

The Impact of Value Chain Financing on Profitability for South Africa's Edible Oil Manufacturing Companies: Raw Materials and Working Capital Approaches

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Abstract: Edible oil manufacturing companies in South Africa generate significant amounts of revenue, which they do not capitalize on. South Africa has no shortage of consumer demand for commodities. The edible oil sector is hampered by poor raw material output in the nation, insufficient financing by value-chain participants, and a shortage of specific effort and understanding in growing the value chain. The research aim was to evaluate the impact of value chain financing on profitability for South Africa's edible oil manufacturing companies via raw materials and working capital approaches. Utilizing secondary data collected from the financial statements of edible oil manufacturing companies from 2012 to 2022. Throughout the research, a positivism paradigm was applied using a descriptive retrospective panel data approach. Multiple regression analysis was used to determine the connection between the value chain financing variables (raw materials and working capital) and the profitability of edible oil manufacturing companies in South Africa. On financing in raw material there was a negative correlation among the two variables, but it is not statistically significant ($r = -0.030$, $p = .424$). On financing in working capital, there was a positive correlation ($r = .201$, $p = .012$), the connection between financing in creditors management and profitability in the edible oil company has a positive correlation ($r = .162$, $p = 0.09$) but is not statistically significant. The research found that raw material financing and working capital financing had no statistically significant connection to the profitability of edible oil manufacturing companies in South Africa.

Keywords: *Value chain financing, profitability, raw material and working capital.*

1. Introduction

Several studies have shown that the profitability of any business raises its market value and contributes to the expansion of the entire industry, which ultimately produces success in the economy (Abuzayed, 2012). There are 27 edible oil companies, which make up 95% of the industry's manufacturing base, and provide most domestic oil refining in South Africa (Ahn et al., 2022). In addition, approximately 53% of the capacity for producing edible oil is being used. The quantity and quality of oil seeds are thus a constraint on the sector's efficiency (Bhana et al., 2023). The edible oil sub-capacity sector's utilization rate is significantly lower than that of the other industries in the food manufacturing sector and has fallen below the national average in recent years (Gan and Li, 2014). However, value chain financing is a highly effective strategy for focusing on methods to raise the intensity and impact of finance (Aliamutu, 2022). It covers agricultural producers' finances and local and international shareholders' finances. A value chain involves a series of processes, from conception to production and ultimately to consummation. This contains all stages of production which include dispatch to end users and disposal after use. The primary goal of a value chain is to guarantee that its value supplied is distributed equitably across value chain participants (Gan and Li, 2014).

Furthermore, the value chain analysis describes how the organization operates. This also relates actions to the company's competitive position, analysis and outline of the firm's value chain activities. This includes an assessment of the firm's productivity competitiveness. Hence, profitability is determined by capacity utilization and raw material supply, both of which are critical to effective capacity utilization in the farming sector. Building a value chain but also ameliorating funding amongst the purchaser's value chain is one of the most important steps in acquiring raw materials (Aliamutu and Mkhize, 2024a). The management of working capital (WC) and the value chain helps edible oil manufacturing companies improve their profitability. Moreover, it measures an organization's operating liquidity, and its requirement rises or falls in proportion to the company's output volume (Ndumbe et al., 2019). Larsson (2018) asserts that factors including a firm's size, growth rate, goods sold, or firm specialization, company guidelines, and value chain plans and procedures all have an impact on the amount of cash a company requires. Increase profitability depending on firm size and production needs to ensure consistent raw material supply and timely distribution of finished products to

clients. Muflikh et al. (2021) mentioned the most significant factors that led to greater reliability by sunflower purchasers.

Customers mostly in the value chain help in increased quality improvements in the industry, relating to core capabilities, capital warehousing, and technology. Firm infrastructure, human capital management, technical progress, services, and commodities purchasing are support activities that create competitive advantages in business. According to Singh and Chatterjee (2022) the management of trade rivalry and company guidelines implemented throughout the value chain influenced the firm's profitability in the seafood processing sector. The study will prove quite useful in demonstrating the importance of strategic review and its impact on profitability. Firm characteristics, size, and capital structure all have an impact on the firm's profitability, which may explain the huge variances. Every corporation has certain qualities that distinguish one entity from another. A company's capital structure is determined by its size. Continuously increasing the company's financial requirements reflects the company's ambition to boost earnings (ALIAMUTU and MKHIZE, 2024d). The level of leverage and liquidity of a company indicates its financial strategy. Debt management is particularly critical since the company must determine how and when to repay loans, based on cash flow and interest rates (Purwanti, 2019).

2. Literature Review

This section addresses the literature review on value chain financing and firm characteristics in the edible oil industry in South Africa. Profitability in the edible oil production industry remained unchanged from 2012 to 2022. The South African economy is expected to weaken in 2022, with a real GDP growth of 2.7%, down from an estimated 3.1% in 2021 (Aliamutu and Mkhize, 2024h). The most important price-making variables in 2021 were the edible oil production cycle, the greatest yearly increase in Crude Edible oil (CEO) production, and a shortfall in South American soybean oil supplies due to persistent drought conditions (Ndumbe et al., 2019). Hence, the lack of supply of sunflowers on the world market because of the ongoing conflict in Russia and Ukraine (in 2022) is one of the factors influencing prices. Further analysis revealed that finance is insufficient in the edible oil industry's value chain, resulting in stagnating profitability (Mazenda et al., 2022). To participate in an increasingly competitive globalized economy, firms must utilize their resources effectively and productively (Aliamutu and Mkhize, 2024a). Edible oil manufacturing companies must effectively increase profitability and understand how much finance is required for good value chain management (Schmidhuber et al., 2022). In the previous five years from 2017 to 2022, edible oil manufacturing companies in South Africa have flourished, with production and demand rising year after year (Mazenda et al., 2022).

The COVID-19 pandemic had little effect on the industry in the 2020/2021 marketing year, with soybean oil output predicted to climb by over 40% to a historical high of 1.7 million tonnes due to record planted areas and ideal meteorological conditions (Aliamutu and Mkhize, 2024b). In 2021/2022, South Africa was crushing a record 2.2 million tonnes of oilseeds, creating 1.5 million tonnes of oilseed (Muller, 2022, Juan et al., 2022). The edible oil industry in South Africa is of great importance as the market demand exceeds R54 billion. It is growing regularly and the country's need for edible oil is recognised by all (Dossou et al., 2022). The annual production is 464,000 tonnes, with a foreign exchange loss of R54 billion. Currently, approximately 53% of the built capacity in this industry is being used, relative to South African nourishment and an affiliated market average of 80% (Aliamutu and Mkhize, 2024g). In South Africa, resource underutilization is related to insufficient financing in the value chain by firms in this sector. According to Schmidhuber et al. (2022) the edible oil value chain is divided into activities such as raw materials, working capital, primary activities and support activities. Muller (2022) claimed that the profitability of the edible oil manufacturing industry has contributed to South Africa losing significant revenue, job opportunities, foreign exchange outflows, and GDP.

Profitability in edible oil manufacturing companies in South Africa is suffering because of capacity underutilization. Other researchers, such as Botes et al. (2018), believe the unawareness of financing inside a suitable value chain influences profitability. The study reveals that resource underutilization is related to insufficient financing in the value chain by firms, which stagnates profitability. In addition, other researchers will gain knowledge from the results of this study by using it as a source of information to conduct similar analyses and by completing a few of the gaps that have recently been identified in previous relevant research. A competitive advantage is required to please clients by satisfying their requests (ALIAMUTU and MKHIZE,

2024e). According to the Competitive Advantage Theory, companies ought to pursue regulations that result in excellent goods being offered at substantial costs (Mazenda et al., 2022). Considering Value Chain Finance, suggested by Muller (2022), may increase the general efficiency of corporations supplying as well as demanding farming funding within the value chain. The most common supplier of raw material is purchasing it using a manufacturer's agreement and investors, or raw material importation.

Coordinating is accomplished by reviewing the contract's precise terms, which outline the criteria that apply to the farming and company, as well as the selling range (Mazenda et al., 2022). Botes et al. (2018) experimentally discovered that there had been an enormous boost in income produced by producers, as well as an improvement in efficiency in decreasing expenses by adopting new Value Chain techniques on the profitability of small-scale businesses' agricultural businesses. The report did not completely clarify the way the overall profitability was affected. Based on Aliamutu and Mkhize (2024f) inventory management Value Chain financings influenced profitability, however, the results did not give an in-depth examination of inventory management's impact on profitability. Muller (2022) discovered that inventory volatility is impacted by the preparation, procurement, manufacturing, and delivery of products and has an impact on profitability. Further research conducted by Muflikh et al. (2021) discovered that physical inventory activity, the creation of goods processes, inventory management, delays in delivery, innovation, and technological advances all had a major impact on the success of South African food production enterprises. The empirical research investigates how profitability factors including leverage and size affect business profitability and growth. In organizational research, one of the most significant features is the company's size. Singh and Chatterjee (2022) has demonstrated experimentally that the firm's size is positively connected to the profitability of life insurance firms in the United States. The research aim was to evaluate value chain financing on profitability for South Africa's Edible oil manufacturing companies via raw materials and working capital approaches.

3. Research Method

Throughout the research process, the positivist paradigm was applied using a descriptive retrospective panel data technique. Multiple regression analysis was used to determine the link between the financing factors (raw materials and working capital) and the profitability of South African edible oil manufacturing firms. The research addressed all 27 edible oil manufacturing enterprises in South Africa, which generate 95% of the edible oil generated in the country. The total number of panel data records was $22 \times 11 = 242$. The research's unit of analysis was all edible oil manufacturing enterprises in South Africa. The composite indexes were produced employing principal component analysis, and data was analyzed utilizing descriptive statistical analysis, correlation analysis, quantitative analysis, multiple regressions on panel data. Several pre-estimation tests were carried out to achieve the greatest quality findings. The unit root test was performed on the model's variables to confirm that there was no stationarity impact. The null hypothesis for the Levin-Lin-Chu (LLC) tests stipulates that all of the panels include a unit root. If the null hypothesis is rejected, and the test reveals that panels are stationary and do not include the unit root. Variance Inflation Factors (VIF) were calculated for all independent variables and moderating variables within the panel data to evaluate multicollinearity. Independent or moderating factors with VIF values greater than 10 were eliminated. The mean VIF for all variables incorporated into the model is 3.34 (which is suggested to reduce it to lower than 10) and all individuals' VIF for all variables chosen is likewise less than 10. Using the research's panel data, the Hausman test was used to identify the best model among fixed effects along with random effects. The Husman test-based Fixed Effect model was used to run multiple regressions in this research.

4. Results and Discussion

Correlation Analysis

Table 1: Correlation of Financing in Raw Material and Profitability

Variables	Profitability	Purchase of Material	Raw Material
Profitability	1		
Purchase of material	.30 (481)	1	

Raw Material	-.030 (424)	-.025 (765)	1
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Note: * Represents a significant relationship at a 5% level.

Pearson coefficient for product-moment correlation was utilized as well in the research to analyze the link among independent variables as well as the composite index of the dependent variable. Each test was carried out at the 5% level of significance. The connection between financing in raw material along profitability in the edible oil industry has a negative correlation among the two variables, but it is not statistically significant ($r = -0.030$, $p = .424$). However, the connection between financing in the purchase of material via agreements with suppliers and profitability in the edible oil industry has a positive correlation between the two variables ($r = .30$, $p = .481$). In summary, there was a somewhat negative connection between raw material financing and the South African edible oil industry's profitability. An increase in financing for the purchase of material ($r = .30$, $p = .481$) is associated with a reduction in profitability. The financing of the raw material variable was also not significant at the 5% level of significance, as indicated in Table 1. The purchasing of material, however, is more substantial than the purchase of raw materials via suppliers' agreement at the 5% level of significance. Bijman et al. (2020) examined a different research whereby raw material financing using agreements with suppliers was investigated. They evaluated and proved that effectiveness in agreements is achieved by guaranteeing a link between the agricultural activities and the company, therefore it increases the profitability. Inventory management and creditor management, including prepayments, were used to assess the research's second objective, namely the financing of working capital. The findings of Pearson's product-movement correlation coefficient (r) and significant value (P) for working capital financing and profitability are presented in Table 2.

Table 2: Correlation of Financing in Working Capital and Profitability

Variables	Profitability	Inventory Management	Creditors Management	Prepayments
Profitability	1			
Inventory management	.201 (.012)	1		
Creditors management	.162 (0.09)	-.026 (.761)	1	
Prepayments	-.018 (386)	.308 (.000) *	-.017 (.840)	1

Note: * Represents a significant relationship at a 5% level

The connection between inventory management along profitability in edible oil manufacturing has a positive correlation ($r = .201$, $p = .012$), the connection between financing in creditors management and profitability in the edible oil company has a positive correlation ($r = .162$, $p = 0.09$) but is not significant. Furthermore, the connection between financing in prepayment and profitability in the edible oil company has a negative correlation ($r = -.018$, $p = (386)$) which is not significant. In summary, there seemed to be a weak positive connection between working capital financing and profitability in the South African edible oil company. Increased working capital financing ($r = .201$, $p = .012$) correlates with increased profitability. Furthermore, as indicated in Table 2, financing in working capital variables was not statistically significant at the 5% level of significance. In addition, inventory management is of greater significance than prepayments and creditor management at the 5% level of significance. A weak positive correlation indicates that there is no significant link between financing working capital and profitability, but the direction is positive, implying that more financing aids in boosting profitability. This conclusion is comparable to that reported in the research on inventory management by Rai et al. (2023) demonstrating adequate financial aid in material flow optimization and profitability. Further research by Dary and James Jr (2020) carried out experiments and confirmed that enterprises concurrently provide credit, indicating that the gap between prepayments and creditors needs to be appropriately evaluated and funded to maximize profitability. Moderating variable firm characteristics was assessed using firm size and firm capital structure. Table 3 presents the findings for the moderating variable influencing profitability using Pearson's product-movement correlation coefficient (r) and significant value (P).

Table 3: Correlation of Firm Characteristics and Profitability

Variables	Profitability	Firm Size	Firm Capital Structure
Profitability	1		
Firm size	.146 (.034)*	1	
Firm capital structure	-.082 (.146)	.105 (.214)	1

Note: *Represents a significant relationship at a 5% level.

The connection between firm capital structure with profitability in the edible oil company has a negative correlation among the two variables ($r = -.082$, $p = .146$), but it is not significant. Conversely, the connection between firm size with profitability in edible oil manufacturing has a positive correlation among the two variables ($r = .146$, $p = .034$). In summary, it found a positive link between profitability and moderating variable firm characteristics in the South African edible oil company. Profitability growth is positively connected to an increase in firm characteristics. In addition, as indicated in Table 3, merely the firm size ($r = .146$, $p = .034$), one of the moderating variables, proved to be significant at the 5% level of significance, whereas the remaining variable, firm capital structure, was not significant. The influence of firm size on profits was experimentally evaluated by Pattiruhu and Paais (2020) who discovered a positive association between firm size with profitability. An identical connection was observed in the present research, while both studies showed the connection to be highly significant. Other empirical research conducted by Dirman (2020) found a strong correlation between capital structure and profitability in the South African insurance sector. In a comparable manner, our research revealed a positive, substantial correlation between profitability and capital structure.

Panel Data Regression: The explanatory multivariate approach of Panel data regression analysis was utilized in this portion of the research to analyze correlations among variables and demonstrate the validity of the Panel data regression models. The research then compared the independent variables and moderate variables (raw material via purchase material, and raw materials, working capital via inventory management, creditors management and moderate variables via firm size with firm capital structure) to the dependent variables' profitability (ROE, Tobin Q and ROI).

Table 4: Regression Results with Profitability (ROE) Model 1

Variables	Fixed Effect Model				Random Effect Model			
	Coefficient (β)	St. Error	t-Statistic	P-value	Coefficient (β)	St. Error	t-Statistic	P-value
Purchase material	of-4.79E-08	2.94E-08	-1.631271	0.1067	4.55E-09	6.27E-09	0.726476	0.4694
Raw material	-7.83E-07	4.82E-07	-1.624010	0.1083	1.54E-07	2.20E-07	0.699864	0.4857
Inventory management	2.23E-08	1.09E-07	0.203542	0.8392	-3.03E-08	1.02E-07	-0.691132	0.7669
Creditors management	1.95E-08	1.40E-08	1.386957	0.1693	-3.84E-09	5.56E-09	-0.691132	0.4912
Prepayments	-4.13E-07	2.66E-07	-1.555190	0.1238	1.45E-07	1.34E-07	1.086418	0.2801
Inbound logistics	-5.96E-07	1.47E-07	-4.039020	0.0001 *	-2.89E-07	1.26E-07	-2.298172	0.0238 *
Outbound logistics	4.13E-07	3.18E-07	1.277023	0.2052	6.64E-08	2.33E-07	0.285134	0.7762
Firm operations	6.41E-07	5.11E-07	1.254356	0.2133	-1.77E-07	2.21E-07	-0.81715	0.4247
Management cost	-3.20E-07	3.08E-07	-1.038886	0.3019	-3.22E-07	2.79E-07	-1.155219	0.2509

Development cost	0.647846	.3700031	1.750001	0.0431 *	-1.69E-07	1.35E-07	-1.256504	0.2120
Marketing and sales	5.87E-08	5.18E-07	0.113279	0.9101	-5.49E-07	4.62E-07	-1.190016	0.2370
Firm size	-4.09E-09	6.34E-09	-0.646075	0.5201	-4.45E-07	6.08E-09	-0.731785	0.4661
Firm capital structure	-4.38E-07	2.01E-07	-2.181393	0.0321*	-4.44E-07	1.90E-07	-2.333504	0.0218*
Constant β_0	9.989031	1.491290	6.698248	0.0000	6.163931	0.879502	7.008431	0.0000

Note: * Implies significant at a 5% level of significance

Table 5: Hausman Test for Selection of Model 1

Correlated Random Effects -Hausman Test			
Test cross-section random effects			
Test Summary	Chi-square	Chi-sq. D.F	Prob
Cross section	88.980681	12	0.0000

H0: Random effect model is consistent H1: Fixed effect model is consistent. From the above Table 5, it suggests that the fixed effect model is appropriate, hence; we accept the alternative hypothesis that the fixed effect model is consistent. Therefore, the parameter estimation for model 1 in this study was done using the fixed effect regression model.

Table 4 shows that the coefficients of the model differ significantly from 0 and the P-value 0.000 is less than 5%. There are also analyzed significant tests of individual coefficients for each predictor's variable in the model. The coefficient of determination shows a solid linear model that describes the phenomena that occur in the twenty-two analyzed variables in an amount of 51.2%, corresponding to the explanation variables. The rest of the 48.8%, refers to the impact of unidentified or unconsidered factors on the profitability of South Africa's edible oil companies. Holding all other variables constant, each edible oil company is expected to have $\beta_0 = 9.98$ units of profitability (with respect to return on equity) with a probability value < 0.05 . The results further indicate that the firm's capital structure (P-value = 0.0321) is very significant and affects profitability at a 5% level of significance. Other predictor variables are not significant at a 5% level of significance. In the research conducted by Singh and Chatterjee (2022) analyzed shareholder value as a profitability measurement, and this research additionally evaluated the value chain on ROE as a financial indicator to see which metric of profitability is ideal for this research. The research discovered an r-sqr of 51.2%, which explains 51.2% of the variance.

Table 6: Regression Results with Profitability (Tobin Q) Model 2

Variables	Fixed Effect Model				Random Effect Model			
	Coefficient (β)	St. Error	t-Statistic	P-value	Coefficient (β)	St. Error	t-Statistic	P-value
Purchase of material	-6.13E-10	3.2E-09	-0.187191	0.8520	-8.81E-11	6.01E-10	-0.146667	0.8837
Raw material	-2.73E-08	5.38E-08	-0.508058	0.6128	-2.59E-08	1.98E-08	-1.309858	0.0193 *
Inventory management	4.59E-09	1.22E-09	0.227080	0.8209	-2.27E-09	1.03E-08	-0.220108	0.8261
Creditors management	3.56E-10	1.57E-09	0.227080	0.8209	1.56E-10	5.97E-10	0.261048	0.7946
Prepayments	-4.75E-09	2.96E-08	-0.160337	0.8730	-3.96E-09	1.26E-08	-0.315462	0.7531
Inbound logistics	9.03E-09	1.64E-08	-0.550162	0.5837	-1.19E-08	1.22E-08	-0.974689	0.3322
Outbound logistics	2.50E-08	3.55E-08	0.704383	0.4832	2.02E-08	2.41E-08	0.836587	0.4049
Firm operations	1.48E-08	5.70E-08	0.258927	0.7963	6.54E-09	2.38E-08	0.275259	0.7837

Management cost	7.94E-09	3.43E-08	0.231422	0.8176	8.78E-09	3.05E-08	0.287853	0.7741
Development cost	-3.83E-09	1.66E-08	-0.231422	0.8177	3.22E-09	1.31E-08	0.246406	0.8055
Marketing and sales	-4.53E-08	5.78E-08	-0.785003	0.4347	-4.08E-08	4.41E-08	-0.924881	0.3574
Firm size	5.22E-11	7.06E-10	0.073945	0.9412	-3.35E-10	6.30E-08	-0.573107	0.5679
Firm capital structure	-2.87E-08	2.24E-08	-1.284506	0.0261 *	-3.35E-08	2.06E-08	-1.630903	0.0163 *
Constant β_0	0.541786	0.166254	3.258786	0.0016*	0.553059	0.060825	9.092554	0.0000*

Note: * Implies significant at a 5% level of significance.

Table 7: Hausman Test for Selection of Model 2

Correlated Random Effects -Hausman Test			
Test Cross-Section Random Effects			
Test Summary	Chi-square	Chi-sq. d.f	Prob
Cross section	8.312819	12	0.7602

H0: Random effect model is consistent H1: Fixed effect model is consistent. From the above Table 7, suggests that the random effect model is appropriate, hence we accept the null hypothesis that the random effect model is consistent. Therefore, our parameter estimation for model 2 in this study was done using the random effect regression model.

Table 6 indicates that the coefficients of the model are significantly different from 0 and the P-value 0.000 is less than 5%. There are also analyzed significant tests of individual coefficients for each predictor's variable in the model. The coefficient of determination demonstrates a bad linear model that describes the phenomena that occur in the twenty-two analyzed variables in an amount of 43.8%, corresponding to the explanation variables. The rest of the 56.2% refers to the impact of unidentified or unconsidered factors on the profitability of South Africa's edible oil Company. Holding all other variables constant, each edible oil company is expected to have $\beta_0 = 0.553$ units of profitability (with respect to Tobin Q) with a probability value < 0.05 . The results also indicate that the firm's capital structure (P-value = 0.0163) and raw material (P-value = 0.0193) are very significant and affect profitability at a 5% level of significance. Other predictor variables are not significant at a 5% level of significance. Tobin Q solely as an indicator of profitability reduced the justification of the model to 43.8% and the greatest compared the ROE and ROI as an evaluation of profitability and Tobin Q has just been looked at as intellectual property assessments in the estimation and profitability research on Tawan semi-Transformer company by Albab and Azis (2021) utilizing Tobin Q by itself will not be a good representation of the profitability of the company.

Table 8: Regression Results with Profitability (ROI) Model 3

Variables	Random Effect Model				Random Effect Model			
	Profitability (ROI)	Coefficient (β)	St. Error	t-Statistic	P-value	Coefficient (β)	St. Error	t-Statistic
Purchase of material	-321E-03	0.45E-04	-0.102101	0.5020	1.24E-03	0.45E-03	1.364012	0.0002
Raw material	-2.30E-05	1.33E-03	-0.020202	0.4010	5.15E-04	1.33E-04	2.235213	0.0003
Inventory management	-9.17E-09	1.28E-07	-0.071539	0.9432	-2.12E-07	1.06E-07	-1.991962	0.0492 *
Creditors management	8.18E-09	4.32E-09	1.894504	0.0370 *	1.15E-08	3.43E-09	3.357141	0.0011 *
Prepayments	-1.49E-07	3.08E-07	-0.484037	0.6298	3.27E-07	1.08E-07	3.022163	0.0032 *
Inbound logistics	-7.31E-08	1.70E-07	-0.429011	0.6691	-1.42E-07	1.09E-7	-1.299746	0.1967
Outbound logistics	-5.25E-08	2.20E-07	-0.239293	0.8115	-1.67E-07	1.98E- 07	-0.842025	0.4018

Firm operations	-9.87E-08	1.76E-07	-0.560699	0.5767	1.09E-07	1.35E-07	0.804311	0.4242
Management cost	-1.72E-08	3.22E-07	-0.533666	0.5952	-5.72E-07	2.92E-07	-1.957701	0.0531
Development cost	-6.22E-08	1.78E-07	-0.349986	0.7273	-1.67E-07	1.28E-07	-1.299876	0.1967
Marketing and sales	1.07E-06	6.15E-07	1.745421	0.0250 *	-8.98E-08	3.91E-07	-0.229520	0.8189
Firm size	3.26E-09	7.52E-09	0.433565	0.6658	-9.72E-09	6.51E-09	-1.492098	0.1389
Firm capital structure	-2.48E-07	2.31E-07	-1.073939	0.0486 *	-1.68E-07	2.09E-07	-0.802266	0.4243
Constant β_0	6.394484	1.419638	4.504308	0.0000 *	5.708411	0.631841	9.034575	0.0000 *

Note: * Implies significant at a 5% level of significance.

Table 9: Hausman Test for Selection of Model 3

Correlated Random Effects -Hausman Test			
Test Cross-Section Random Effects			
Test Summary	Chi-square	Chi-sq. d.f	Prob
Cross section	69.359210	12	0.0000

H0: Random effect model is consistent H1: Fixed effect model is consistent. From the above Table 9, suggests that the fixed effect model is appropriate, hence, we accept the alternative hypothesis that the fixed effect model is consistent. Therefore, our parameter estimation for model 3 in this study was done using the fixed effect regression model.

Table 8 shows that the coefficients of the model differ significantly from 0 and the P-value 0.000 is less than 5%. There are also analyzed the significant tests of individual coefficients for each predictor's variable in the model. The coefficient of determination shows a slightly good linear model that describes the phenomena that occur in the twenty-two analyzed variables in an amount of 49.3%, corresponding to the explanation variables. The remaining 50.7% refers to the impact of unidentified or unconsidered factors on the profitability of South Africa's edible oil company. Holding all other variables constant, each edible oil company is expected to have $\beta_0 = 6.394$ units of profitability (with respect to return on investment) with a probability value < 0.05 . The results also show that the firm capital structure (P-value = 0.0486) is very significant and affects profitability at a 5% level of significance. Other predictor variables are not significant at a 5% level of significance. In exclusive research by Mabandla and Makoni (2019) experimentally developed the connection between the value chain methods and their financial issues, affecting how they were moving forward.

Influencing the company and determining profitability alongside return on investment and discovering significant connections between profitability and value chain approaches. Another study, based on Aldubhani et al. (2022) found that financial value chain management affects profitability calculated by the return on invested capital (ROIC). Based on this research, supply chain financing is a financial remedy that offers mutually beneficial effects for all the power sources who participated in the supply-side Value Chain and might improve commercial economic strength in the sales and keep competitiveness. Research conducted by ALIAMUTU and MKHIZE (2024c) revealed that Value Chain planning assists the organization to get a genuine return on investment. The research additionally showed that supply chain finance is a financial approach that produces mutually beneficial solutions and results for all the respondents in the supply-side Value Chain. Each of these research studies enhances the profitability of the company. The research's correlated independent variable using return on investment r-sqr value description variation is 49.3%. This result would contrast with the result of the return on investment and Tobin Q to determine our model that describes the largest variance in the profitability of edible oil manufacturing companies in South Africa.

5. Conclusion and Recommendations

The research aim was to evaluate value chain financing on profitability for South Africa's Edible oil manufacturing companies via raw materials and working capital approaches. Based on the research's findings, conclusions were produced after assessing the data and analyzing every research objective. On financing in raw material, there was a negative correlation among the two variables, but it is not statistically significant ($r = -0.030$, $p = .424$). However, the relationship between financing in the purchase of material via agreements with suppliers and profitability in the edible oil industry has a positive correlation between the two variables ($r = .30$, $p = .481$). There was a somewhat negative connection between raw material financing and the South African edible oil industry's profitability. An increase in financing for the purchase of material ($r = .30$, $p = .481$) is associated with a reduction in profitability. The financing of the raw material variable was also not significant at the 5% level of significance. On financing in working capital, the research concludes that there was a positive correlation ($r = .201$, $p = .012$), the connection between financing in creditors management and profitability in the edible oil company has a positive correlation ($r = .162$, $p = 0.09$) but is not statistically significant.

Furthermore, the connection between financing in prepayment and profitability in the edible oil company has a negative correlation ($r = -0.18$, $p = .386$) but is not significant. In summary, there seemed to be a weak positive connection between working capital financing and profitability in the South African edible oil company. A weak positive correlation indicates that there is no significant link between financing working capital and profitability, but the direction is positive, implying that more financing aids in boosting profitability. The research recommends that South African edible oil manufacturing companies engage in an extremely competitive commercial environment, thus they must analyze adequate finance demands throughout the value chain to enhance technology, decrease costs of production, and maximize capacity utilization. The research analyzed and compared the profitability of several firms, and the findings show that every organization may learn standards from the industry and implement them to attain the industry average or higher in terms of profitability. It also turns out that extra financing in the value chain has an impact on profitability and should therefore come from a longer-term source of finance. Overall, the researcher advises that a proper balance of investment in fundamental operations and financing in working capital be decided to maximize potential utilization.

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