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The Impact of Debt Financing on Profitability: Insights from Georgian Wine Producers

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ABSTRACT

This study investigates the impact of debt financing on the profitability of Georgian wine producers between 2019 and 2023. Utilizing an unbalanced panel dataset derived from financial statements, Fixed Effects (FE) panel regression models were employed to control for unobserved firm heterogeneity, thereby enhancing the robustness of the findings. The analysis specifically focused on the relationship between the Debt-to-Assets ratio and two key profitability metrics: Net Profit Margin (NPM) and Return on Assets (ROA). The results consistently demonstrate a robust and statistically significant negative correlation between leverage and profitability, even after accounting for firm-specific effects and time shocks. Specifically, the Fixed Effects models indicate that a 10% increase in the Debt-to-Assets ratio is associated with an approximate decrease of 1.5 percentage points in Net Profit Margin and 0.9 percentage points in ROA. Furthermore, formal testing for a non-linear (inverted-U) relationship yielded statistically insignificant results. This suggests that the costs associated with debt consistently outweigh any potential tax shield or disciplinary benefits across all observed leverage levels. This finding strongly supports the Pecking Order Theory and underscores the significant "double burden" faced by the industry due to high capital intensity and the high cost of debt in an emerging market.

Keywords: Debt financing, capital structure, profitability, Georgian wine industry, SMEs, Fixed Effects Model

INTRODUCTION

Georgia's wine scene isn't just about drinks; it's practically part of their soul. Everyone knows it's where wine started, and they're pretty good at mixing old-school ways with new tech, always looking to sell more bottles overseas. People worldwide really want Georgian wine, so the industry's blowing up, becoming one of Georgia's main farming gigs. From 2015 to 2021, wine actually became the third biggest thing they exported, making up 4.2% of everything they sent out (Bochorishvili et al., 2021). Plus, folks working in wine are seeing fatter paychecks, showing how much the industry helps create jobs and, like, other good stuff for the economy (Georgia Today, 2021).

Capital Challenges in the Georgian Wine Industry

Georgian wine producers, operating in a cutthroat global market, struggle to secure enough capital for growth and modernization. The sector demands heavy capital, requiring substantial investments in vineyards and tech, which often exceed what they generate internally. Long production cycles just make financing decisions even harder (Beck & Demirguc-Kunt, 2006). These factors, combined with Georgia's emerging market status and higher borrowing costs, make finding the right capital structure crucial (Kasradze & Gikorashvili, 2014).

Using debt lets wineries fund expansion and equipment upgrades without giving up ownership. But it brings financial risks, like interest payments and vulnerability to economic downturns (Berger & Udell, 2006). For small and medium-sized enterprises (SMEs), which face tighter financial constraints, smart capital structure management is a key competitive edge (Deloof, 2003; Baños-Caballero et al., 2014). The big impact of financial choices on SMEs highlights the need to research its effect on profitability (Abor, 2005).

Agency Costs and the "Double Burden" in Agri-Food

Agency costs, as identified by Jensen and Meckling (1976), are particularly concerning in Georgia's wine industry. While debt can theoretically keep free cash flow in check (Jensen, 1986), too much debt in industries with long production cycles can create significant agency problems. Think "debt overhang" or "underinvestment" (Myers, 1977). When most future earnings are tied up in debt payments, companies might skip out on good long-term investments—like expanding vineyards or aging expensive wines. That's because the benefits mostly go to the people owed money, not the shareholders (Rajabi & Yakhchali, 2025). This is especially true for wine producers, where you might not see a return on investment for years. This idea of a "double burden" from our study gets more weight from this agency perspective. The unique way wine is produced—long inventory times, relying on harvests—makes the financial strain from debt worse, leading to bigger agency problems and, ultimately, less profit. Important research on farming finance often talks about these specific financial hurdles in a sector so closely linked to biological cycles and unpredictable markets (Birhanu et al., 2024).

Profitability Erosion: A Multi-Level Burden

Debt really hits a company's bottom line hard, affecting both net profit margins and how well assets are used. This isn't just a small issue; it suggests that debt is a significant burden, driving up costs and making it tougher to manage cash flow and get good returns from assets. This is especially true for the wine industry, where big upfront investments and long inventory cycles make these problems even worse.

Basically, for Georgian wine companies in an emerging market, debt isn't helping; it's hurting their profits. This means they need to be super careful with debt and look into other ways to fund their businesses, especially since they're capital-intensive and operate in an unpredictable environment.

profitability in the agri-food and wine sectors, particularly in Georgia. Our study aims to fill that gap. Georgia's unique mix of old winemaking traditions, new export growth, and emerging market challenges (like higher debt costs and economic ups and downs) means that standard finance theories might not fit perfectly here. The industry's specific traits—long production times, big initial investments, and reliance on inventory—could really mess with the usual debt-profitability relationship. We call this the "double burden" of debt financing, and it's a key idea we're exploring. While other Georgian studies on wine SMEs have looked at working capital, none have really delved into the bigger picture of capital structure and the impact of debt. So, we're trying to add to that by focusing on financial management.

The main research questions guiding this study are:

- **RQ1:** What is the relationship between a firm's Debt-to-Assets ratio and its profitability (Net Profit Margin and ROA) in Georgian wine-producing companies during 2019–2023?
- **RQ2:** Does debt financing have a positive or negative effect on the financial performance of these companies?
- **RQ3:** Is there evidence of a nonlinear (e.g., inverted-U) relationship between leverage and profitability in this sector?
- **RQ4:** What practical implications can be drawn for capital structure management in the Georgian wine industry?

Research Hypotheses

Based on the research questions and the theoretical framework, the following hypotheses were formulated and tested:

Main Hypotheses (Linear Relationship):

Null Hypothesis **(H01):** There is no significant relationship between the Debt-to-Assets ratio and the profitability (measured by Net Profit Margin and ROA) of Georgian wine producers.

Alternative Hypothesis **(H_{a1}):** There is a significant negative relationship between the Debt-to-Assets ratio and the profitability (measured by Net Profit Margin and ROA) of Georgian wine producers.

Hypothesis for Non-Linear Relationship (Inverted-U Shape):

> ***Null Hypothesis*** **(H02):** There is no significant non-linear (inverted-U shaped) relationship between the Debt-to-Assets ratio and the profitability of Georgian wine producers.
> ***Alternative Hypothesis*** **(Ha2):** There is a significant non-linear (inverted-U shaped) relationship between the Debt-to-Assets ratio and the profitability of Georgian wine producers.

FOUNDATIONAL THEORIES AND LITERATURE REVIEW

Theoretical Foundations of Capital Structure

- ***Trade-Off Theory.*** Based on the work carried out by Modigliani and Miller (1963), this theory suggests that companies compare the advantages of debt financing with regards to its costs. The main benefit for using debt is its tax deductibility, which gives the company a "tax shield" that reduces its aggregate tax payments, hence increasing its value. However, as a company gets more leveraged, it faces increased risks related to costs of financial distress, such as both explicit and implicit bankruptcy costs, as well as agency costs due to interest conflicts among debtholders and shareholders. Under this theoretical approach, the presence of an optimal capital structure is theorized, where the marginal benefit arising from an increase in the use of debt exactly offsets its marginal cost, hence maximizing the firm's aggregate value. Below this optimum level, conservative levels of debt usage might produce better profitability; however, going above this level might lead to a decrease in performance (Modigliani & Miller, 1963)
- ***Pecking Order Theory.*** The Pecking Order Theory, as explained by Myers and Majluf (1984), describes a ranking of the financing alternatives that's further moderated by information asymmetry. The theory holds that managers of firms have a better grasp of their firm's future performance and corresponding risks than do outside investors, leading them to favor the use of internal funds (i.e., retained earnings) in meeting financing requirements over the use of outside funds, with external equity use as the least desired. The theory flows from the enormous costs associated with external financing, compounded upon by information asymmetry and difficulties encircling the process of issuing new equity. Consequently, firms exhibiting higher profitability coupled with stronger internal cash flows exhibit lower dependence upon external debt. The exhibited behavior informs an inverse correlation: higher profitability firms will likely exhibit less dependence upon debt, while firms with declining fortunes will likely be compelled, owing to lack of funds, into obtaining larger loans. Empirical studies exhibiting general inverse firm profitability vs. debt use are commonly presented as evidentiary support separating the pecking order theory from the static trade-off theory (Myers & Majluf, 1984).
- ***Agency Theory.*** The agency theory framework, originally put into words by Jensen and Meckling (1976) and later developed further by Jensen (1986), offers useful insight into the dynamics between debt and profitability. In particular, debt becomes a disciplinary device that limits managers' free cash flow, thus alleviating agency conflict and potentially boosting organizational performance via the prevention of wasteful spending. In direct opposition, higher leverage levels, however, could also instigate agency-related conflict. For instance, this outcome can lead to "debt-overhang" situations where firms will forego profitable projects, with the derived payoffs accruing mainly to debtholders, not shareholders. Moreover, it could also create "risk-shifting," where, when firms face financial difficulties, shareholders will undertake overly speculative projects that maximize their gains even at the risk of financial ruin, threatening the firm's stability. Accordingly, agency theory arguments suggest that applying debt can create both beneficial and adverse effects on profitability, dependent upon specific conditions, as well as the level of leverage utilized (Jensen & Meckling, 1976; Jensen, 1986).
- ***Signaling Theory*** argues managers use their capital structure decisions as a tool to communicate private information about firm quality to outside investors. For example, the willingness of a firm to bear a large amount of debt could be an indication that it has faith in future cash flows, as normally only strong firms become willing to bear large financial risk. The assumption here suggests a positive relation between new debt issuing and firm quality, along with higher profitability. In practice, both opposing theoretical outlooks act simultaneously upon outcomes, giving birth to the mixed effects that are commonly witnessed in empirical studies (Ahmed et al., 2024) The interaction among these theories suggests each individual observation contains the aggregate impact of these conflicting dynamics. For instance, if agency costs or financial distress costs are particularly high, they could easily outweigh tax shields, leading to a negative relationship (Spence, 1973).

Empirical Evidence on Debt-Profitability Relationship (Global & Emerging Markets)

Empirical studies examining the relation among debt financing, capital structure choice, and organizational success have presented varied results, reflecting the complex situational variables that surround capital structure choices. The result often relies on situational variables like industry classification, firm size, as well as the specific national setting, particularly whether the market has been classified as emerging or developed.

- ***Negative Relationship.*** Many studies, particularly in emerging markets and SMEs, find that leverage hurts profitability. Nyamwanza et al. (2020) found debt negatively impacted ROA for a Zimbabwean retail firm. Similarly, Nunes et al. (2009) showed a negative link for Portuguese SMEs, and Goddard et al. (2005) for European firms. High financing costs and financial distress are cited as causes (Goddard et al., 2005).
- ***Positive Relationship.*** Conversely, other studies find that debt can boost performance. Gill et al. (2011) linked higher debt to greater profitability for U.S. firms, citing tax shields and financial discipline. Ahmed and Siddiqui (2019) found a positive correlation between the debt-to-asset ratio and ROA in Pakistan's textile sector. Margaritis and Psillaki (2010) also found a positive link for French companies, suggesting an optimal debt level exists.
- ***Nonlinear and Contextual Evidence.*** The relationship is often nonlinear, aligning with the foundational premise of the Trade-Off Theory that an optimal level of debt exists (Kraus & Litzenberger, 1973). For instance, studies in the hospitality sector, which shares capital-intensive traits with viticulture, have found an inverted U-shape, where moderate debt improves performance, but excessive debt harms it. Firm size, corporate governance, and financial market development are also critical contextual factors influencing this dynamic.

Review of Studies Specific to Agri-Food/Wine Sector

Research on capital structure in the wine and agri-food sectors is limited. The capital-intensive and cyclical nature of the hospitality sector offers a parallel, where the high fixed costs of debt often lead to negative effects on profitability, especially during downturns.

Wine businesses face unique operational pressures that shape their capital structure. They have long production cycles, tying up significant capital in fixed assets and inventory for multiple years (Candeias & Dias, 2023). Financing this long-maturing inventory with debt increases the interest burden before revenue is generated, suggesting a preference for lower leverage.

A study on the Georgian wine industry found a positive relationship between effective working capital management and profitability (Shereshashvili & Sabauri, 2021). This contrasts with the potential negative impact of long-term debt, highlighting that different financial management areas can have opposing effects on profitability (Aktas et al., 2015; Oladimeji & Aladejebi, 2020; Braimah et al., 2021).

For SMEs in emerging markets, research often shows a negative link between debt and profitability, as seen in a Zimbabwean firm study (Nyamwanza et al., 2020). However, context is critical; a study of Pakistan's textile sector found a positive correlation between the debt-to-asset ratio and profitability (Ahmed & Siddiqui, 2019). This underscores the need for industry-specific research in the Georgian wine sector, where a "double burden" of high costs and sector-specific risks may create a unique debt-profitability dynamic.

RESEARCH METHODOLOGY

Research Design and Data Sources

The research uses a quantitative approach based on an unbalanced panel dataset covering Georgian wine companies (Activity Code 1101) classified as larger SMEs or high-public-interest entities over the period from 2019 to 2023. The raw financial data was obtained from Reportal.ge, a comprehensive database of registered financial reports in Georgia.

Sample Selection, Data Cleaning, and Outlier Treatment

The dataset was cleaned by excluding firms with incomplete financial data required for ratio calculation. The raw data contained extreme outliers (e.g., 'Infinity', 'NaN') resulting from division by zero in certain ratio calculations.

To mitigate the distorting effect of these outliers while preserving the integrity of the data points, a 5% winsorization technique was applied to all financial ratios (Debt-to-Assets, Net Profit Margin, and ROA). This process replaced the extreme upper and lower 5% of values with the values at the 95th and 5th percentiles. After cleaning and winsorization, the final, robust dataset contained 201 firm-year observations.

Variable Definitions and Measurements

The variables are defined in Table 1:

Table 1.

Variable Type	Variable Name	Measurement	Rationale
Dependent (Profitability)	Net Profit Margin (NPM)	$NPM = \frac{Net\ Profit}{Sales}$	Measures operational efficiency and earnings from sales.
	Return on Assets (ROA)	$ROA = \frac{Net\ Profit}{Total\ Assets}$	Measures asset utilization and overall profit generation.
Independent (Leverage)	Debt-to-Assets Ratio (D/A)	$\frac{D}{A} = \frac{Total\ Debt}{Total\ Assets}$	Primary measure of financial leverage.
	Squared Debt-to-Assets (*(D/A)²*)	$(D/A)^2$	Included to test for non-linear relationships (e.g., inverted-U).
Control	Firm Size (ln (Assets))	Natural Logarithm of Total Assets	Accounts for economies of scale or differential access to finance.
	Year Dummies	Binary variables (2020-2023)	Controls for time-specific macroeconomic shocks or industry-wide trends (base year: 2019).

Analytical Techniques

The analysis was performed using advanced panel data regression techniques to address the potential biases inherent in using aggregated cross-sectional data.

Panel Data Model Selection

Due to the structure of the dataset (multiple observations per firm over time), the primary methodological concern is the presence of **unobserved firm-specific effects** These effects (e.g., brand reputation, location quality, or fixed managerial ability) are constant over time but influence profitability and may be correlated with the primary independent variable, leverage.

Fixed Effects (FE) Model

The **Fixed Effects (FE) model** is the robust choice to account for this unobserved firm-specific heterogeneity. By effectively including a dummy variable for each firm, the model ensures that the estimated effect of D/A is based *only* on the ***within-firm changes*** in leverage and profitability.

The FE model specification is:

$$Profitability_{it} = \alpha_i + \beta_1 * \frac{Debt}{Assets_{it}} + \beta_2 * \ln(Assets_{it}) + \sum_{t=2020}^{2023} y_t * YearDummy_t + \varepsilon_{it}$$

Model Selection Test

- **Hausman Test:** This specification test was performed to formally choose between the Fixed Effects model and the more efficient **Random Effects (RE) model**.
- **Purpose:** The test statistically evaluates whether the unobserved firm-specific effects are correlated with the independent variables.
- **Result:** A **significant test statistic** (rejecting the null hypothesis) indicated that the **Fixed Effects model** is the appropriate and most robust estimation technique.

Testing for Non-Linearity (RQ3)

To address the **Trade-Off Theory's** prediction of an **optimal capital structure** (which suggests an **inverted-U shaped** relationship between leverage and profitability), an extended panel data model was specified to include the squared Debt-to-Assets term. This model directly tests the non-linear hypothesis (**H_{02}** and **H_{a2}**).

The model specification for testing non-linearity is:

$$Profitability_{it} = \alpha_i + \beta_1 * \frac{Debt}{Assets_{it}} + \beta_2 * \left(\frac{Debt}{Assets_{it}}\right)^2 + \sum_{t=2020}^{2023} y_t * YearDummy_t + \varepsilon_{it}$$

Robustness and Endogeneity:

All regressions report robust (White-corrected) standard errors to ensure that estimates are valid in the presence of heteroskedasticity. The study explicitly acknowledges the potential for reverse causality (endogeneity), particularly under the Pecking Order Theory (where profitability affects debt choice), and discusses this as a key limitation, suggesting future research should employ System GMM.

RESULTS

Data Overview and Cleaning Summary

The Table 2 presents the descriptive statistics for the key variables *before* winsorization, providing transparency regarding the raw data's range.

Table 2: Descriptive Statistics (Raw Data, N=201)

Variable	Mean	Std. Dev.	Min (Raw)	Max (Raw)
Debt/Assets	0.457	0.108	0.000	1.000
Net Profit Margin	0.125	0.812	-13.91	9.07
ROA	0.098	0.501	-6.31	5.89
Assets (GEL)	1.83e+07	4.51e+07	100,000	2.50e+08

***Note**: Extreme minimum and maximum values in the raw data (e.g., negative ROA/NPM or D/A=1) confirmed the necessity of the 5% winsorization technique applied for the regression analysis.*

Table 3 presents the descriptive statistics after winsorization, which are used for the main model estimation.

Table 3: Descriptive Statistics (Winsorized Data, N=201)

Variable	Mean	Std. Dev.	Min	25th	Median	75th	Max
Debt/Assets	0.458	0.104	0.219	0.386	0.460	0.538	0.644
Net Profit Margin	0.111	0.031	0.044	0.088	0.112	0.133	0.180
ROA	0.088	0.027	0.031	0.069	0.088	0.108	0.154

Panel Data Regression Analysis

The results of the Hausman test decisively favored the Fixed Effects (FE) model over the Random Effects model for both dependent variables (NPM and ROA), indicating significant unobserved heterogeneity across the wine firms that must be controlled for. Therefore, only the robust FE results are presented below.

Table 4 and Table 5 display the coefficient estimates for Net Profit Margin and ROA, respectively, using the Fixed Effects model. Model 1 is the linear specification, and Model 2 tests for non-linearity.

Table 4: Fixed Effects Regression Results (Dependent Variable = Net Profit Margin)

Variable	Model 1 (Linear)	Model 2 (Non-linear)
Debt/Assets (D/A)	-0.153***	-0.165***
	(0.041)	(0.045)
Squared D/A		0.005
		(0.032)
ln(Assets)	-0.001	-0.001
	(0.003)	(0.003)
Year Dummies (2020-2023)	Included	Included
N	201	201
R-squared (Within)	0.385	0.385
Hausman Test (p-value)	< 0.01 (FE preferred)	< 0.01 (FE preferred)
F-statistic (Overall)	6.12***	5.88***

***Notes:** Robust standard errors in parentheses. ***, **, . Year dummies use 2019 as base. The coefficient is not statistically significant.*

Table 5: Fixed Effects Regression Results (Dependent Variable = ROA)

Variable	Model 1 (Linear)	Model 2 (Non-linear)
Debt/Assets	**-0.092*** **	**-0.101*** **
	(0.025)	(0.028)
Squared D/A		0.008
		(0.020)

ln(Assets)	0.000	0.000
	(0.002)	(0.002)
Year Dummies (2020-2023)	Included	Included
N	201	201
R-squared (Within)	0.281	0.281
Hausman Test (p-value)	< 0.01 (FE preferred)	< 0.01 (FE preferred)
F-statistic (Overall)	4.55***	4.30***

Notes: *Robust standard errors in parentheses. ***, **, . Year dummies use 2019 as base. The coefficient is not statistically significant.*

Interpretation of Fixed Effects Results

The Fixed Effects regression results consistently confirm a robust, negative, and statistically significant relationship between debt financing and profitability.

Linear Relationship (Model 1):

- ***Net Profit Margin (NPM):*** The coefficient for NPM is -0.153 ($p<0.01$). What this means is that if a firm's Debt-to-Assets ratio goes up by 10 percentage points, its Net Profit Margin tends to drop by about 1.53 percentage points.
- ***Return on Assets (ROA):*** For ROA, the coefficient is -0.092 ($p<0.01$). So, a 10%-point hike in the Debt-to-Assets ratio is linked to roughly a 0.92 percentage point fall in ROA.

These numbers are a bit smaller than what the initial Pooled OLS results showed (NPM: -0.172; ROA: -0.116). This suggests that those first estimates might've been a bit high because they didn't account for things unique to each firm that don't change over time. But even with that, these FE results are still really important, both practically and statistically. They pretty much confirm that when a firm takes on more debt, its profitability takes a hit, and this is mainly due to changes happening within the firm itself.

Non-Linear Relationship (Model 2 - Testing RQ3):

- "So, for both NPM and ROA, the squared leverage term (D/A) squared's coefficient is positive (0.005 and 0.008, respectively), but honestly, it's not statistically significant in either model. This pretty much shoots down the idea of a non-linear relationship (Ha2), meaning we can't really argue against the null hypothesis (H02). Instead, what we're seeing really points to a straightforward, negative, linear connection between debt and profitability throughout the Georgian wine sector's observed leverage range. It's a clear, consistent trend, no fancy curves here."

Control Variables:

- The coefficient for Firm Size stayed small and wasn't really important in any of the fixed-effects tests. This just backs up the idea that debt's bad impact isn't only a small-company thing; it's a problem for wine firms of all sizes.
- Also, the Year Dummies didn't really matter much. This confirms that the negative link between debt and how much money a company makes isn't because of big economic ups and downs each year, but rather because of how debt and the wine industry are set up.

DISCUSSION

Interpretation of Empirical Findings in Light of Capital Structure Theories

The study's results, especially the strong negative link found using the Fixed Effects model, mean we can throw out the idea that there's no relationship (H_{01}). Instead, it really backs up the idea that debt negatively impacts profitability (H_{a1}), which fits with the Pecking Order Theory.

Also, it's key that the squared term wasn't statistically important. This directly goes against the Trade-Off Theory, which says there's an ideal amount of debt. Since we didn't see any good stuff, like tax breaks, from lower debt, it looks like in Georgia, the bad parts of debt always outweigh any good parts. This means debt financing isn't good for making more money.

Sector-Specific Determinants and the "Double Burden" (Strengthened)

The constant negative connection between debt and profitability mostly comes down to a "double burden" specific to this sector, made worse by the Agency Theory issues Myers (1977) pointed out:

1. ***Capital Heavy & Slow Returns:*** The wine business needs big, multi-year investments in vineyards and

aging stock. Money gets tied up for ages. When this slow-return investment is funded by expensive debt, the costs pile up long before any sales happen, meaning bigger interest payments and smaller net profits.

2. ***Agency Costs: Debt Problem:*** When companies have a lot of debt, much of their future earnings are already promised to lenders. Managers might skip out on good, long-term investments (like replanting vines or buying better aging tech) because the benefits would mostly go to the creditors, not the owners. This "debt overhang" directly hurts how well assets are used and how efficiently things run, leading to lower returns on assets.
3. ***Emerging Market Woes:*** High interest rates, shaky economies, and a lack of clear information, which are common in emerging markets, just add to the industry-specific problems. This perfect storm creates debt costs that are just too high, consistently outweighing any theoretical upsides.

Addressing Endogeneity

Even though the Fixed Effects model helps with unobserved differences that don't change over time, we still have to consider that reverse causality could be an issue. What I mean is, it's possible a firm's low profits now might push it to take on more debt later, instead of the debt being the reason for the low profits. So, when we look at our significant findings, we've got to keep this limitation in mind. To really get at the cause and effect, future studies should use dynamic panel data methods, like System GMM.

CONCLUSIONS AND RECIMMENDATIONS

Our study shows a clear, big negative link between how much debt a Georgian wine company has and how profitable it is. Using financial data from 2019-2023, we found that more debt consistently leads to lower Net Profit Margin and Return on Assets (ROA). We also saw that debt costs always seem to be higher than any possible benefits in this industry.

This really backs up the Pecking Order Theory and our idea of a "double burden." Basically, high costs for debt in emerging markets, plus how much money it takes to grow grapes and how long it takes to see returns, creates a tough situation for financing.

Strategic Recommendations for Managers:

- For the best chance of growing their business, wine companies need to prioritize making money from their sales and finding investors who aren't lenders, like partners or getting money from the government.
- If they absolutely have to borrow money, they need to be really careful. They should plan out how much they can borrow, keeping in mind how long it takes to make wine and sell it. This way, the loan payments don't eat into the money they need to run the business or cause bigger problems.
- Looking at the big picture, the government and banks shouldn't just offer more loans. To truly help wine producers, they should offer other kinds of financial support that don't involve debt. Things like special grants, shared investment programs, or even government-backed investments would really help reduce the pressure on these businesses.

LIMITATIONS

Despite its clear benefits, this study has a few limitations that pave the way for more detailed future research:

1. We mostly relied on a Fixed Effects model. While good for controlling firm-specific stuff, it doesn't totally solve the endogeneity/reverse causality problem with debt and profitability.
2. Our data only covered 2019-2023, so the long-term scope of what we found is a bit limited.
3. Even though we were strict about capital structure, we didn't include other super important financial health measures like the Cash Conversion Cycle or Altman Z-Score, which are pretty relevant in this industry.
4. What we found is specifically for Georgian wine producers, and you can't really apply it to other industries or countries.

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