

Capital structure and the firm performance nexus: the moderating and mediating roles of agency cost

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Abstract

Purpose – The purpose of this study is to examine the linear and non-linear relationship between capital structure (CS) and firm performance (FP) and the moderating and mediating roles of agency costs in the CS-FP nexus.

Design/methodology/approach – This study used static and quadratic panel data regression models to examine the linear and non-linear relationships and structured equation models to analyze the mediating effect of agency costs in the CS-FP nexus of 38 listed non-financial Mauritian firms from 2009 to 2019.

Findings – Leverage has a significant negative effect on FP supporting the pecking order theory. Agency costs are significantly and positively associated with FP. There is a strong non-linear relationship between leverage and FP supporting the trade-off and agency cost theories. Agency costs are an important moderator and mediator in the CS-FP nexus. Overall, the sensitivity analyses showed that the results were robust.

Practical implications – Firms need to carefully consider the levels and types of debt and equity in their CS involving the use of dynamic strategies to adjust CS in response to changing economic conditions and FP. The moderating effect of agency costs may guide firms in optimizing CS and may contribute to corporate governance discussions, emphasizing the importance of aligning interests to foster sustainable business practices.

Originality/value – This study adds to the extant literature by providing new evidence on the non-linear relationship between leverage and FP and the moderating and mediating roles of agency costs in the CS-FP nexus in emerging capital markets, where such studies are rare.

Keywords Capital structure, Firm performance, Non-linear relationship, Moderator, Mediator, Agency costs
Paper type Research paper

1. Introduction

Capital structure (CS) is one of the key tenets of financial decision-making. CS ensures a firm's long-term sustainability by boosting investment opportunities and enhancing firm performance (FP) (Booth *et al.*, 2001). Several CS models have been developed over time for finding the financial decisions and factors that can optimize firm value. There has been much theoretical and empirical debate about the CS and FP nexus (Khémiri and Noubbigh, 2020). This relationship has been extensively examined from a theoretical perspective ever since the Modigliani and Miller (1958) argument was rejected. Several theories have been developed to provide a clearer explanation of this link, including the trade-off theory, agency



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cost theory, and pecking order theory. According to empirical studies, there is disagreement over the nature of this relationship (Khémiri and Noubbigh, 2020).

CS has received considerable attention in recent years and numerous studies have been conducted to understand how they affect FP. However, an in-depth review of the literature reveals several limitations. For instance, some studies (Tarus (2020) in Kenya; Handayani *et al.* (2022) in Indonesia; Islam and Iqbal (2022) in Pakistan; Opoku-Asante *et al.* (2022) in Ghana and Nigeria; Perri and Cela (2022) in Albania) have found a linear relationship while other studies (Berger and Bonaccorsi di Patti (2006) in the USA; Margaritis and Psillaki (2010) in France; Le and Phan (2017) in Vietnam; Kharabsheh *et al.* (2017) in Jordan; Ganiyu *et al.* (2019) in Nigeria; Zeitun and Goaid (2022) in Japan; Attia *et al.* (2023) in MENA region; Orabi Awad and Mohamed Ali (2022) in Egypt) have observed a non-linear relationship between CS and FP. Based on the existing literature, to the best of our knowledge, no prior study has addressed the issue of the non-linear link between CS and FP in small island emerging economies and except for Egypt and Nigeria, no other studies have been conducted in the African continent. It can be useful to gain insights by examining how factors specific in the context of a small island developing state such as Mauritius with its characteristics like industry composition, regulatory environment, and market structure may influence the CS- FP nexus. Mauritius has a highly concentrated ownership structure and consists of highly leveraged firms (average debt to equity level of non-financial firms at 98.5% from 2009 to 2019), the bank loan is preferred over equity and the stock market is relatively inexperienced. All these features open to different CS dynamics and make Mauritian firms worth exploring. Moreover, a mediator, or intervening variable, is a hypothetical approach or mechanism that an independent variable may use to indirectly influence a dependent outcome variable (Zanoli *et al.*, 2015). These processes and mechanisms are investigated using mediation analysis. Baron and Kenny (1986) define moderation as the impact of a qualitative or quantitative variable on the direction and/or the magnitude of the link between an independent variable and a dependent variable. It is a distinct concept from mediation. Limited studies (Pandey and Sahu, 2019; Purusotomo and Hadinugroho, 2021; Sdiq and Abdullah, 2022; Puri, 2023; Ahmed *et al.*, 2023) have examined the moderating role of agency costs in the CS-FP nexus. If the role of agency costs in the CS-FP nexus can be indirect, then investigating the mediating effect of agency costs may explain the inconsistent results about the direct effect of CS on FP and provide a better understanding of how changes in agency costs may alter FP. According to Judd *et al.* (2001), the same variable can act as a mediator as well as a moderator. However, prior research has disregarded the mediating role of agency costs in the CS-FP nexus. To address these gaps, this study examines (1) the linear and non-linear relationship between CS and FP of listed Mauritian non-financial firms; and (2) how agency costs moderate and/or mediate the CS-FP nexus. More specifically, this research addresses the following four research questions:

- RQ1. Does CS have a linear and non-linear relationship with FP of listed Mauritian non-financial firms?
- RQ2. Do agency costs influence the FP of listed Mauritian non-financial firms?
- RQ3. Do agency costs moderate the CS- FP nexus of listed Mauritian non-financial firms?
- RQ4. Do agency costs mediate the CS- FP nexus of listed Mauritian non-financial firms?

This study contributes to the CS and FP literature in numerous ways. First, we contribute to the continuing debate over whether CS influences FP. Second, no single theory has been able to explain the mixed results of CS on FP. This study adds to the body of literature by using several theoretical frameworks, to explain the empirical results and thoroughly understand

CS choices. Third, we present empirical evidence from an emerging country, specifically a small island economy, because it is widely acknowledged that conclusions obtained in the context of developed economies may not necessarily apply to the realities of emerging economies. Fourth, the existing literature on the impacts of CS on FP is equivocal since it implicitly presupposes that this relationship is direct. An alternate viewpoint that has received less attention in the existing literature and which can contribute to the current understanding is the inclusion of a more accurate and thorough study design that consists of moderator and mediator variables. Some studies have examined the moderating/interactive effects of agency costs in the CS-FP relationship but such studies are still rare. Moreover, can agency costs have an indirect effect on the CS-FP nexus? To the best of our knowledge, this question has not been addressed in the literature. Finally, the findings of this study suggest policy implications and recommendations in an endeavor for better FP for various stakeholders.

The aims of this paper are in three parts. First, it explores the linear and non-linear association between CS and FP. Second, it investigates the effect of agency costs on FP. Finally, this study aims to answer the question of whether agency costs as a mediator and/or moderator can have any influence on the CS-FP nexus of listed Mauritian non-financial firms.

This study is divided into six separate sections. The first section includes an outline of the research gaps and questions, as well as related aims. [Section 2](#) discusses the literature review. The research design is discussed in [Section 3](#). [Section 4](#) presents the statistical analyses and empirical outcomes. Robustness tests are presented in [Section 5](#). The last section summarizes and concludes the research findings, theoretical and managerial implications, limitations, and recommendations for future research.

2. Literature review

2.1 Theories of capital structure

2.1.1 Modigliani and Miller theory. The significance of CS decisions was initially underlined by [Modigliani and Miller's \(1958\)](#) pioneering work. Modigliani and Miller presented the “irrelevance theory of capital structure” in 1958. The theory claims that the mixture of CS has no effect on firm value (an irrelevant thesis) and that asset allocation (investment decisions) is the most important factor for firm value. Modigliani and Miller's theory argument (1958) was based on a set of very strict assumptions and is not supported by recent research by [Islam and Iqbal \(2022\)](#) and [Abuamsha and Shumali \(2022\)](#) which have shown that CS is important and influences FP. Later, [Modigliani and Miller \(1963\)](#) amended their earlier theory by relaxing the assumption of no corporation taxes and demonstrated that a firm's worth rises as it takes on more debt due to the tax benefit earned on interest payments.

2.1.2 Agency cost theory. The agency cost theory was established by [Jensen and Meckling \(1976\)](#) and [Jensen \(1986\)](#). This theory primarily deals with disputes that arise between shareholders, managers, and debt holders. According to this theory, the best mix of equity and debt that maximizes a firm's value is the one that minimizes agency costs. According to [Jensen and Meckling \(1976\)](#), there are two categories of agency costs, i.e. the agency cost of equity and the agency cost of debt. The agency cost of equity is caused by the conflict between managers and shareholders, which results from the separation of ownership and control. The agency cost of debt is induced by the conflict between shareholders and debt holders where excessive debt can operate as a corporate governance mechanism by forcing managers to engage in profitable projects to generate the cash needed to pay debt interest payments. Consequently, for corporations with a large cash flow, rising debt can lower agency costs and boost a firm's value. According to the agency cost theory, increased debt can result in two possible conflicts that have opposing effects on FP. On the one hand, more debt reduces agency costs connected with shareholder-management board conflict, and on

the other hand, additional debt increases agency costs associated with shareholder-creditor conflict (Kruk, 2021).

2.1.3 Trade-off theory. The trade-off theory is an extension of Modigliani and Miller's theorem that accounts for the effects of taxes and the costs of bankruptcy. However, the theory assumes that firms trade off the benefits of debt financing (favorable corporation tax structure) against increased interest rates and bankruptcy costs to find an optimal CS – the mix that maximizes a firm's value. An optimal CS is defined as a leverage ratio in which the debt's marginal tax advantage equals the bankruptcy's marginal cost (Bilgin and Dinc, 2019). Firms will strive to achieve the highest level of financial leverage possible to maximize shareholder wealth (Orlova *et al.*, 2020). Any divergence of financial leverage from the optimal CS may result in a decline in a firm's value (Nguyen *et al.*, 2021). This theory predicts a positive relationship because when a company is profitable, it may take on more debt, resulting in larger interest payments that are deducted from taxes (Ponce *et al.*, 2019). The market price of shares rises as leverage is increased because when debt is issued, shareholders see it as a vote of confidence that the company is doing well enough to repay both the principal and the interest on the borrowed cash (Berk *et al.*, 2014). This theory, however, does not appear to account for instances in which debt is absent (Miglo, 2020).

2.1.4 Pecking order theory. In contrast to the trade-off theory, Majluf and Myers (1984) developed the pecking order theory which asserts that there is no optimal CS due to information asymmetry. The theory proposes that firms have a preferred funding hierarchy. Firms strictly prefer internal finance to external financing, and when it comes to the latter, debt capital over equity capital is preferred. Given that this theory predicts that firms use their resources rather than borrow them, it expects a negative relationship. The validity of the pecking order theory has been proved in numerous empirical studies (Bhatia and Srivastava, 2022; Nguyen *et al.*, 2020). The pecking order theory does show how finance may be impacted by information asymmetry but as with many CS theories, this theory works in some conditions and situations more effectively than in others (Olusola *et al.*, 2022). For instance, Vásquez Tejos and Pape Larre (2021) did not find any evidence that Latin American companies conformed to the pecking order theory during the period 2010–2018.

2.2 Empirical literature and hypotheses development

2.2.1 Relationship between capital structure and firm performance. 2.2.1.1 Linear relationship between capital structure and firm performance. A higher leverage ratio is associated with better performance because it lowers agency costs and motivates management to operate in the best interests of shareholders (Gill *et al.*, 2011). Tarus (2020) and Handayani *et al.* (2022) found that CS is positively linked to FP in Kenya and Indonesia respectively. According to Cai and Zhang (2011), changes in a company's financial leverage can have a negative impact on its share price. Other studies finding a negative linkage between CS and FP were Seetanah *et al.* (2014) in Mauritius, Li *et al.* (2018) in European SMEs (Austria, Belgium, Finland, France, Germany, Italy, Portugal, Spain, Sweden and the UK), Bhatia and Srivastava (2022) in India, Islam and Iqbal (2022) in Pakistan and Opoku-Asante *et al.* (2022) in Ghana and Nigeria. Abata *et al.* (2017), Habibniya *et al.* (2022) and Perri and Cela (2022) reported mixed results in South Africa, the USA and Albania respectively. However, Connelly *et al.* (2012) found no link between CS and FP. They claimed that by taking on more debts, enterprises may fall under the control of creditors, who will monitor the firms more closely resulting in highly leveraged companies performing better than low leveraged firms. Similarly, Olusola *et al.* (2022) found that the influence of CS on FP of 202 listed Hong Kong during 2014–2018 proved to be inconclusive possibly because of the different economic, cultural, political and institutional characteristics of the country.

The first hypothesis (H1) on the linear relationship between leverage and FP, proxied by ROE (H1a) and Tobin's Q (H1b), is posited as follows:

- H1. There is a significant negative effect of leverage on the FP of listed Mauritian non-financial firms.

2.2.1.2 Non-linear relationship between capital structure and firm performance. Several studies have also shown that there is a non-linear relationship between CS and FP. This implies that CS can have both positive and negative impacts on FP. For instance, debt can impact FP in both ways, according to a model developed by [Stulz \(1990\)](#). Debt repayment specifically has a positive impact since it forces managers to distribute cash flow and, as a result, lowers overinvestment. Debt repayments can also deplete cash flow or lower the amount of funds available for viable investments, which exacerbates the underinvestment issue. [Berger and Bonaccorsi di Patti \(2006\)](#) found a non-linear relationship between CS and FP in the USA. [Margaritis and Psillaki \(2010\)](#) used a quadratic functional form that considered both the debt ratio and the square of the debt ratio of French manufacturing firms to make the relationship between CS and profit efficiency non-monotonic and to allow for sign reversals when debt ratios are high. They found a positive correlation between leverage and FP as determined by X-inefficiency. However, in some industries, this correlation changed from positive to negative at high leverage. [Kharabsheh et al. \(2017\)](#) found a substantial non-linear CS-FP relationship in Jordan, which is positive at low debt levels but negative at larger debt levels. In contrast, [Jamil et al. \(2021\)](#) observed that lower levels of leverage of listed textile firms in Pakistan negatively influence firm value, but higher leverage levels show strong positive relationships. [Le and Phan \(2017\)](#) in Vietnam and [Ganiyu et al. \(2019\)](#) in Nigeria found a non-linear CS-FP relationship, confirming the validity of agency cost theory.

[Jaisinghani and Kanjilal \(2017\)](#), [Raharja and Mranani \(2019\)](#), and [Orabi Awad and Mohamed Ali \(2022\)](#) concluded from their analysis that there is an optimal debt limit, supporting the assertions of trade-off theory in India, Indonesia, and Egypt respectively. [Zeitun and Goaid \(2022\)](#) examined 1,670 listed Japanese companies and found a U-shaped association between FP and short-term debt, implying that a company's profit declines at lower levels of short-term debt (below 45.2%) and rises at higher levels of debt with short-term maturity. [Attia et al., \(2023\)](#) observed a non-linear relationship between debt and Tobin's Q, ROA, and ROE of 499 listed firms in the MENA region between 2007–2020 supporting signaling, pecking order, and trade-off theories. Other studies ([Salam and Shourkashti \(2019\)](#) in Malaysia, and [Ghardallou \(2022\)](#) in Saudi Arabia) also confirmed the non-linear link between CS and FP. The second hypothesis (H2) on the non-linear relationship between CS and FP, proxied by ROE (H2a) and Tobin's Q (H2b), is developed as follows:

- H2. There is a significant non-linear effect of leverage on the FP of listed Mauritian non-financial firms.

2.2.2 Relationship between capital structure and agency costs. According to [Berger and Bonaccorsi di Patti \(2006\)](#), [Margaritis and Psillaki \(2010\)](#), [Gill et al. \(2011\)](#), and other scholars, a rise in debt can help to decrease agency costs by constraining managers to act more in the interest of shareholders. However, [Stulz \(1990\)](#) argued that a decline in cash flow may result in less attractive investment prospects when compared to companies in the same industry with more liquidity. Similarly, while debt reduces conflict and agency costs between shareholders and managers, it increases conflict and agency costs between shareholders and debtholders ([Myers, 1977](#)), as the danger of liquidation and underinvestment rises. To compensate for the increased risk, debt holders are expected to raise the interest rates on their borrowings. [Imelda and Patricia \(2019\)](#) found that the debt-to-asset ratio had a substantial influence on the agency costs of 104 Indonesian manufacturing listed firms from 2014 to

2016. However, [Zulvia and Serly \(2020\)](#) found mixed results on the impact of CS on agency costs of listed Indonesian manufacturing firms from 2013–2018 i.e. the debt-to-equity ratio has a positive and significant effect on agency costs while the long-term debt-to-equity ratio has a negative and significant influence on agency costs. [Tarus \(2020\)](#) observed that CS had a significant negative impact on the agency costs of 34 listed Kenyan firms during 2006–2012.

2.2.3 Relationship between agency costs and firm performance. Numerous academics have studied how agency costs affect FP, with inconsistent results. [Pandey and Sahu \(2019\)](#) found that debt is positively related to agency costs for manufacturing firms traded in the BSE 200 Index from 2009 to 2016. [Khuyen \(2021\)](#) found that agency costs, proxied by asset utilization ratio, had a significant impact on both the ROA and ROE of Vietnamese food and beverage manufacturing listed companies from 2010 to 2020. However, several other studies revealed that agency costs can have a detrimental impact on FP. For instance, [Hoang *et al.* \(2019\)](#) showed that agency costs had a significant negative effect on the FP of 736 Vietnamese listed firms from 2010 to 2015. [Khan *et al.* \(2020\)](#) found similar results while examining listed Chinese firms from 2008 to 2016. Other studies found mixed results. [Kontuš \(2021\)](#) found modest or no association between FP and agency costs in listed companies in Croatia, Slovenia, and the Czech Republic. [Baykara and Baykara \(2021\)](#) found mixed relationships between agency costs and FP of the listed SME firms in the Istanbul Stock Exchange between 2017 and 2020 that varied to the proxy used for agency costs (operating expense ratio: negative and significant; free cash flow: positive and significant; asset utilization ratio: negative and insignificant). [Ahmed *et al.* \(2023\)](#) showed that agency costs negatively influenced Tobin's Q but were positively linked with ROA and EPS. [Gborogen and Toluwa \(2023\)](#) found that total debt-to-equity ratio and long-term debt-to-asset ratio had a negative and significant relationship with agency costs, whereas short-term debt-to-asset ratio, long-term debt-to-equity ratio, and equity-to-assets ratio had a positive and significant relationship with agency costs of listed Nigerian non-financial firms. Therefore, the third hypothesis (H3) on the relationship between agency costs and FP, proxied by ROE (H3a) and Tobin's Q (H3b), is posited as follows:

H3. Agency costs have a significant negative impact on the FP of listed Mauritian non-financial firms.

2.2.4 Relationships between agency costs, capital structure and firm performance. Several studies contended that when CS is low, firms can raise capital through debt financing. The agency conflicts and costs may consequently be decreased, and FP will increase as a result ([Jensen and Meckling, 1976](#); [Jensen, 1986](#); [Hoang *et al.*, 2019](#)). However, [Pandey and Sahu \(2019\)](#) documented a significant negative impact of debt on the FP of 91 Indian manufacturing listed firms from 2009 to 2016. This negative effect of debt on FP was more evident and justified since they observed that the magnitude of debt was also found to have a positive impact on the agency costs measured by general and administrative expenses.

Agency costs can moderate the relationship between CS and FP through various mechanisms. For instance, debt financing can align managers' and shareholders' interests by imposing financial discipline and lowering the agency costs associated with free cash flow. However, high debt can result in new agency conflicts, such as debt overhang or asset substitution. Additionally, establishing and enforcing contracts to alleviate agency conflicts can be costly. These costs, such as legal fees and monitoring expenses, can negatively influence FP, especially if they offset the positive benefits of debt financing. Moreover, debt holders may have difficulty supervising managers, particularly in companies with complex capital structures or opaque operations. This information asymmetry can increase agency costs and decrease FP. In general, the link between CS and FP is complex, driven by various agency costs and mechanisms. Balancing these aspects is critical for making optimal CS decisions and improving FP. [Purusotomo and Hadinugroho \(2021\)](#) found that agency costs

(proxied by asset utilization ratio) moderated the relationship between CS and FP (ROE and ROA) of Indonesian state-owned companies from 2010 to 2019. [Sdiq and Abdullah \(2022\)](#) observed that agency costs as moderators influenced the association between CS and FP of listed Iraq firms from 2004 to 2020 in both positive (ROA) and negative (market to book ratio) ways. [Puri \(2023\)](#) showed that when agency costs were incorporated as a moderator, the market value and performance of New Zealand firms improved from 2010 to 2021 supporting agency cost theory, i.e. agency costs help firms to increase their market value by enabling managers to direct their discretionary expenditure toward more profitable, value-added projects, resulting in fewer agency conflicts. [Ahmed et al. \(2023\)](#) observed that agency costs (asset utilization ratio) had negative impacts on ROA (significant) and EPS (insignificant) while Tobin's Q was positively impacted by the moderating effect of the agency costs of manufacturing firms listed on the Tehran Stock Exchange from 2011 to 2019. To the best of the authors' knowledge, no prior studies have considered the mediating role of agency costs in the CS-FP nexus.

Agency costs may act as a moderator but also as a mediator in the CS-FP relationship. This is because CS decisions can affect how efficiently a company operates by influencing the alignment of interests and effective monitoring mechanisms. A well-structured capital arrangement may alleviate agency issues, improving FP in a competitive environment. Consistent with the above arguments, the following hypotheses on the moderating (H4) and mediating (H5) roles of agency costs in the link between CS and FP, proxied by ROE (H4a and H5a) and Tobin's Q (H4b and H5b), are developed as follows:

- H4. Agency costs moderate the relationship between leverage and FP of listed Mauritian non-financial firms.
- H5. Agency costs mediate the relationship between leverage and FP of listed Mauritian non-financial firms.

2.2.5 Disparities in the empirical results. According to the findings of the aforementioned empirical studies, the evidence on the relationship between CS, agency costs, and FP is mixed, with significant disparities. Several factors can shed light on performance variability. First, econometric concerns such as selection bias, endogeneity, and insufficient statistical power may have an impact on the relationships. Second, the results may vary depending on which (1) FP indicator is used, such as EPS, ROA, and ROE as accounting measures, Tobin's Q and MBK as market performance measures, and (2) proxy used for agency costs, such as asset utilization ratio, free cash flow, and operating expense ratio. Third, differences in the CS and FP nexus can be explained by differences in (1) corporate business complexity and heterogeneity, (2) country specifics due to cultural principles, socio-political, economic and institutional characteristics, and historical factors, and (3) the efficacy of law application and enforcement. For instance, [Booth et al. \(2001\)](#) examined 10 emerging economies and found that the agency cost of debt is significantly greater in developing countries than in developed markets. In this context, the cultural and economic contexts of individual countries can influence the effects of CS on FP differently in developed and emerging countries.

3. Research design

This section covers the research methodology, disclosure sources, data collection, sample selection, panel data regression models, and statistical tests for this study.

3.1 Research design objectives

The objectives of this study are to examine the following:

- (1) linear and non-linear relationship between leverage and FP.
- (2) relationship between agency costs and FP.
- (3) moderating role of agency costs in the CS-FP nexus.
- (4) mediating role of agency costs in the CS-FP nexus.

3.2 Timeframe and statistical analysis model

From 2009 to 2019, we investigated a sample of companies listed on the Stock Exchange of Mauritius (SEM). According to the relevant literature, multiple panel data regression analysis was used to capture the several factors included in the sample. STATA 16 software was used to obtain descriptive statistics for all variables and multivariate analysis. The STATA package “medsem” that utilizes both [Baron and Kenny’s \(1986\)](#) and [Zhao et al. \(2010\)](#) methods and developed by [Mehmetoglu \(2018\)](#) was used for the statistical mediation analyses.

3.3 Research and sampling design

The main sources of information were the annual reports from 2009 to 2019 of non-financial companies listed on SEM. The selected sample was not subject to any survivorship bias. The years 2020–2022 were excluded due to the global economic crisis induced by the COVID-19 pandemic, as they may not reflect the real performance of these firms and may result in outliers. To present balanced panel data for analysis, the sample further excluded firms of complex/different traits, financial companies listed after 2009, and those with missing data.

3.4 Definitions of the dependent, independent moderating, mediating, and control variables

Numerous proxies can be employed to measure agency costs. The operating expense ratio and asset utilization ratio are used in the literature for determining agency costs ([Hoang et al., 2019](#); [Puri, 2023](#)). The asset utilization ratio was used in our study to determine the agency costs. The asset utilization ratio is an inverse proxy for agency costs, which means that agency costs rise as asset utilization decreases. As a result, agency costs were used as an independent variable, playing a moderating and mediating role in influencing the CS-FP nexus. The definitions of the dependent, independent, and control variables are presented in [Appendix 1](#). There can be other variables that may influence FP. However, they were not included in this study due to unavailability of data.

3.5 Regression models

To answer the research question “Does CS have a linear and non-linear relationship with FP of listed Mauritian non-financial firms?” the following panel regression models were developed.

$$FP_{it} = \beta_0 + \beta_1 CGI_{it} + \beta_2 CS_{it} + \beta_3 LIQUIDITY_{it} + \beta_4 AGE_{it} + \beta_5 SIZE_{it} + \beta_6 AUR_{it} + \beta_7 AUDITQUAL_{it} + \beta_8 GROWTH_{it} + \varepsilon_{it} \quad (1)$$

$$FP_{it} = \beta_0 + \beta_1 CGI_{it} + \beta_2 CS_{it} + \beta_3 CS_{it} * CS_{it} + \beta_4 LIQUIDITY_{it} + \beta_5 AGE_{it} + \beta_6 SIZE_{it} + \beta_7 AUR_{it} + \beta_8 AUDITQUAL_{it} + \beta_9 GROWTH_{it} + \varepsilon_{it} \quad (2)$$

Model 1 tests hypotheses [H1](#) and [H3](#). Model 2 was developed to assess the presence of any non-linear relationship between the CS and FP, i.e. to test the hypothesis [H2](#) consistent with prior studies employing the squared terms of CS ([Margaritis and Psillaki, 2010](#); [Kharabsheh et al., 2017](#); [Ganiyu et al., 2019](#)).

Table 1.
Agency costs as a
mediator in the
relationship between
CS and FP

To answer the research question “Do agency costs moderate the CS-FP nexus of listed Mauritian non-financial firms?” the following regression model was developed. Model 3 tests hypothesis [H4](#):

$$FP_{it} = \beta_0 + \beta_1 CGI_{it} + \beta_2 CS_{it} * AUR_{it} + \beta_3 LIQUIDITY_{it} + \beta_4 AGE_{it} + \beta_5 SIZE_{it} + \beta_6 AUR_{it} + \beta_7 AUDITQUAL_{it} + \beta_8 GROWTH_{it} + \varepsilon_{it} \tag{3}$$

To answer the research question “Do agency costs mediate the CS-FP nexus of listed Mauritian non-financial firms?” i.e. how agency costs as a mediator can influence the CS-FP nexus. For the statistical mediation analyses to test hypothesis [H5](#), both [Baron and Kenny’s \(1986\)](#) and [Zhao et al.’s \(2010\)](#) approaches were adopted by using the statistical package “medsem” in STATA developed by [Mehmetoglu \(2018\)](#) where the following four-step approach of [Baron and Kenny \(1986\)](#) in which the following regressions, Model 4, were conducted: (see [Table 1](#)).

Steps	Model 4-agency costs (proxied by asset utilization ratio) as a mediator in the relationship between CS and FP- ROE (Model 4a–H5a) and Tobin’s Q (Model 4b–H5b)
Step 1	$FP_{it} = \beta_0 + \beta_1 CS_{it} + \varepsilon_{it}$
Step 2	$AC_{it} = \beta_0 + \beta_1 CS_{it} + \varepsilon_{it}$
Step 3	$FP_{it} = \beta_0 + \beta_1 AC_{it} + \varepsilon_{it}$
Step 4	$FP_{it} = \beta_0 + \beta_1 CS_{it} + \beta_2 AUR_{it} + \varepsilon_{it}$
Note(s): Where β_0 is the constant term, β_1 to β_{10} are the parameters for the explanatory variables, FPit is the dependent variable, which is one of the four measures of firm performance (ROA, ROE, Tobin’s Q and MBK (ROE and ROA denote firm accounting performance, TOBIN’S Q and MBK denote firm market performance) of firm i in year t, CGLit the Mauritian corporate governance disclosure index and the corporate governance quality of 38 firms of firm i in year t., CSit denotes firm leverage, LIQUIDITYit denoted firm liquidity, AGEit denotes firm age, SIZEit denotes the firm size, AURit denotes asset utilization ratio proxy for agency cost, AUDITQUALit denotes audit quality, GROWTHit denotes growth opportunities and ε_{it} is the error term or residual	
Source(s): Authors’ own creation	

3.6 Panel unit root test

Given that the *p*-values are less than 5%, the augmented Dickey and Fuller (1981), Levin *et al.* (2002), and Im *et al.* (2003) data stationarity tests revealed that all the series of variables used in the model were stationary at level. As a result, the panel data estimations of the econometric specifications were deemed reliable enough to continue.

3.7 Multivariate panel data analysis

The Breusch-Pagan/Cook-Weisberg test and Cameron and Trivedi’s decomposition of the IM test revealed heteroscedasticity, while the Wooldridge test confirmed the regression model’s autocorrelation. Additionally, Friedman’s (1937) test statistic, as well as Frees’ (1995) and Pesaran’s (2004) CD tests, indicated that the panel regression model was likely to have cross-sectional dependence. Given the presence of autocorrelation, heteroscedasticity, and cross-sectional dependence, the Panel Corrected Standard Error (PCSE) estimator is determined to be the most suitable estimator ([Reed and Ye, 2011](#)).

4. Empirical results and discussion

4.1 Descriptive statistics

[Appendix 2](#) shows the normal statistical characteristics of the dependent, independent, and control variables including the mean, minimum, maximum, and standard deviation, of the sample of listed Mauritian companies.

Figure 1 illustrates the trends in the level of total debt to equity (CS) for the non-financial listed Mauritian firms in the sample from 2009 to 2019.

In Figure 1, the level of total debt to equity is above 90% level in the sample period implying that Mauritian non-financial listed firms are highly leveraged companies with above the acceptable industry gearing norms of around 50%. The highest leverage level is in 2009 with 110.8% and the lowest is in 2011 with 90.4%. This finding confirms that debt is favored over equity possibly due to the country's relatively less matured equity market.

4.2 Correlation analysis

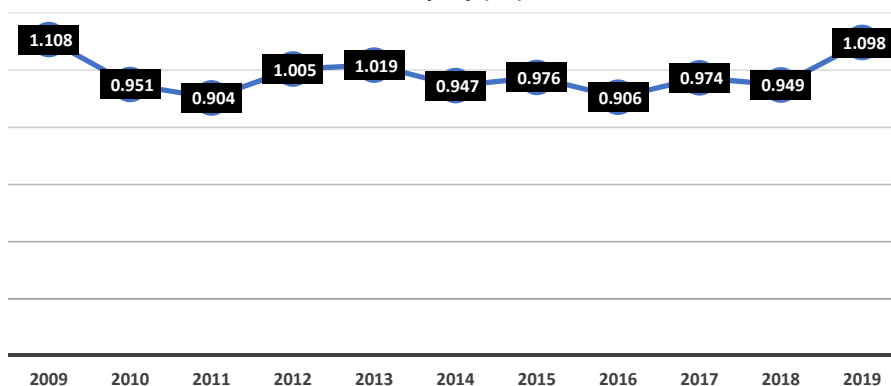
Appendix 3 shows the correlation analysis between the relevant dependent, independent, and control variables for all 38 non-financial firms, and the variance inflation factor (VIF) value being greater than 1 but less than 10, indicates that multicollinearity issues are not present.

4.3 Multivariate regression results and discussion

This section presents a discussion of the empirical results of the various panel multi-regression analyses on the effects of agency costs and CS on FP and therefore, aims to answer our four research questions.

4.3.1 Effects of capital structure on firm performance. Table 2 indicates that leverage has a significant negative effect on ROE and Tobin's Q respectively which supports H1, H1a, and H2a. This finding supports the pecking order theory which is consistent with the prior study by Abata *et al.* (2017) in South Africa and the previous findings of Seetanah *et al.* (2014) in Mauritius. This implies that the listed Mauritian non-financial firms prefer to use internal funds to finance their projects given the high interest rates (common in emerging markets) and prevent them from being monitored by the outside market before moving for debt financing. The negative effect of leverage on ROE implies that the interest payment of debt reduces the net income available to the equity shareholders. Moreover, the negative effect of leverage on Tobin's Q may be because debt can increase the financial risk associated with these firms and consequently, this results in investors perceiving it as risky and potentially having negative effects on the firm's market value. Furthermore, the findings also reveal that agency costs have a significant positive association with ROE and Tobin's Q (rejects H3, H3a, H3b) which support the agency cost theory, i.e. when asset utilization ratio increases, agency costs decrease and enhance FP.

Evolution of Debt to Equity (CS) from 2009 to 2019



Source(s): Authors' own creation

Figure 1.
The means of capital
structure from 2009
to 2019

Table 2.
Linear and non-linear
relationships between
CS and FP

Dependent variables Models	ROE				TOBIN's Q			
	Model 1a		Model 2a		Model 1b		Model 2b	
Independent variables	Coefficients	P-value	Coefficients	P-value	Coefficients	P-value	Coefficients	P-value
CGI	0.015	0.884	0.047	0.671	0.007	0.972	-0.031	0.868
CS	-0.100***	0.000	0.107***	0.000	-0.081***	0.000	-0.262***	0.000
CS*CS	-	-	-0.031***	0.000	-	-	0.024***	0.000
Growth	0.000	0.616	0.000	0.822	-0.000	0.840	0.000	0.950
Liquidity	-0.000	0.867	0.001	0.485	0.002	0.414	0.001	0.575
Age	-0.001	0.384	-0.001	0.585	0.000	0.945	0.000	0.968
Size	-0.000	0.635	-0.000***	0.003	-0.000***	0.005	-0.000**	0.019
AUR	0.046***	0.000	0.040***	0.000	0.272***	0.000	0.275***	0.000
Auditquality	0.096***	0.000	0.036	0.132	0.069	0.191	0.128**	0.020
Constant	0.091	0.286	-0.031	0.734	0.513***	0.002	0.630***	0.000
Number of observations	418		418		418		418	
Number of groups/firms	38		38		38		38	
R-squared	0.294		0.474		0.681		0.702	
Wald χ^2	62.89		113.72		135.32		157.9	
Prob > χ^2	0.000		0.000		0.000		0.000	

Note(s): Where ROE denotes firm profitability, TOBIN'S Q denotes firm market performance, CGI denotes the Mauritian corporate governance disclosure index and the corporate governance quality, CS denotes firm leverage, LIQUIDITY denotes firm liquidity, AGE denotes firm age, SIZE denotes the firm size, AUR denotes asset utilization ratio, AUDITQUALITY denotes audit quality and GROWTH denotes growth opportunities ***, ** and * denote correlation is significant at the 1, 5 and 10% level, respectively

Source(s): Authors' own creation

To investigate if the CS-FP association can be non-linear, the square terms of CS are also included in the regression models as illustrated in the PCSE results shown in Table 2. Leverage at a lower level is positively and significantly correlated with ROE while CS square, i.e. at a higher debt level, has a significant negative impact on ROE. This finding supports the trade-off theory because, at lower levels of debt, increasing debt can improve ROE due to the tax shield on interest payments and lower the cost of capital but when the debt grows further, the costs of financial distress and rising interest rates outweigh the benefits resulting a negative impact on ROE. This finding may also indicate that there can be an optimal threshold of CS on ROE, below which the performance of Mauritian firms increases. However, the performance of these firms is reduced because of the increase in financing costs and information asymmetry, once the exposure of debt ranges to a certain threshold. This result also supports the agency cost theory because increasing leverage helps to strengthen management in exercising investment discipline (lower overinvestment) or motivate them to avoid wastage of financial resources, lower information costs, reduce inefficiencies, and mitigate agency cost of equity arising from shareholder and manager conflicts; all of which have a positive impact on ROE. However, a higher level of debt negatively influences the ROE of non-financial Mauritian listed firms when the agency cost of debt triggered by the debtholders and shareholders' conflicts exceeds the agency cost of equity. It can, therefore, be concluded that there is a strong inverted U-shaped relationship between leverage and ROE in Mauritian non-financial listed firms (supports H2a).

Leverage at a lower level has a significant negative effect on Tobin's Q. This implies that debt financing in the CS creates an unfavorable image for market investors; as a result, they refrain from buying shares of these non-financial companies triggering a fall in their share prices. The PCSE estimates show that a higher debt level (CS square) has a significant positive effect on Tobin's Q possibly because investors may view that higher debt will discipline managers to work in the interest of shareholders instead of self-interest and willing to invest in the non-financial listed firms. This implies that there is a strong non-linear U-shaped relationship between leverage and Tobin's Q (supports H2b). Overall, it can be concluded that there exists a strong non-linear relationship between CS and FP (accepts H2) of listed non-financial Mauritian firms, i.e. leverage can impact FP both positively and negatively. This finding supports the argument of Stulz (1990) and is consistent with the previous findings of Margaritis and Psillaki (2010), Jamil *et al.* (2021), Orabi Awad and Mohamed Ali (2022) and Attia *et al.* (2023).

4.3.2 Relationships between agency costs, capital structure, and firm performance. To consider the results post hoc from a different angle, for example, when agency costs have been added to the moderation equation with leverage treated as the primary independent variable and agency costs, proxied by asset utilization ratio, as a moderator as shown in Table 3; agency costs significantly influence the relationship between leverage and ROE. This is because the enhanced asset utilization reduces agency costs and converts the significant negative impact of leverage on ROE (supports H4a) into a significant positive effect. However, ROE is different from Tobin's Q, because the values of ROE do not consider external factors such as investors' views. The findings of the interaction between agency costs and leverage have a positive but insignificant impact on Tobin's Q. However, it can be observed that when asset utilization gets better despite the ratio of debt-to-equity increases, the level of investor confidence in the non-financial firms increases, this causes Tobin's Q (supports H4b) to transform from a significant negative influence into a positive impact. Overall, there is strong evidence that agency costs can act as an important moderator in the CS-FP nexus and thus support H4 and the agency cost theory.

4.3.3 Mediating effects of agency costs in the relationship between CS and FP. Table 4 shows the mediating effects of agency costs, proxied by asset utilization ratio, in the relationship between leverage and FP (ROE and Tobin's Q). The empirical results indicate that agency costs intervene in the relationship between leverage and both performance measures, i.e. ROE and Tobin's Q. These findings support H5a and H5b. This is because

Table 3.
Moderating effects of
agency costs in the
relationship between
CS and FP

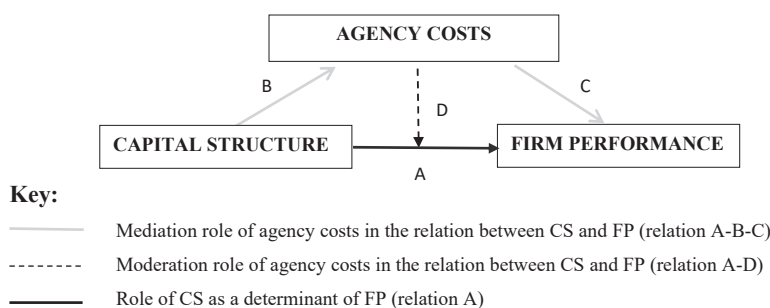
Dependent variables Models	ROE Model 3a		TOBIN'S Q Model 3b	
	Coefficients	P-value	Coefficients	P-value
CGI	0.003	0.979	−0.024	0.897
CS	−0.160***	0.000	−0.098***	0.004
CS*AUR	0.036***	0.000	0.006	0.760
CS*CS				
Growth	0.000	0.709	0.000	0.864
Liquidity	−0.001	0.757	0.002	0.397
Age	−0.002*	0.094	0.000	0.958
Size	0.000	0.487	−0.000***	0.003
AUR	0.006	0.670	0.266***	0.000
Auditquality	0.107***	0.000	0.083	0.104
Constant	0.152*	0.085	0.545***	0.001
Number of observations	418		418	
Number of groups/firms	38		38	
R-squared	0.350		0.689	
Wald χ^2	74.25		154.36	
Prob > χ^2	0.000		0.000	

Note(s): Where ROE denotes firm profitability, TOBIN'S Q denotes firm market performance, CGI denotes the Mauritian corporate governance disclosure index and the corporate governance quality, CS denotes firm leverage, LIQUIDITY denotes firm liquidity, AGE denotes firm age, SIZE denotes firm size, AUR denotes asset utilization ratio, AUDITQUALITY denotes audit quality and GROWTH denotes growth opportunities
***, ** and * denote correlation is significant at the 1, 5 and 10% level, respectively
Source(s): Authors' own creation

(1) the asset utilization ratio significantly and positively affects FP when a firm uses its assets more efficiently to generate revenue, which can lead to higher profits and enhance market value, and (2) leverage has a significant and positive influence on asset utilization ratio (consistent with prior findings of [Zulvia and Serly \(2020\)](#) in Indonesia) of non-financial firms since when the debt is strategically employed, it can contribute to increased asset utilization by funding investments in assets that enhance operational efficiency, production capacity, or overall productivity. This can, therefore, help to attract investors despite a heavy reliance on debt in the CS having a significant negative influence on FP. Additionally, the RIT (ratio of indirect effect to total effect) is 1.175 and 2.616 meaning that about 118 and 262% of the effect of CS on ROE and Tobin's Q respectively is mediated by asset utilization. RID (ratio of indirect effect to direct effect) is 0.540 and 0.723 which implies the mediated effect is 0.5 times and 0.7 times as large as the direct effect of leverage on ROE and Tobin's Q respectively. The findings confirm that leverage has both direct and indirect effects on FP and indicate the existence of a partial mediation that follows a competitive mediation pattern. This is because the mediated effect ($B \times C$ is positive) and direct effect (A is negative) (see [Figure 2](#)) both exist and point in opposite directions. In this sense, agency costs function as a competitive mediator by indirectly minimizing the negative impact of leverage on FP. These findings indicate that when Mauritian non-financial firms make efficient utilization of their assets, it can help to reduce the agency cost of equity through the alignment of interests and effective monitoring mechanisms triggered by CS decisions which can mitigate the negative consequences of a debt-heavy CS (i.e. increase in agency cost of debt) on the overall profitability, shareholder returns, and firm market value.

ROE (Model 4a)			TOBIN'S Q (Model 4b)		
Structural ROE	Coefficients	p-value	Structural Tobin's Q	coefficients	p-value
AUR	0.050***	0.000	AUR	0.287***	0.000
CS	−0.035***	0.000	CS	−0.147***	0.000
Constant	0.062***	0.000	constant	0.560***	0.000
AUR			AUR		
CS	0.373***	0.000	CS	0.373***	0.000
Constant	0.481***	0.000	constant	0.481***	0.000
Number of observations	418			418	
Significant testing of indirect effect (unstandardized)			Significant testing of indirect effect (unstandardized)		
Estimates					
Sobel	0.019***	0.000	Sobel	0.107***	0.000
Monte Carlo	0.019***	0.000	Monte Carlo	0.106***	0.000
Mediating testing method		Baron and Kenny	Baron and Kenny		
AUR:CS (X → M)	0.373***	0.000	AUR:CS (X → M)	0.373***	0.000
ROE: AUR (M → Y)	0.050***	0.000	Tobin's Q: AUR (M → Y)	0.287***	0.000
Result	Partial Mediation Zhao, Lynch and Chen		Partial Mediation Zhao, Lynch and Chen		
Mediating testing method					
ROE: CS (X → Y)	−0.035***	0.000	Tobin's Q: CS (X → Y)	−0.148***	0.000
Monte Carlo test	0.019***	0.000		0.106***	0.000
Result	Partial Mediation		Partial Mediation		
RIT=(indirect effect/total effect)		(0.019/0.016) = 1.175	(0.107/0.041) = 2.616		
RID=(indirect effect/direct effect)		(0.019/0.035) = 0.540	(0.107/0.148) = 0.723		
Note(s): Where ROE denotes firm profitability, TOBIN'S Q denotes firm market performance, AUR denotes Asset utilization ratio, CS denotes firm leverage. ***, ** and * denote correlation are significant at the 1, 5 and 10% level, respectively					
Source(s): Authors' own creation					

Table 4.
Mediating effect of
agency costs in the
relationship between
CS and FP (ROE and
Tobin's Q)



Source(s): Authors' own creation

Figure 2.
Agency costs as a
moderator and
mediator in the
relationship between
CS and FP

5. Robustness analysis

The main findings of the leverage on FP are subjected to a series of robustness tests to understand how sensitive they are to (1) an alternative measure of accounting-based FP (ROA), (2) an alternative measure of market-based FP (MBK), and (3) different methods used for mediation analyses.

The PCSE results of the 38 listed Mauritian non-financial firms indicate that the pattern of results on the direct effects of leverage on ROA (negative and significant on ROE) is typically unchanged. Leverage has no significant non-linear relationship with ROA (possibly because it excludes interest and taxes) in contrast to ROE. Agency costs have a positive and significant influence on both ROE and ROA and have a moderating and mediating (partial and competitive mediation) effect in the CS-ROA nexus.

The PCSE estimates indicate that leverage has a positive and significant linear relationship with MBK (negative and significant on Tobin's Q). Leverage has no significant non-linear relationship with MBK in contrast to Tobin's Q. Agency costs have a positive and significant influence on both MBK and Tobin's Q and have also a moderating and mediating (full mediation) effect in the CS-MBK nexus.

The findings of the robustness tests reveal that the results of the mediation analysis using both [Baron and Kenny's \(1986\)](#) and [Zhao *et al.*'s \(2010\)](#) approaches are the same for all four performance-based measures ROE, ROA, Tobin's Q, and MBK.

Overall, the sensitivity analyses show that the findings are robust to alternate accounting and market-based FP measures, ROA and MBK and the use of different mediation analysis approaches.

6. Summary and conclusion

This study shows that leverage has a significant negative effect on ROE and Tobin's Q respectively which aligns with the pecking order theory for financing. Agency costs have a significant positive association with ROE and Tobin's Q which support agency cost theory, i.e. when asset utilization increases, agency costs decrease and enhance FP. Moreover, there is a strong inverted U-shaped relationship between leverage and ROE and a significant non-linear U-shaped association between leverage and Tobin's Q of listed Mauritian non-financial firms, i.e. leverage can impact FP both positively and negatively supporting trade-off and agency cost theories. Furthermore, there is strong evidence that agency costs can act as an important moderator and mediator in the CS-FP nexus supporting agency cost theory. The findings, therefore, confirm the hypotheses of the study are robust and have been rigorously tested using multiple methodologies and diagnostics checks.

From a theoretical perspective, the pecking order, trade-off, and agency cost theories are all relevant in the Mauritian context. This study adds legitimacy to the notion that no single theory can account for every aspect of CS decisions and their effects on FP. The adoption of multiple theoretical frameworks can, therefore, provide a deeper understanding of the relationship between CS choices and FP. Additionally, a strong non-linear CS-FP nexus (supporting trade-off and agency cost theories) implies that Mauritian non-financial sector firms need to carefully consider the levels and types of debt and equity in their CS requiring a more differentiated approach to CS management, potentially involving the use of dynamic strategies to adjust the CS in response to changing economic conditions and FP. These firms must concentrate on optimizing their CS to stand out in the market and the findings of this study provide managers with valuable insight that debt and agency costs, through more efficient asset utilization, have the potential to enhance FP and competitive advantage. Furthermore, the moderating and mediating roles of agency costs in the CS-FP nexus can enhance our understanding of how managerial behavior influences financial decisions and outcomes. Practically, identifying the moderating and mediating effects may guide

firms in optimizing CS, considering agency costs, and socially, it can contribute to corporate governance discussions, emphasizing the importance of aligning interests to foster sustainable business practices.

Policymakers can decide on the appropriate fiscal and monetary policies to be adopted for keeping corporate tax benefits and lowering borrowing costs for the overall stability and efficiency of firms and financial markets. For instance, they can pursue policies to make debt to businesses more easily accessible at lower and competitive interest rates, all of which will help them boost their profitability. This is because as a firm increases its debt holdings, the probability of financial distress increases, and creditors are less likely to re-finance or renegotiate. Policymakers may also review their fiscal policies by extending the period of bringing forward the cumulative tax losses. This can help to enhance FP that enables (1) to take further debt up to an optimal level which can in turn be invested in viable projects to further improve FP, and (2) a more active contribution of the private sector in economic development. However, policymakers need to examine strategies to ensure consistent positive economic growth, since any slowdown can increase the possibility of bankruptcy, which can have serious consequences like facing financial distress situations given the prevalence of heavily leveraged Mauritian businesses. Additionally, since creditors are more able to discipline managers through debt specialization, policymakers can propose new rules or regulations that require companies to readily disclose in their income statements information about the types of debt they have, where they came from, and any changes to their debt composition. Capital markets can become more efficient because these reforms encourage creditor monitoring and alleviate problems in coordination between holders of different types of debt that raise distress costs.

Nonetheless, this study is inhibited by some inherent restrictions and limitations. This study is, for instance, limited to publicly listed Mauritian non-financial firms, which may limit the generalizability of the findings. Additionally, the Mauritian economy and its stock exchange are small, limiting the possibility of extending the sample size. Future research can examine the CS-FP nexus in the Mauritian financial industry, unlisted firms, other small emerging islands, and African or other emerging economies. Future studies can also investigate unbalanced panel data to help increase the sample size and compare it with the results of the balanced panel.

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(The Appendix follows overleaf)

Table A1.
Description of the
dependent,
independent, and
control variables

Appendix 1

Dependent variables	Description	Details	References
ROE	Return on equity	Net income to total shareholders' equity	Puri (2023)
Tobin's Q	Firm value	Market value of equity to book value of total assets	Tho <i>et al.</i> (2021)
ROA	Return on assets	Operating income (Annual Earnings before interest and tax) to Total assets	Khan <i>et al.</i> (2020) and Puri (2023)
MBK	Market-to-book ratio	Market value of equity to book value of equity	Tho <i>et al.</i> (2021)
<i>Independent variables</i>			
Agency costs	Asset utilization ratio	Annual Turnover to Total Assets	Hoang <i>et al.</i> (2019) and Puri (2023)
CS	Firm leverage	The ratio of total debt to book value of equity	Renders <i>et al.</i> (2010)
<i>Control variables</i>			
CGI	Overall corporate governance disclosure index (CGI) of 38 listed non-financial firms	CGI consists of 102 governance provisions of the Mauritius Code of Corporate Governance (MCCG) that take a value of 0 or 1; scaled to a value between 0 and 100%	Ronoowah and Seetanah (2023)
Growth	Growth opportunities	Turnover or revenue growth	Hassouna <i>et al.</i> (2017) and Khan <i>et al.</i> (2020)
Liquidity	Liquidity	Company's current assets to current liabilities	Hassouna <i>et al.</i> (2017)
Age	Firm age	Number of years since listed on SEM	Khan <i>et al.</i> (2020)
Size	Firm size	The firm's total assets	Khan <i>et al.</i> (2020)
Auditqual	Audit quality	If a firm is audited by a big four audit firm (PricewaterhouseCoopers, Deloitte and Touche, Ernst and Young, and KPMG), 0 otherwise	Khan <i>et al.</i> (2020)
Source(s): Authors' own creation			

Appendix 2

Variables	Observations	Mean	Standard deviation	Minimum	Maximum
<i>Dependent</i>					
ROE	418	0.709	0.182	−2.069	1.032
ROA	418	0.057	0.079	−0.164	0.530
TOBIN'S Q	418	0.658	0.655	0.054	7.066
MBK	418	1.256	1.687	1.626	14.121
<i>Independent</i>					
CS	418	0.985	1.114	0.002	8.368
AUR	418	0.849	1.963	0.007	23.14
<i>Control</i>					
Growth	418	13.958	130.996	−74.843	2556.756
CGI	418	0.810	0.121	0.216	0.971
Liquidity	418	1.952	5.227	0.713	73.257
Age	418	16.720	7.845	1	35
Size	418	7822.475	11351.480	60.038	68984.17
Auditqual	418	0.469	0.500	0	1

Note(s): ROE and ROA denote firm accounting performance, TOBIN'S Q and MBK denote firm market performance, CGI denotes the Mauritian corporate governance disclosure index and the corporate governance quality, CS denotes firm leverage, AGE denotes firm age, SIZE denotes firm size, LIQUIDITY denotes firm's liquidity, AUR denotes asset utilization ratio, AUDIQUAL denotes audit quality and GROWTH denotes growth opportunities

Source(s): Authors' own creation

Table A2.
Descriptive statistics
of the dependent,
independent, and
control variables

	ROE	Tobin's Q	CGI	CS	Growth	Liquidty	Age	Size	AUR	Auditqual
ROE	1									
TOBIN'S Q	0.519***	1								
CGI	−0.004	−0.038	1							
CS	−0.098**	−0.070	0.066	1						
Growth	−0.006	−0.040	−0.010	−0.012	1					
Liquidity	0.008	0.028	−0.181***	0.156***	−0.012	1				
Age	0.080*	0.148***	0.348***	0.0024	−0.074	0.101	1			
Size	−0.157***	−0.266***	0.284***	0.150***	0.163***	−0.125**	0.141***	1		
AUR	0.501***	0.807***	0.043	0.211***	−0.028	−0.058	0.198***	−0.141***	1	
Auditqual	0.123**	0.178***	0.092*	0.406***	−0.053	−0.136***	0.133***	0.048	0.194***	1
VIF			1.27	1.28	1.04	1.11	1.27	1.21	1.16	1.24

Note(s): ROE and ROA denote firm accounting performance, TOBIN'S Q and MBK denote firm market performance, CGI denotes the Mauritian corporate governance disclosure index and the corporate governance quality, CS denotes firm leverage, AGE denotes firm age, SIZE denotes firm size, LIQUIDITY denotes firm's liquidity AUR denotes asset utilization ratio, AUDIQUAL denotes audit quality and GROWTH denotes growth opportunities

Source(s): Authors' own creation

Table A3.
Pearson and Spearman
correlation matrix on
the relationships
between CS and FP

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