaches 1.58 on average.

Referring to Table 3, we observe a negative correlation between asset turnover and board size, which is statistically meaningful at the 1% level. Similarly, a positive correlation between SGA expenses and board size is observed, which is significant at the 5% level. Additionally, the correlation matrix reveals a significant negative correlation between FCFQ and board size, also significant at the 1% level. In contrast, the results in the Table 3 demonstrate significant negative correlations between agency costs, CEO duality, and institutional ownership. Furthermore, there is a significant positive correlation between managerial ownership, managerial ownership squared, ownership concentration, non-executive ownership, and agency costs in French firms quoted on the CAC 40. However, executive managerial ownership does not exhibit a correlation with any of the agency cost indicators. Additionally, an unclear correlation is observed regarding board independence and agency costs, as the correlation was negative and significant with SGA expenses while simultaneously displaying a significant positive correlation with FCFQ.

Concerning the control variables, we find that at the 1% significance level, asset turnover and firm size are negatively correlated. However, the association between bank debt and agency costs appears unclear. Similarly, regarding firm growth, there exists a notable positive correlation with agency costs as measured by SGA expenses, while also demonstrating a significant negative correlation with the interactive variable FCFQ.

Table 2. Descriptive statistics

Variable	Observations	Mean	St Deviation	Minimum	Maximum
AST	552	.662	.269	.125	1.762
SGA	497	.233	.140	.000	.676
FCFQ	542	.056	.116	-.589	.726
BS	543	13.460	3.077	4.000	20.000
BI	543	.576	.187	.000	1.000
DUAL	542	.544	.498	.000	1.000
EO	537	.002	.019	.000	.315
NEO	537	.009	.023	.000	.158
MAN	537	.011	.031	.000	.343
MAN^2	537	.001	.007	.000	.118
CON	519	.272	.195	.000	.919
INST	335	.646	.173	.290	.900
FSIZE	552	24.071	1.181	19.400	26.440
BANK	550	.217	.124	.000	.592
FGP	552	1.581	1.256	.519	10.653

Table 3. Pearson's correlation matrix

	AST	SGA	FCFQ	BS	BI	DUAL	EO	NEO	MAN	MAN^2	CON	INST	FSIZE	BANK	FGP
AST	- - -														
SGA	-.186***	- - -													
FCFQ	-.093**	.009	- - -												
BS	-.119***	.107**	-.193***	- - -											
BI	-.043	-.234***	.115***	-.034	- - -										
DUAL	.095**	-.190***	-.191***	.172***	-.149***	- - -									
EO	.041	.024	-.021	-.183***	-.202***	.075*	- - -								
NEO	-.081*	.407***	.167***	-.117***	-.129***	-.270***	.073*	- - -							
MAN	-.036	.388***	.112***	-.200***	-.220***	-.156***	.667***	.792***	- - -						
MAN^2	-.007	.411***	.015	-.179***	-.215***	-.023	.940***	.349***	.836***	- - -					
CON	-.062	.299***	-.043	-.004	-.703***	.017	.076*	.116***	.133***	.088**	- - -				
INST	.246***	-.381***	-.087	-.150***	.640***	-.169***	-.085	-.263***	-.261***	-.237***	-.839***	- - -			
FSIZE	-.188***	-.066	-.054	.567***	.394***	.078*	-.276***	-.297***	-.391***	-.280***	-.306***	.152***	- - -		
BANK	-.092**	-.215***	.027	.110**	.077*	.265***	.114***	-.186***	-.069	.042	-.310***	.128**	.166***	- - -	
FGP	.047	.233***	-.265***	-.015	-.221***	-.096**	-.008	.063	.043	-.013	.465***	-.288***	-.203***	-.218***	- - -

Table 4. The VIFs value

Variable	VIFs	VIFs
MAN	-	9.68
MAN^2	-	8.10
CON	4.91	4.85
INST	4.11	4.03
BI	2.82	2.85
FSIZE	2.22	2.12
BS	1.95	1.94
BANK	1.54	1.38
NEO	1.53	-
EO	1.49	-
FGP	1.26	1.24
DUAL	1.24	1.22
Mean VIFs	**2.31**	**3.74**

4.2 Regression Findings

To ensure reliable statistical analysis, certain conditions must be met, including the normal distribution of data, the absence of multicollinearity, homoscedasticity, and no autocorrelation of residuals. Concerning the normal distribution of data, many statisticians consider this less significant if the sample size exceeds 30. Regarding multicollinearity, these issues between independent variables are usually detected using the variance inflation factor (VIF). Collinearity is typically considered present if the VIF exceeds 10 (Gujarati & Porter, 2008). Table 4 shows that all VIF values are below 10, suggesting no collinearity issues among the predictors. However, the correlation results show the presence of collinearity between MAN and EO (r = 0.667), MAN and NEO (r = 0.792), as well as between the squared of managerial ownership between MAN^2 and EO (r = 0.940). To address this issue, MAN and MAN^2 variables were included in separate regression models.

Additionally, we conducted tests for panel-level heteroskedasticity and autocorrelation using the Likelihood-ratio test and the Wooldridge test, although these were not reported separately. To address the issues of autocorrelation and heteroskedasticity, we employed the 'vce(cluster panelid)' command. This command assists in obtaining robust standard errors, which are resilient to heteroskedasticity and autocorrelation, thereby ensuring the reliability of our statistical estimates.

Table 5 displays the estimates for the relationships between the characteristics of the ownership structure, board of directors, and agency costs in French firms quoted on the CAC 40 index. In terms of the asset turnover ratio, a positive coefficient suggests low agency costs. Conversely, for proxies of SGA expenses and FCFQ, a positive coefficient implies elevated agency costs.

The Fisher test (F test) and Breusch-Pagan LM test (BP LM test) results demonstrate significance at the 1% level for all models except for model (6), in which the BP LM test is significant at the 5% level, suggesting that these models exhibit individual-specific effects (fixed effects or random effects). Moreover, the result of the Hausman test indicates significance at the 1% level only for models (2), (5), and (6), suggesting that we reject the null hypothesis that the random effects model is appropriate for these models. Furthermore, all models are significant at 1%, as the significance level of the Wald χ^2 and F-statistic were less than 1%.

Unlike the expectations of agency theory, it appears that the association of discretionary expenses ratio (SGA) with board size is negative and significant at a significance level of 10% in model (4), but it does not associate with asset utilization efficiency, and agency costs associate with free cash flows (FCFQ). This result suggests that French firms with large boards of directors are more effective in limiting agency costs. This result is in line with Allam (2018), Nguyen et al. (2020), Owusu & Weir (2018) and Rashid (2013), which found that boards with a greater number of directors are more efficient than those with fewer members, and it also has the ability to mitigate agency costs. Moreover, our result is not consistent with many previous studies such as Chaudhary (2022), Florackis (2008), Singh & Davidson III (2003), and Truong & Heaney (2013), which suggest that limited boards are more efficient in moderating agency costs.

As demonstrated by models (1) and (2), we found evidence indicating that CEO duality has a statistically significant adverse impact on management's efficiency in utilizing the firm's assets at the 10% significance level, thereby leading to increased agency costs. This result means that CEO duality is prejudicial to the effectiveness of boards of directors in the context of French firms. This finding aligns with the assumptions of Jensen & Meckling (1976) and the result of the study by Aktas et al. (2018), which suggest that CEO duality is considered undesirable due to its potential negative effects on corporate governance and firm efficiency. Thus, when one individual simultaneously holds both the positions of board chairman and CEO, it can weaken the board's monitoring

effectiveness, leading to inefficiencies in decision-making and resource allocation within the firm, especially in situations where external monitoring mechanisms are ineffective or insufficient.

Furthermore, contrary to the assumptions of agency theory, we find that executive ownership has a significant positive influence on discretionary expenses at a significance level of 10%. Therefore, augmenting the portion of common stock owned by executive members is expected to increase conflicts of interest between directors and equity holders. This can increase agency costs for French firms. Similarly, it also appears that non-executive ownership has a statistically positive relationship with agency costs associated with both asset utilization efficiency and free cash flow at a significance level of 5%. This reveals that the ownership of firm shares by the board members does not lead to a reduction in agency costs in French firms, whether those associated with the use of assets, discretionary expenses, or free cash flows. On the contrary, the low levels of executive and non-executive ownership exacerbate agency problems in the context of French firms. Our results are consistent with the findings of Allam (2018)'s study, which demonstrated that non-executive ownership relates positively to the agency costs of investment. On the other hand, our findings are inconsistent with the results of Florackis (2008), who emphasized the effectiveness of executive and non-executive ownership as an incentive mechanism in mitigating agency costs in UK firms.

As demonstrated in models (2) and (6), contrary to the predictions of agency theory, managerial ownership relates negatively and significantly to asset utilization efficiency at the 10% level, while it relates positively and significantly to the agency costs interacted with free cash flows at 1%, revealing that greater managerial ownership will lead to a raise in agency costs in French firms. This finding is consistent with the result of Nguyen et al. (2020), which found that managerial ownership relates negatively to asset turnover ratio, leading to an increase in agency costs. Contrarily, this result is inconsistent with several studies by Doukas et al. (2000), Jelinek & Stuerke (2009), McKnight & Weir (2009), Owusu & Weir (2018), Rashid (2016), Singh & Davidson III (2003), and Truong & Heaney (2013), which indicate that when managerial ownership is low, a convergence of interests is achieved between managers and owners, leading to a reduction in agency costs within the firm.

Additionally, the squared value of managerial ownership (MAN^2) exhibits a significant negative relationship with agency costs associated with both discretionary expenses and free cash flows, at the 10% and 5% significance levels, respectively. This finding suggests that there exists a curvilinear relationship, resembling an inverted U-shape, between agency costs and the level of ownership held by managers. Consequently, in the context of French firms, as managerial ownership reaches high levels, the interests of managers become closely aligned with those of shareholders, which motivates them to select alternatives that benefit shareholders and augment firm value, ultimately leading to a decrease in agency costs within the firm. This result is in line with Allam (2018) and McKnight & Weir (2009), which found that intensive managerial ownership relates negatively to agency costs. However, our finding contradicts the assumptions of agency theory, and the results of Doukas et al. (2000) and Jelinek & Stuerke (2009), which suggest that higher managerial ownership is related to intensive agency costs (managerial entrenchment).

The results also show that board independence, ownership concentration, and institutional ownership have no significant effects on agency cost proxies in French firms quoted on the CAC 40 index.

In terms of the variables of control, it appears that firm size positively and statistically affects agency costs, as measured by asset turnover at 1%. This means that big-size firms quoted on the CAC 40 incur a high level of agency costs. This finding aligns with the predictions of agency theory and the findings of Allam (2018) and Rashid (2013). They suggest that large firms are characterized by greater complexity, more challenging monitoring, and greater managerial discretion, which likely leads to an increase in agency costs.

Additionally, we also find that bank debt is significantly and negatively related to asset utilization efficiency at a significance level of 1%. This suggests that firms listed on the CAC 40 with high levels of bank debt experience high levels of agency costs. However, this finding contradicts the predictions of agency theory and the results of Ang et al. (2000), Fleming et al. (2005), Florackis (2008), McKnight & Weir (2009), and Nguyen et al. (2020). They noted that agency costs are expected to decrease with the increased monitoring imposed on the firm by debtholders.

Furthermore, the findings show that growth prospects (FGP) have a significant negative relationship with agency costs associated with both asset utilization efficiency and free cash flows, at a 1% significance level. This indicates that firms listed on the CAC 40 with high growth opportunities are characterized by lower agency costs. This result aligns with Ang et al. (2000), Chaudhary (2022), Fleming et al. (2005), and Rashid (2013), who assert that firms with high growth prospects may have lower agency costs.

As previously mentioned, we included industry fixed effects (*Industry FE*) in all models, excluding models (2), (5), and (6) due to collinearity. To assess whether there are differences in agency cost levels across industries, we conduct a joint test of the coefficients associated with the industry dummy variables. Consistent with Fleming et al. (2005), we find that the coefficients of industry, although not reported separately, are jointly significant at the 1% and 5% significance levels, where the p-value for the Wald test was less than 5%. This implies the existence of industry-fixed effects within our models, indicating differences in agency cost levels across industries to which French firms belong. This finding supports the notion that industry has an influence on agency costs.

Table 5. The impact of ownership structure and board characteristics on the costs of agency

Dependent Variable	**AST**		**SGA**		**FCFQ**	
Models	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Independent Variables	***Cof.***	***Cof.***	***Cof.***	***Cof.***	***Cof.***	***Cof.***
BS	-.001	-.002	-.003	-.004*	-.006	-.006
	(-.050)	(-.095)	(-1.641)	(-1.707)	(-1.498)	(-1.468)
BI	.024	.014	-.104	-.115	.079	.106
	(.311)	(.185)	(-1.570)	(-1.599)	(.555)	(.701)
DUAL	-.047*	-.045*	-.023	-.019	.004	-.003
	(-1.837)	(-1.937)	(-1.175)	(-1.032)	(.294)	(-.212)
EO	.017		.023*		-.052	
	(.666)		(1.844)		(-.856)	
NEO	-.008**		.001		.009**	
	(-2.318)		(.243)		(2.437)	
CON	-.001	-.001	.000	.000	.000	.001
	(-.597)	(-.453)	(.091)	(.191)	(.371)	(.508)
INST	-.001	-.002	.000	-.000	.001	.001
	(-1.082)	(-1.383)	(.294)	(-.222)	(.553)	(.695)
FSIZE	-.161***	-.161***	-.012	-.002	-.004	-.024
	(-3.247)	(-3.505)	(-.745)	(-.125)	(-.071)	(-.339)
BANK	-.440***	-.432***	.035	.043	-.046	-.064
	(-3.380)	(-3.372)	(.550)	(.623)	(-.252)	(-.351)
FGP	.063***	.068***	.000	.001	-.054***	-.055***
	(3.819)	(3.681)	(.088)	(.130)	(-3.558)	(-3.761)
MAN		-.013*		.009		.019***
		(-1.752)		(1.625)		(2.905)
MAN^2		.001		-.001*		-.001**
		(1.404)		(-1.713)		(-2.192)
Constant	4.573***	4.732***	.613*	.398	.228	.654
	(4.474)	(5.069)	(1.658)	(1.301)	(.177)	(.437)
Observations (Groups)	324 (22)	324 (22)	301 (20)	301 (20)	324 (22)	324 (22)
Industry FE	Yes	No	Yes	Yes	No	No
Wald $\chi 2$ for *Industry FE*	180.86***	-	9.24**	8.59**	-	-
R-Squared	.376	.375	.219	.204	.146	.140
P-value [Wald-stat] [**F-stat**]	.000***	**.000*** **	.000***	.000***	**.000*** **	**.000*** **
P-value:						
F-test	.000***	.000***	.000***	.000***	.000***	.000***
BP LM stat	.000***	.000***	.000***	.000***	.000***	.010**
Hausman stat	.630	.000***	.560	.230	.000***	.000***
Estimation (GLS)	*RE*	*FE*	*RE*	*RE*	*FE*	*FE*

Notes: *, **, and *** indicates significance level at 10%, 5%, and %1; Robust z/t- statistics in parentheses.

4.3 The Influence of Growth Prospects on the Association of Agency Costs with Governance Mechanisms

Many studies (e.g., Doukas et al., 2000; Florackis, 2008) show the importance of considering the interactive effect of growth prospects when discussing the association between agency costs and corporate mechanisms. They provide empirical evidence supporting the notion that the efficacy of governance practices in mitigating agency costs is fundamentally linked to a company's growth prospects. Typically, high-growth firms involve agency problems associated with greater information asymmetry. Therefore, governance mechanisms are expected to play a greater role in mitigating these problems in high-growth firms. Similarly, low-growth firms face challenges related to the use of free cash flows. Thus, corporate governance mechanisms are expected to play a greater role in mitigating this type of problem in low-growth firms. One of the aims of our study is to explore whether the growth opportunities of the firm influence the relationship between ownership structure, board characteristics, and agency cost in French firms quoted on the CAC 40 index. For that reason, we estimated these relationships while considering the moderating role of the firm's growth opportunities (FGP). The estimation results are summarized in Table 6.

Table 6. The moderating effect of firm growth prospects in the relationship between agency costs, ownership structure, and board characteristics

Dependent Variable	**AST**		**SGA**		**FCFQ**	
Models	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Independent Variables	***Cof.***	***Cof.***	***Cof.***	***Cof.***	***Cof.***	***Cof.***
BS	.037	-.012	-.003	-.003	-.029***	-.028**
	(1.376)	(-.640)	(-1.220)	(-.873)	(-2.935)	(-2.630)
BI	-.698*	-.338*	-.164	-.186	-.218	-.134
	(-1.729)	(-1.795)	(-1.326)	(-1.309)	(-.999)	(-.529)
DUAL	.141	-.042	-.047	-.039	-.000	-.005
	(.765)	(-.844)	(-1.166)	(-1.002)	(-.010)	(-.134)
EO	-.013		.060**		-.125	
	(-.181)		(2.719)		(-1.360)	
NEO	-.006		-.005		.017**	
	(-.196)		(-1.398)		(2.214)	
CON	-.012**	-.003	.000	.000	-.001	.000
	(-2.018)	(-.839)	(.337)	(.082)	(-.250)	(.022)
INST	.005	-.003	.001*	.001	.001	.001
	(.991)	(-1.397)	(1.838)	(1.378)	(.270)	(.412)
FSIZE	-.108**	-.170***	-.023	-.006	.005	-.024
	(-2.371)	(-3.566)	(-1.350)	(-.391)	(.111)	(-.385)
BANK	-.820	-.399***	.060	.066	-.041	-.050
	(-1.636)	(-3.125)	(.901)	(.880)	(-.228)	(-.279)
FGP	-.378	-.273*	.011	-.003	-.410***	-.341**
	(-1.186)	(-2.043)	(.172)	(-.042)	(-3.340)	(-2.362)
BS*FGP	-.005	.008	.000	-.000	.019**	.017**
	(-.363)	(1.618)	(.042)	(-.020)	(2.816)	(2.672)
BI*FGP	.642**	.266*	.059	.063	.203	.162
	(2.175)	(2.039)	(1.040)	(.953)	(1.581)	(1.210)
DUAL*FGP	-.067	.004	.014	.012	.012	.010
	(-.786)	(.203)	(1.090)	(.940)	(.621)	(.508)
EO*FGP	.040		-.013***		.029	
	(1.001)		(-3.215)		(1.389)	
NEO*FGP	-.004		.002		-.006**	
	(-.555)		(1.405)		(-2.241)	
CON*FGP	.005	.001	-.000	-.000	.001	.000
	(1.383)	(.665)	(-.521)	(-.366)	(.322)	(.196)
INST*FGP	-.002	.001	-.001	-.001	-.001	-.001
	(-.580)	(.550)	(-1.539)	(-1.371)	(-.529)	(-.532)
MAN		-.018*		.006		.019
		(-1.816)		(.901)		(1.347)
MAN^2		.001*		-.001		-.001
		(2.017)		(-1.304)		(-1.450)
MAN*FGP		.001		.000		-.004
		(.261)		(.355)		(-1.337)
Constant	3.388***	5.422***	.851*	.487	.524	1.079
	(2.940)	(5.498)	(1.802)	(1.131)	(.560)	(.856)
Observations (Groups)	324 (22)	324 (22)	301 (20)	301 (20)	324 (22)	324 (22)
Industry FE	*Yes*	*No*	*No*	*No*	*No*	*No*
Wald $\chi 2$ for *Industry FE*	139.52***	-	-	-	-	-
R-Squared	.105	.396	.275	.230	.216	.197
P-value [Wald-stat] [**F-stat**]	.000***	**.000*** **	**.000*** **	**.000*** **	**.000*** **	**.000*** **
Estimation (GLS)	*RE*	*FE*	*FE*	*FE*	*FE*	*FE*

Notes: *, **, and *** indicates significance level at 10%, 5%, and %1; Robust z/t- statistics in parentheses.

Following the findings in Table 6, Fisher, Breusch-Pagan LM, and Hausman tests, although not reported separately, all indicate statistical significance at the 1% level for models (8) to (12). This implies that these models feature individual-specific fixed effects. In the case of model (7), the Hausman test suggests that it displays individual-specific random effects since the p-value exceeds the 5% threshold. However, it's worth noting that all models demonstrate statistical significance at the 1% level.

Consistent with our earlier finding, we find that board size has a significant negative effect on agency costs associated with free cash flows at the 1% significance level. This reveals that larger boards of directors are likely to provide more diverse perspectives, expertise, and oversight, which can help mitigate agency costs in French firms quoted on the CAC 40. This finding supports our H1.

In contrast to H2, our findings reveal that board independence negatively and significantly affects asset turnover at the 10% level. This means that boards comprising a substantial number of independent directors demonstrate lesser efficiency in employing the firm's assets. Consequently, the H2 is rejected.

One plausible explanation is that the presence of a large number of independent directors may diminish the effectiveness of the board of directors. Management might encounter challenges due to the stringent oversight and cautious decision-making imposed by independent directors, compounded by their limited familiarity with French firms. This result contradicts the predictions of agency theory, which posits that the independence of the board serves as an effective mechanism to mitigate agency costs. However, it is in line with the viewpoint of stewardship theory, which contends that executive directors possess a greater capacity to attain organizational goals and enhance decision-making within the firm. Furthermore, our results are consistent with those of Florackis (2008), who observed a positive relationship between board independence and agency costs in UK firms.

In contrast to the results in Table 5, the findings indicate that duality has no significant effect on any of the agency cost indicators in French firms quoted on the CAC 40 index. This result aligns with Allam (2018), Florackis (2008), McKnight & Weir (2009), Nguyen et al. (2020), Owusu & Weir (2018), Rashid (2013). They showed that CEO duality doesn't seem to harm a firm's efficiency or lead to higher agency costs. Therefore, the H3 is rejected.

Confirming our previous findings, the results reveal that both executive and non-executive ownership have a positive and significant influence on agency costs within French firms, represented by both the SGA expenses and the FCFQ indicator, at the 5% level. Furthermore, the results suggest that low levels of managerial ownership are related to lower efficiency in utilizing firm's assets, at the 10% significance level. However, when managerial ownership reaches high levels, it will lead to more efficient use of assets. This result confirms the existence of an inverted U-shaped curvilinear relationship between managerial ownership and agency costs in French firms. Therefore, our H4 is rejected.

Additionally, the findings indicate that ownership concentration has a significant positive effect on agency costs in French firms, as measured by an asset turnover ratio of 5%. This means that greater ownership by blockholders in French firms is likely to generate more conflicts of interest or management behavior that does not aim to maximize shareholder value, potentially leading to higher agency costs associated with mitigating these conflicts. This finding is consistent with the results of Truong & Heaney (2013), who found a negative relationship between blockholders' equity and asset turnover ratio. However, our findings do not align with those of Florackis (2008), who demonstrated that ownership concentration as a monitoring mechanism effectively reduces agency costs. Consequently, H5 is rejected.

Similarly, we have found evidence indicating that institutional ownership significantly and positively impacts agency costs related to discretionary expenses at the 10% level. This suggests that despite the advantages related to institutional ownership, such as improved oversight and governance, it can also introduce complexities and challenges that contribute to higher agency costs within the French firms quoted on the CAC 40 index. Furthermore, in the context of French firms, institutional investors may have their own objectives that may not align with those of other shareholders or the firm's management (e.g., prioritizing short-term financial gains over long-term value creation). This misalignment can lead to conflicts of interest, resulting in inefficient decision-making processes and ultimately higher agency costs for French firms. Our result aligns with those of Doukas et al. (2000), McKnight & Weir (2009), and Rashid (2013), who demonstrate that increased institutional ownership is likely to lead to increased agency costs. Therefore, H6 is rejected.

Concerning the control variables, the results support our previous findings. The relationships between firm size and bank debt and asset utilization efficiency are significantly negative. This confirms that firms quoted on the CAC 40 index, characterized by large size and high bank debts, bear higher agency costs than other firms. Consequently, H7 is rejected.

The findings additionally indicate a significant adverse association of asset utilization efficiency with growth opportunities, at a significance level of 10%, which is inconsistent with our earlier finding. Additionally, the results indicate that growth opportunities are significantly negatively related to agency costs. This suggests that high-growth firms incur lower agency costs for investments. Therefore, H8 is rejected.

As mentioned previously, it's possible that the growth prospects of the firm affect the association between governance mechanisms and agency costs within the framework of French firms. Our findings support the presence of four interaction effects.

Regarding the interactive variable between board size and growth opportunities (BS*FGP), the findings reveal a positive and statistically significant relationship with agency costs associated with free cash flow, at the 5% level. This reveals that the effectiveness of board size as a monitoring mechanism for mitigating agency costs is more pronounced for French firms with low-growth opportunities.

In terms of the interactive variable between board independence and growth opportunities (BI*FGP), the results indicate a significant and positive relationship with the efficiency of asset utilization at the 5% significance level. This suggests that the effectiveness of board independence in mitigating agency costs in firms quoted on the CAC 40 index is more pronounced for high-growth firms.

Similarly, concerning the interactive variables between executive ownership and growth opportunities (EO*FGP) as well as non-executive ownership and growth opportunities (NEO*FGP), the results indicate a negative and statistically significant relationship between these two interactive variables and agency costs associated with both discretionary expenses and free cash flows, at 1% and 5% levels of significance, respectively. This implies that the effectiveness of executive and non-executive ownership as an incentive mechanism for reducing agency costs is more pronounced in high-growth French firms.

Overall, we have evidence supporting the idea that growth opportunities can impact the relationship between agency costs and corporate governance mechanisms. Thus, H9 is accepted.

5. Conclusions

In this study, we have investigated the influence of corporate governance mechanisms on agency costs in French firms quoted on the CAC 40 index from 2005 to 2023. Our focus lies on examining the impact of ownership structure and the board of directors' characteristics on agency costs. Additionally, we have investigated the effect of a firm's growth opportunities on the association of agency costs with governance mechanisms in French firms.

Contrary to the assumptions of agency theory, our empirical results reveal that French firms with expanded boards are more able to mitigate agency costs. However, managerial ownership as an incentive mechanism has proven ineffective in reducing agency costs. Increasing levels of managerial ownership lead to heightened conflicts of interest and exacerbate agency problems, resulting in increased agency costs. Nevertheless, reaching high levels of managerial ownership creates a compatibility of interests between management and shareholders, thereby reducing agency costs. Thus, we find no evidence of managerial entrenchment behavior in French firms quoted on the CAC 40 index.

Furthermore, our findings suggest that increasing board independence may negatively affect management's efficiency in using the firm's assets. This result supports the view that executive directors have a greater ability to achieve organizational goals and enhance decision-making within the firm, given their extensive knowledge of the firm compared to independent directors. It also opens the discussion on the effectiveness of board independence as a monitoring mechanism under the French corporate governance code.

We also found weak evidence indicating that ownership concentration, institutional ownership, and CEO duality may negatively impact a firm's asset utilization efficiency and contribute to increased agency costs associated with discretionary expenses. These findings are very interesting and raise questions about the effectiveness of these mechanisms in the French context.

Additionally, our results confirm that large French firms tend to incur higher agency costs, aligning with agency theory predictions. Unexpectedly, increased monitoring by debtholders exacerbates agency problems and increases agency costs in French firms, contrary to agency theory predictions.

Finally, our empirical results have shown that high-growth French firms tend to incur lower agency costs than firms with low growth. Moreover, the effectiveness of certain mechanisms of corporate governance in moderating agency costs is influenced by the growth prospects of the firm. Specifically, board independence and executive and non-executive ownership are effective mechanisms for firms with high-growth prospects, whereas board size is effective for firms with limited growth prospects.

In conclusion, our study makes a substantial contribution to assessing the corporate governance framework in France and the efficacy of governance mechanisms to mitigate agency issues within French firms. Additionally, it offers valuable insights to French firms regarding ideal board structures and managerial ownership levels to diminish agency costs. Moreover, it highlights the necessity for policymakers, legal authorities, and practitioners in France to reconsider corporate governance mechanisms, given the failure of many of these mechanisms to reduce agency costs.

Author Contributions

The two authors of this article have equally contributed to its elaboration. The submitted version of this article has been read and endorsed by all contributing authors.

Data Availability

The data used to support the research findings are available from the corresponding author upon request.

Conflicts of Interest

The authors declare no conflict of interest.

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