

Influence of Financial Leverage, Corporate Size, and Capital Intensity on Profitability of Listed Food Industry Firms in Muscat Stock Exchange, Oman

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Abstract

The objective of this study is to examine the effect of financial leverage, size of the firm and capital intensity on the profitability of the listed firms in the food industry on Muscat Stock Exchange (MSX) in the Sultanate of Oman. The goal of this research is to try to gain some insight into the way these three variables affect the performance of these companies financially. The Financial Leverage indicates the ratio of total debt to equity, and reveals to what extent firms use debt to finance their operations. Size of the corporation, measured by total assets, refers to the level of operation and the resulting economies of scale. Capital intensity reflects the extent of investment in long-term assets, measured as the ratio of fixed assets to total assets. This research analyzes the financial statements of a sample of 11 public food industry firms listed on the MSE for a five-year span based on panel data analysis. To assess profitability, we use return on assets (ROA) as performance indicator. Financial leverage has a mixed effect on profitability, and results indicate that high leverage potentially increases financial risk and interest obligations, which reduce profitability. In contrast, more substantial enterprises generally prosper better owing to economies of scale, greater market presence, and improved resource access. The capital intensity is positively correlated with profitability, asset-heavy constitutes high levels of fixed asset investment, can enhance the production efficiency and competitive advantage. The findings provide useful guidance for food sector corporate managers and investors/analysts as to the strategic importance of financial management in achieving the optimal capital structure to maximize profit. The results can also guide policymakers to create a conducive environment for the food sector in Oman.

Keywords: *Financial Leverage, Muscat Stock Exchange, Strategic Financial Management, Financial Performance, Competitive Advantage.*

Introduction

In a competitive market environment, the sustainability and growth potential of firms significantly depend on their profitability (Constantin Zopounidis, 2024). Profitability represents not only financially sound health from the food industry but also the food industry's innovative ability, and the ability to grow and contribute to the overall economy (Babayev, 2023). This study was conducted to study the influences of capital structure, corporate size and capital intensity on the profitability of food firms listed in Muscat stock exchange around Sultanate of Oman. Recognizing these interconnections enables stakeholders such as managers, investors, and policy makers to devise strategies that increase corporate performance and foster activity within industries.

Financial leverage, the ratio of total debt in relation to equity, is probably the most crucial financing technique that can dramatically influence a firm's profitability (Arhinful & Radmehr, 2023). Although using borrowed funds ((Al-Hawatmah, 2023)) for leveraged investments increase return on investment, it also rises financial risk due to the requirement of interest payments or principal repayments. Given the need for operational stability and cost management in the food industry, it is essential to examine the effect of financial leverage on profitability due to the trade-off between risk and return.

Another determinant of profitability is corporate size, which is usually measured by total assets (Yadav, Pahi, 2022). Economies of scope, increased market power and better access to resources and capital markets are usually advantages of larger firms (Eckert, Koppe, Burkatzki, et al., 2022). Such benefits can provide larger firms with opportunities to maximize production, get better terms with suppliers, and employ more

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efficient marketing strategies (Farida & Setiawan, 2022). Nevertheless the role played by corporateness for turn truly profitabilities in aliment industry in Oman has yet to be properly investigated.

Capital intensity — which is calculated as fixed assets divided by total assets — represents investment in long-term assets — machinery, equipment and the infrastructure (Al Ani & Chavali, 2023). Capital intensity is a measurement of capital expenditures in relation to various operational concerns that may signal a process of increasing production and productivity (Handoyo, 2023). As production processes in the food industry are capital intense, the ability to reveal the linkage between capital intensity and profit may give an indication on the success of these investments (Lee, 2010).

The present study uses panel data analysis with financial statements of companies listed on the MSE in the food industry for a period of five years. The study intends to explore the eclectically significant and relationship between financial leverage, size of the corporates, capital intensity and profitability and by making use of the performance indicators including return on assets (ROA) and returns on equity (ROE). As for the conclusions of this study, it is expected to fit as a hand in a glove for corporate managers in the specific field of how strategic financial management is done and the right proportions of capital structure employed. The outcomes will besides catch the attention of the investors regarding the profits nudges and make it easier for the policy makers to strategize an environment for making the food industry more prospering in Oman.

Background

The Oman food industry is an important sector experiencing rapid growth in Oman over the last few decades (Soundararajan & Ravikumar, 2020). Oman, as an oil-rich country, has for many years relied on oil revenues for its sustainable growth and food security and has been strategically diversifying its economy (Amhamed, et al., 2023). This diversification strategy comes in part in response to rising domestic demand, state support and a geographical position which facilitates trade and access to regional markets (van Berkum, 2021) in the food industry as well.

Oman's food sector is composed of several sub-sectors such as agriculture, food processing, distribution and retail (Masengu et al., 2024). As far as agriculture is concerned, certain progress is evident here, too, albeit to a lesser degree due to very arid climate conditions; modern farming techniques, irrigation projects, and government initiatives to stimulate productivity have played a substantial role in the improvements observed (Grigorieva, Livenets, 2023). Among the most remarkable agriculture outputs are dates, fruits, vegetables and dairy, which provide the basic local food supply chain. The Vision 2040 developed by the government outlines a path for increasing agricultural production while extending sustainable agricultural practices and investment in agribusiness (Gamage et al., 2023).

Processing of food is one of the major segments of food industry in Oman, which helps in value addition and employment generation [GCC Food Industry, November 28, 2023]. This segment includes processing of dairy, meat, poultry, seafood, and packaged foods. Modern processing facilities have been established and advanced technologies adopted to improve efficiency, product and processing quality, and compliance with international standards (Priyadarshini et al. 2018). Sohar Port and Freezone and the Salalah Free Zone are two examples providing opportunities for food processing industries with tax incentives and other advantages as well as logistics (Ullah, El Din, 2022).

Due to its location along strategic shipping lanes between Asia, Africa, and Europe, Oman serves as an important trade and distribution hub for food. Having ports, airports, and road networks, the country has developed logistics infrastructure to enable the transfer of goods not only to the Middle East but also to other neighbouring regions. As a result, the food import and export industry has expanded, and Oman has become a hub to re-export food items to neighbouring states. That is bolstered by the government's initiatives to increase port vehicles and establish food warehouses and distribution centers, enhancing Oman's position as a regional food trader.

Driven by rising consumer incomes, urbanization, and changing lifestyles, the retail sector of the Omani food industry has also seen tremendous growth. Systematic spread of supermarkets, hypermarkets, and convenience stores in urban and rural areas expanded access to more variety of food products (Reardon, 2006). The rise of e-commerce platforms has also changed the retail landscape with the availability of grocery products for consumer purchases and home delivery services (Munso, 2017). Another key driver propelling the Oman food industry is a strong regulatory environment that focuses on food safety, quality and sustainability. The Ministry of Agriculture and Fisheries Wealth and the Public Authority for Food and Nutrition have a key mandate to enforce, implement and oversee

Literature and Hypotheses

The link between leverage, size, capital intensity, and profitability is one of the most concern in corporate finance and has been researched for a number of industries (J Minnema, 2018). These studies differ provide different insights through implications, portraying the nature of several variables in influencing on firm performance as complex and multifaceted. One particular important variable is financial leverage, which refers to the use of debt to finance a firm's operations and investments, since it has the ability to increase both returns and risks (Al Hawatmah & Shaban, 2023). In perfect market where there is no taxes, bankruptcy cost and agency problem, the one dimensional theory of capital structure by Modigliani and Miller 1958 argues that financial leverage does not influence a firm the value (Giglio 2022). Based on their theorem, a levered firm is worth exactly as much as an unlevered firm its gains from debt are cancelled out by the associated higher cost of equity due. But in practice, things don't always work this way. For example, taxes significantly favor debt financing, allowing interest payments to be deducted from taxable income, and reducing the overall tax burden and raising firm value (Clemente-Almendros, 2017). On the other hand, excessive debt incurs financial distress and bankruptcy cost that could have a negative implication on firm value (Branch, 2002). Another problem, for example the agency problems that will arise as a result of conflicts of interest between managers and shareholders or shareholders and debt holders also affects the profitability of a company (Rizqia, Aisjah, & Sumiati, 2013) This means, in the real world, the relationship between leverage and profitability is nonlinear, thus necessitating understanding of what constitutes optimal leverage across industries and context. However, in practice the results of empirical studies in a variety of industries is contradictory regarding the effects of financial leverage on profitability (Senan et al., 2021). Level of leverage may also provide firms with the necessary funds towards potential investment, which otherwise may not be achievable through equity financing (Arhinful & Radmehr, 2023). While such growth comes at a cost of higher leverage, it can translate into a higher return on equity (ROE), provided the return on investment (ROI) is higher than the interest rate on the debt. However, excessive leverage can amplify financial risk and impact net income, particularly during economic downturns or industry-specific pressures (Paeleman et al., 2024). Despite the advantage that high leverage has in increasing potential returns, they can also tax a firms cash flow such that the firm struggles to repay debts, which in time can even result in financial distress (Ufo, 2015). The food industry is ideal due to its stable demand, but thin profit margins, providing an interesting context of the implications of financial leverage on profitability. If the financial characteristics of the industry and the leverage required for it have a bond to be considered more so for investors to achieve opportunities, it is implicitly important for the food industry firms that need optimal leverage to become stable in their activities. This demands a more detailed analysis of the role of leverage in profitability in this sector, considering the particularities of food industry firms. Through examining this association in the context of food industry in Oman, this research intends to enlighten financial mangers about the appropriate choices regarding capital structure. Obtaining this knowledge is essential in order to have optimal financial performance and long-term sustainability in an industry that is crucial in Oman to diversification efforts.

Hypothesis 1

H₀₁: There is no significant relationship between leverage ratio and profitability of food industry companies listed in MSE, Oman.

This hypothesis was prepared in the context of food business because its profit margins are low, but demand is stable, where financial managers shall be help in determining the right capital structure, and whether financial leverage can play an important role within profitability. It also considers how firm size impacts the profitability created by economies of scale, along with the problems arising when the firm becomes too large. Many industries display stable demand but notoriously low profit margins, but few as extreme as food industry, making it a unique case for studying how financial indebtedness impacts race to the bottom. This industry has its unique business dynamics which requires the leverage: profitability relationship to be studied since knowing this relationship is significant for financial managers to determine the optimal capital structure. Leveraged properly and under control, firms are able to gain profits while reducing the financial risk of debt. Firm performance is also affected by corporate size. Economies of scale, better cost management, and better bargaining power can enhance the profitability of large firms. These benefits enable large companies to use resources more efficiently and achieve lower unit costs while increasing their competitive position. These advantages of bigger size are of course not infinite; beyond some scale, firms might suffer from bureaucratic dysfunctions and increased overheads, weakening the scale benefits. Thus, the right size of firm is important for the food sector to sustain profit and efficiency in the functional level. A Combined approach to studying leverage and company size will provide very useful aids to Financial Managers in the task of striking a proper balance between expansion on one hand and financial health along with operational efficiency on the other hand.

Hypothesis 2

H₀₂: There is no significant relationship between the size of food industry companies and profitability (ROA).

We proposed this hypothesis to examine if size is such an encouragement to the food industry companies be powerful enough to determine profitability (ROA) in the sense that although an economy of scale and government supports can help in various ways, yet the significant inefficiencies of running very big food industry firms will be powerful enough to restrict the ROA of larger size players. Access of the government support and incentives for food security and agricultural development may be affected by firm size. Understanding this relationship is vital for pinpointing the cost optimal scales of operation. Economies of scale, better cost control, and high bargaining power can benefit larger firms which can have a positive effect on profitability. Finally, they argued that large firms could provide better access to government programs aimed at increasing agricultural productivity and food security, thereby providing financial and operational advantages. At high sizes, the increasing bureaucratic inefficiencies and high administrative cost can offset the advantage from the scale that their degree of investing offers, reducing firms efficiency. It is critical in the food industry to maximize profitability while balancing this with providing quality the customer desires, leading us to sustainable growth.

Hypothesis 3

H₀₃: There is no significant relationship between capital intensity and profitability (ROA).

This hypothesis was formulated to investigate whether capital intensity, defined as the ratio of fixed assets to total assets, significantly impacts profitability (ROA) in the food industry. Given the sector's reliance on substantial investments in long-term assets for production efficiency and quality enhancement, understanding this relationship is crucial for identifying how strategic capital investments can influence financial performance and sustainable growth. Moreover, capital intensity, defined as the ratio of fixed assets to total assets, indicates the level of investment in long-term assets necessary for production. High capital intensity can lead to increased operational efficiency, lower production costs, and enhanced product quality, collectively boosting profitability. Previous studies have shown that capital-intensive firms often achieve competitive advantages in their respective industries by leveraging their investments in technology and infrastructure. For the food industry in Oman, where modernization and technological adoption are pivotal, capital intensity plays a critical role in determining a firm's competitive edge and financial performance. Firms that strategically manage their capital investments can achieve significant gains in production efficiency and cost management, contributing to higher profitability and sustainable growth.

Research Objectives

- Test for Relationship between Leverage Ratio and Profitability for 11 listed companies in Food industry in Muscat stock exchange, Oman over five years.
- To Investigate the Impacts of Corporate Size and Capital Intensity on the Profitability of food sector firms in Muscat Stock Exchange, Oman.

Conceptual Framework

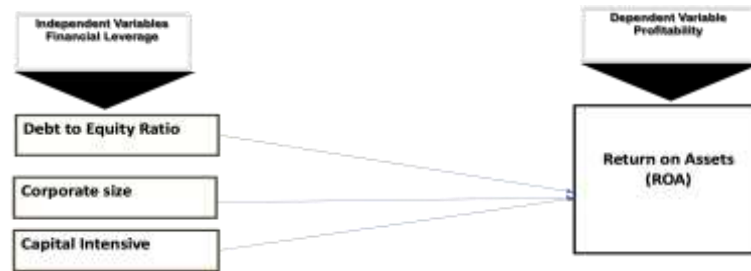


Figure 1.1 Conceptual Framework

Methodology

This study will use a quantitative approach to analyze the financial data of 11 food industries listed companies on Muscat Stock Exchange (MSX) from 2019 to 2023. Abstract — The research analyzes the effect of financial leverage, firm size, and capital intensity towards the profitability measured with Return On Assets (ROA). The independent variables are our final model at the compiled data, the Debt-to-Equity ratio, size of the firm (logarithm of total assets), and capital intensity (the net fixed assets to sales ratio). Data were obtained from the companies' annual financial reports. We performed descriptive statistics to summarize the data and correlation analysis to explore the relationships between variables. The hypotheses about the significance of relationships between independent variables and ROA were tested using an Ordinary Least Squares (OLS) regression analysis. Residual analysis was performed to validate the robustness of the regression results.

Results

Inferences regarding financial leverage, corporate size, capital intensity and profitability (measured by ROA), for food industry companies listed on the Muscat Stock Exchange, Oman can be developed based on data in document and regression results.

Table 1.1 Descriptive Statistics

	Year	Debt to Equity	Company Size	Capital Intensity	ROA
mean	2021	0.45420475	16.93739505	0.657378219	-0.012670299
std	1.427248064	1.764995132	1.268311772	0.523545908	0.089395321
min	2019	-7.847596579	14.93359862	0.10772878	-0.315357965
25%	2020	0.548118456	15.6095502	0.255073595	-0.048253803
50%	2021	0.777016341	16.60615529	0.422509074	0.013951416
75%	2022	1.170249421	18.23274179	0.925848932	0.042086267
max	2023	2.545649693	18.66540151	2.097789386	0.115458454

As shown in the descriptive statistics (Table 1.1), the dataset includes observations over five years (2019–2023) for 11 food companies. Debt to equity ratio has a mean of 0.454 within a much wider range (from -7.848 to 2.546) suggesting a diversity of capital structures among firms. The mean company size, where company size is the natural logarithm on total assets, is 16.937 and the standard deviation is 1.268, which indicates moderate variability. Capital intensity averages 0.657, with a minimum of 0.108 and a maximum of 2.098, marking significant heterogeneity across firms in terms of capital investment as a share of sales. ROA has a mean of -0.013, a min of -0.315 and a max of 0.115, which shows differences in profitability levels.

Table 1.2 Correlation Matrix Results

	Year	Debt to Equity	Company Size	Capital Intensity	ROA
Year	1	0.17194	0.047025705	-0.1314	-0.0425
Debt to Equity	0.17194	1	0.4006447	-0.2827	0.11647
Company Size	0.04703	0.40064	1	-0.1723	0.44938
Capital Intensity	-0.1314	-0.2827	-0.17233965	1	0.0823
ROA	-0.0425	0.11647	0.449383701	0.0823	1

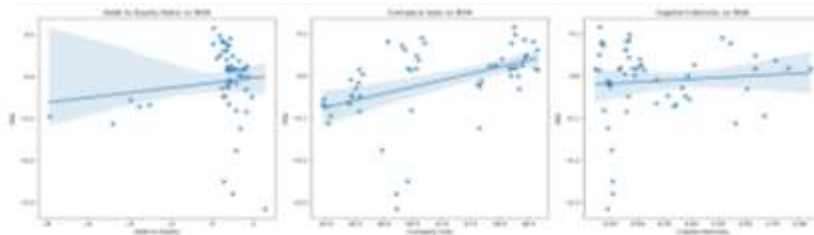


Figure 1.2 Scatter Plots with regression lines

In particular the matrix of correlations gives us a few more details of the aforementioned relationships (Table 1.3). Company size is positively associated with debt to equity ratio (0.401) and ROA is also positively associated but weakly (0.116). Lastly, the association between company size (naturally logarithmed) and ROA (0.449) is positive, indicating that larger companies are more profitable. This means that capital intensity has a small positive correlation with ROA (0.082). Table 3 presents the regression analysis indicating an adjusted R-squared of 0.184 and showing that the model explains about 22.9% of the variance in ROA. The model is statistically significant with an F-statistic of 5.057 and a p-value of 0.00383. Assuming the regression coefficients, we found that the company size has a positive and significant relationship to ROA (coefficient = 0.0346, $p < 0.001$), however, the debt to equity ratio (coefficient = -0.0018, $p = 0.796$) and capital intensity (coefficient = 0.0268, $p = 0.228$) are not significantly associated with profitability.

Table 1.3 OLS Regression Results

Dep. Variable:	ROA	R-squared:	0.229
Model:	OLS	Adj. R-squared:	0.184
Method:	Least Squares	F-statistic:	5.057
		Prob (F-statistic):	0.00383
		Log-Likelihood:	62.432
		AIC:	-116.9
		BIC:	-108.8
	Coef.	std err	t
			P> t
			[0.025
			0.975]

constant	-0.6153	0.161	-3.811	0	-0.939	-0.291
Debt to Equity	-0.0018	0.007	-0.26	0.796	-0.016	0.012
Company Size	0.0346	0.009	3.649	0.001	0.016	0.054
Capital Intensity	0.0268	0.022	1.22	0.228	-0.017	0.071
Omnibus:		20.853	Durbin-Watson:		1.018	
Prob(Omnibus):		0	Jarque-Bera (JB):		30.646	
Skew:		-1.327	Prob(JB):		2.2E-07	
Kurtosis:		5.515	Cond. No.		253	

Notes:

[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

Table 1.3 OLS regression results for dependent variable ROA We observe a R-squared of 0.229 in Model (1), which means that the model explains 22.9% of the variance in profitability. The model is statistically different from the null model (F-statistic = 5.057, p-value = 0.00383), meaning at least one of the predictors has a non-zero coefficient. The coefficient for the constant term is negative and statistically significant (-0.6153, $p < 0.001$), indicating a negative influence on ROA. The predictors include company size, which has a significant positive effect on ROA (0.0346, $p=0.001$), debt to equity ratio (-0.0018, $p = 0.796$), and capital intensity (0.0268, $p = 0.228$, which are not significant predictors. Residual diagnostics show evidence of non-normality and possible positive autocorrelation (Omnibus = 20.853, Prob(Omnibus) = 0, Durbin-Watson = 1.018, Jarque-Bera = 30.646, Skew = -1.327, Prob(JB) = 2.2E-07, Kurtosis = 5.515), indicating that more careful model refinement or transformations are required.

In terms of the association between leverage ratio and profitability (H01), the coefficient for debt-to-equity ratio is -.0018 (p -value = 0.796) which suggests no significant relationship. In other words, we confirm H01 all over again, that there is no relationship between financial leverage and profitability of food industry companies listed in MSX Oman In the relationship between company size and profitability (H02), company size has p -value 0.001 and the coefficient 0.0346 with a significant positive relationship. Thus, we reject H03 and we conclude that there is a significant positive relationship between Quantity(company size)and profitability of the food industry companies listed in MSX Oman Finally for firm profitability and capital intensity relationship (H03) the coefficient of capital intensity is 0.0268 with p value of 0.228 which is also not significant. Hence, we could not reject H03 and concluded that there is no significant association between capital intensity and profitability among food industry listed companies in MSX Oman.

Implications

That larger food industry companies, listed on the Muscat Stock Exchange, are more profitable. This suggests that scale might be especially important in the sector as a means to improve profitability. It suggests that those companies do not heavily depend on debt financing or capital investments compared to their sales for profitability since financial leverage and capital intensity do not have large impact on the profitability. By analyzing these dynamics stakeholders and managers can make more informed decisions regarding resource allocation and strategic planning.

Suggestions

Accordingly, it was found in this study that profitability is a function of company size firms capital intensity and financial leverage is not a function of profitability for food industry companies listed in the Muscat Stock Exchange. Conclusion: Firms should benefit from scale to increase profitability Further research could be carried out to identify other variables that determine profitability in this sector. By having knowledge about these relationships, it allows strategic decisions that positively influence the accounting performance of this financial performance of food companies (Ensor et al. 2021); thus guaranteeing competitiveness and profitability for companies that operate in the inconstant conditions of the food industry (Fathizadeh et al.)

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