

Factors affecting Competitiveness of Industrial Oil Companies in Bac Giang Province

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ABSTRACT: *Improving the competitiveness of enterprises is one of the vital tasks that will decide the future of industrial oil and gas companies in Bac Giang province. However, which factors affect the competitiveness of the companies is still controversial. Using survey data from 308 employees and managers and multivariable linear regression models, this study has identified the factors affecting the competitiveness of industrial oil companies in Bac Giang Province. The analysis results show that there are 16 factors affecting the competitiveness of Industrial Oil Companies in Bac Giang Province, including ten internal factors (Employee competencies, knowledge assets, managerial practices, management attitudes, cooperate culture, ownership advantage, marketing aptitudes, customer relationships, absorptive capacities, business networks) and 06 external factors (Government policies, market demand, international openness, financial market, labor market, infrastructure). Further, the study has proposed meaningful solutions to improve the competitiveness of industrial oil companies in Bac Giang province.*

KEYWORDS - *Competitiveness, Bac Giang province, Industrial Oil Companies, Business Development, Business Strategy*

I. INTRODUCTION

As we all know, competition is a hallmark of the capitalist economy, giving rise to economic freedom in production and business and laying the groundwork for many kinds of ownership. Companies use innovative and constructive methods to maintain their position in the market and then strive to improve their position. For the company to succeed, it has to think of new ways to promote and sell its goods. Then, as a result, profitability will be possible.

To achieve maximum profit, the company has ways to increase selling prices, sales, and reduce costs. To achieve this, the company must improve the product's position in the market by applying scientific and technological achievements and modern production methods to create products of good quality, beautiful designs that are less costly. Also, businesses must have appropriate marketing strategies to promote their products and goods to customers to capture the presence of those goods and the characteristics, properties, value, and associated services.

According to the Vietnam Petroleum Association (2021), the domestic oil sector in Bac Giang is growing at an average pace of 4-6% each year. The motorcycle population of Bac Giang is 660,000. The automobile population is 16,500, while trucks are 14,200. Cars use 12-18 liters of oil per year, trucks need 120-160 liters of oil per year, while motorcycles use 3-4 liters yearly. In fact, the potential of the petroleum market in Bac Giang is much larger.

Increasing demand opens up opportunities for the oil business, but at the same time makes the competition for the market fiercer than ever. In which, there are two main competition issues: (i) Competition between lubricant brands; (ii) Competition between wholesale and retail agents for lubricants with the same brand. Some lubricant agents even imported counterfeit goods and publicly displayed products with famous production brands, making the lubricant business market more chaotic in Vietnam. Dumping products, fake sources,... are "difficult" problems that businesses need to find ways to overcome.

In addition, the COVID-19 epidemic caused a serious drop in market demand due to production stagnation, limited traffic, making the market increasingly narrow and competition increasingly fierce. Businesses need to research solutions to adapt to the new situation. Therefore, improving enterprises' competitiveness is a vital task in deciding the future of industrial oil and gas companies in Bac Giang province in the future.

II. LITERATURE REVIEW

According to Iakshmi (2009), gender is no longer just biological and being a man or woman, but instead something far more than that. To accurately describe gender, one must take into consideration aspects that are different for men and women. While a segmentation variable, gender also has a significant effect on the choices that individuals make. It is important for marketers to locate gender-based trends in order to satisfy consumers more accurately. There are significant disparities in men's and women's attitudes and conduct because of psychological and physiological differences. On the other hand, gentlemen and ladies behave very differently while buying various goods and offers.

Polatoglu and Ekin (2001) found that the more people believe that utilizing electronic services is beneficial, the more likely they are to use it in business communication, resulting in better firm competitiveness.

Karjaluoto et al. (2002) discovered that people's mindsets and actual conduct are influenced by both their previous experience with computers and their attitudes towards them.

Zeithaml, Parasuraman, and Malhotra (2002) suggested that the perceived ease of use indicates the degree to which an invention is simple to comprehend or use.

Using data drawn from Mukherjee and Nath (2003), which pointed to a modest impact of communication on trust but a substantial disadvantage to opportunism, it can be concluded that trust plays a crucial role in commitment in business.

In a research done by Rexha et al. (2003), it was discovered that only indirect adoption of Internet business had an effect on customer satisfaction. In addition, they contend that many factors affect consumer decisions, including the opportunity to use various electronic tools, difficulties with machine availabilities, user-friendly services, and access to up-to-date information.

According to Pikkarainen et al. (2004), the perceived usefulness of various products was an essential determinant of conduct, prompting the use of the twenty-first-century commercial enterprise's commercial self-service technologies in acquiring economic information and purchasing different goods.

In the Maskan Bank of East Azarbaijan, Kermanshah, and Hamadan in Iran, MollaZade (2010) examined the many variables that contribute to the operational risk of a company. Every contributing element (such as internal controls, technological infrastructure, and access to the system) and customers' perception of security impact Maskan Bank's operational risk, and workers' perception of security plays a more significant role than customers'.

According to Littler and Melanthiou (2006), perceived risk was shown to be a person's thoughts about the danger of purchasing a product or service, together with their concerns about the possibility of unpleasant side effects.

In a study conducted by McKechnie, Winklhofer, and Ennew (2006), TAM allowed the researchers to better understand how several variables influence the amount of internet usage in business.

Hamidizadeh et al. (2014) assessed and graded environmental difficulties and hardships distinct from those faced by Iranian businesses. They discovered that slow network speeds, infrastructures, poor consumer knowledge and awareness, and difficulty managing sites were major development issues that threatened long-term company competitiveness.

III. METHODOLOGY

The study used a descriptive type of research that describes the respondent's perception of the competitiveness of industrial oil companies in Bac Giang province. It is the appropriate method for collecting data and processing and analyzing data on the factors influencing the competitiveness of industrial oil companies in Bac Giang province, including price, quality of products, company image, human resources, capital capacity, technology capacity, competition strategy, infrastructure capacity, and customers' needs response. In addition, the study uses quantitative analysis with some advantages, such as being more reliable and objective; it can use statistics to provide generalized findings, attempts to reduce and reform a complex issue into a number of limited variables, and checks theories or hypotheses. The correlation method uses regression to

analyze factors affecting the competitiveness of industrial oil companies in the Bac Giang provinces. This method provides a level of influence for each factor, and we can give a valuable solution for companies.

The population of this study is total employees in 4 industrial oil companies in Bac Giang province: (1) Phuong Nam Production and Trading Limited Company; (2) An Phat Petroleum Trading Company Limited; (3) Franco Vietnam Technology Limited Company; (4) Ngo Hoang Services And Trading Limited Company. The total number of employees of these four companies is 1,325. Due to limited time and financial resources, the author cannot do interviews and surveys for all of them; therefore, a sample survey is needed. As calculated from the Slovin formula, this study has surveyed 308 employees in four industrial oil companies in Bac Giang province. The ratio of managers is around 10%, based on the total number of employees in each company. Numerous methods are used for interviews (in-person, over the phone, or via email). The questions used a five-point Likert scale, with five being the highest score and one the lowest. Factors affecting the competitiveness of industrial oil companies in Bac Giang province were identified using multivariate regression analysis.

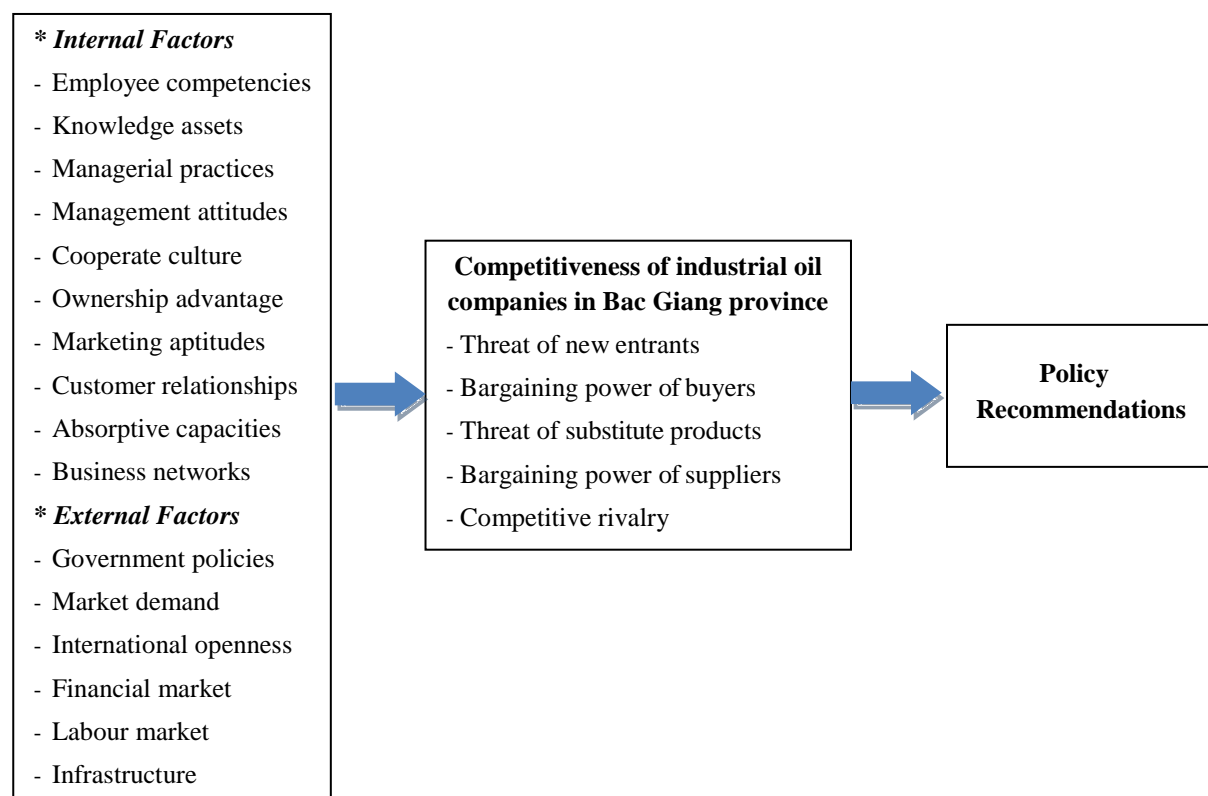


Diagram 1: Research model

IV. FINDINGS AND DISCUSSIONS

As presented in the methodology section, in order to evaluate the factors affecting the competitiveness of industrial oil enterprises in Bac Giang province, the author conducts a multivariate regression analysis using the Enter method. Accordingly, the author conducts the evaluation using two models: The internal factor model and the External factor model. In which, the study used data from a survey of 308 employees of industrial oil companies in Bac Giang province.

Internal factor model

The dependent variable is the competitiveness of industrial oil enterprises in Bac Giang province. The method for measuring this variable is explained in the previous section through 05 aspects: Threat of new entrants, bargaining power of buyers, threat of substitute products, bargaining power of suppliers, and competitive rivalry.

The independent variables are internal factors, including employee competencies, knowledge assets, managerial practices, management attitudes, corporate culture, ownership advantage, marketing aptitudes, customer relationships, absorptive capacities, and business networks.

Table 1. Model summary for Internal factors

Coefficient of correlation	Coefficient of determination	Standard error of estimate
0.849	0.721	0.616

(Sources: Author's calculation)

The result showed that the independent variables: Employee competencies, knowledge assets, managerial practices, management attitudes, cooperate culture, ownership advantage, marketing aptitudes, customer relationships, absorptive capacities, and Business networks are correlated with the Enterprise Business Competitiveness variable at 5% significance level, R2 = 0.721. It meant all independent variables explained the 72.1% variance of Enterprise Business Competitiveness of Bac Giang province.

Table 2. ANOVA of regression for Internal Factor Model

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	15.59	11	1.42	3.74	0.01
Residual	112.56	297	0.38		
Total	128.16	308			

(Sources: Author's calculation)

The level of sig is 0.01 < 0.05, which means the model was statistically significant and acceptable.

Table 3. Results of estimation for Internal Factor Model

Variables	Coefficients		Sig.	Collinearity Statistics	
	Beta	Std. Error		Tolerance	VIF
EC (Employee competencies)	0.323	0.305	0.036	0.616	1.623
KA (Knowledge assets)	0.289	0.219	0.027	0.656	1.524
MP (Managerial practices)	0.199	0.216	0.037	0.394	2.537
MAT (Management attitudes)	0.306	0.310	0.033	0.703	1.423
CC (Cooperate culture)	0.307	0.282	0.029	0.298	3.357
OA (Ownership advantage)	0.425	0.212	0.032	0.471	2.122
MAP (Marketing aptitudes)	0.245	0.199	0.023	0.639	1.564
CR (Customer relationships)	0.224	0.187	0.045	0.412	2.015
AC (Absorptive capacities)	0.312	0.225	0.012	0.602	1.578
BN (Business networks)	0.135	0.122	0.031	0.522	1.826

(Sources: Author's calculation)

The table shows that the variance inflation factor (VIF) of each variable was less than 10; therefore, the multicollinearity phenomenon does not affect the model interpretation results. The rule is that when VIF exceeds 10, the variables have signs of a multicollinearity phenomenon.

Linear regression equation takes the following form:

$$EBC_i = 0.323*EC_i + 0.289*KA_i + 0.199*MP_i + 0.306*MAT_i + 0.307*CC_i + 0.425*OA_i + 0.245*MAP_i + 0.224*CR_i + 0.312*AC_i + 0.135*BN_i + e$$

The regression results show that the independent variables EC, KA, MP, MAT, CC, OA, MAP, CR, AC, BN have Sig smaller than 0.05, so the variables are significant at 95%. At 95% confidence level, the independent variable affects the dependent variable, and the slope coefficients are respectively 0.323, 0.289, 0.199, 0.306, 0.307, 0.425, 0.245, 0.224, 0.312, 0.135. The variables of EC, KA, MP, MAT, CC, OA, MAP, CR, AC, BN are positive, so all variables affect the business competitiveness of industrial oil companies in Bac Giang province all in the same direction.

Meanwhile, the importance of Employee competencies (EC), Knowledge assets (KA), Managerial practices (MP), Management attitudes (MAT), Cooperate culture (CC), Ownership advantage (OA), Marketing aptitudes (MAP), Customer relationships (CR), Absorptive capacities (AC), Business networks (BN) for the Enterprise Business Competitiveness (EBC) of Industrial Oil Companies in Bac Giang province based on beta coefficient. The statistical test showed that the most important factor affecting the business competitiveness of industrial oil companies in Bac Giang province is Ownership advantage (Beta = 0.425). Business networks have

the smallest impact on competitiveness. Based on the regression results, all ten factors affected the business competitiveness of industrial oil companies in Bac Giang province with different levels of impact.

External factor model

Similar to the internal factor model, the dependent variable is also the competitiveness of industrial oil enterprises in Bac Giang province, including 05 aspects: Threat of new entrants, bargaining power of buyers, threat of substitute products, bargaining power of suppliers, and competitive rivalry. The independent variables are external factors, including Government policies, Market demand, International openness, Financial market, Labour market, and Infrastructure. The regression results are shown in the following tables:

Table 4. Model summary for External factors

Coefficient of correlation	Coefficient of determination	Standard error of estimate
0.783	0.613	0.422

(Sources: Author’s calculation)

he values of each factor were used to run a regression analysis using OLS regression with the Enter method. The result showed that the independent variables (Government policies, Market demand, International openness, Financial market, Labour market, and Infrastructure) are correlated with the Enterprise Business Competitiveness variable at a 5% significance level, R2 = 0.613. It meant all independent variables explained 61.3% variance of Enterprise Business Competitiveness of Bac Giang province.

Table 5. ANOVA of regression for External Factor Model

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	216.94	7	30.99	174.33	0.00
Residual	53.58	301	0.18		
Total	270.52	308			

(Sources: Author’s calculation)

The level of sig is 0.00 < 0.05, that means the model was statistically significant and acceptable.

Table 6. Results of estimation for External Factor Model

Variables	Coefficients		Sig.	Collinearity Statistics	
	Beta	Std. Error		Tolerance	VIF
GP (Government policies)	0.46	0.04	0.00	0.58	1.73
MB (Market demand)	0.12	0.04	0.01	0.56	1.78
IO (International openness)	0.34	0.03	0.00	0.98	1.02
FM (Financial market)	0.24	0.03	0.00	0.80	1.25
LM (Labour market)	0.13	0.02	0.01	0.97	1.03
IN (Infrastructure)	0.02	0.03	0.02	0.89	1.12

(Sources: Author’s calculation)

The above table shows that each variable's variance inflation factor (VIF) was less than 10; therefore, the multicollinearity phenomenon does not affect the model interpretation results. The rule is that when VIF exceeds 10, the variables have signs of a multicollinearity phenomenon. Linear regression equation takes the following form:

$$EBC_i = 0.46*GP_i + 0.12*MB_i + 0.34*IO_i + 0.24*FM_i + 0.13*LM_i + 0.02*IN_i + e$$

The regression results show that the independent variables GP, MB, IO, FM, LM, IN have Sig smaller than 0.05, so the variables are significant at 95%. At a 95% confidence level, the independent variable affects the dependent variable, and the slope coefficients are 0.46, 0.12, 0.34, 0.24, 0.13, and 0.02, respectively. The variables of GP, MB, IO, FM, LM, IN are positive, so all variables affect the business competitiveness of industrial oil companies in Bac Giang province all in the same direction.

Meanwhile, the importance of Government policies (GP), Market demand (MD), International openness (IO), Financial market (FM), Labour market (LM), and Infrastructure (IN) for the Enterprise Business Competitiveness (EBC) of Industrial Oil Companies in Bac Giang province based on beta coefficient. The statistical test showed that the most important factor affecting the business competitiveness of industrial oil companies in Bac Giang province is Government policies (Beta = 0.46). Infrastructure has the most negligible impact on competitiveness. Based on the regression results, all 06 external factors affected the business competitiveness of industrial oil companies in Bac Giang province with different levels of impact.

V. CONCLUSION

The competitiveness of industrial oil enterprises in Bac Giang province is still low and needs lots of improvement; Economies of scale are poor; they do not make optimal use of business efficiency; The level of brand loyalty as well as accumulated experience is only average; Business capital is only poor; the number of customers of the business is relatively small; Product differentiation and company capabilities compared to competitors are weak; The degree of difference between the products of the company and the competitors is not much; The supplier problem is a wake-up call for industrial oil companies in Bac Giang province; Competitive diversity is average; the industry growth rate is only average; the difference in product quality between industrial oil enterprises in Bac Giang province and competitors is not much; Barriers to exit the market are low. The number of competitors in the industrial oil industry is relatively large. International companies with confirmed brands, competitive prices, and good management are the main competitors of industrial oil companies in Bac Giang province. Competitive diversity is average.

The study has identified ten internal factors (employee competencies, knowledge assets, managerial practices, management attitudes, cooperate culture, ownership advantage, marketing aptitudes, customer relationships, absorptive capacities, Business networks) and six other external factors (government policies, market demand, international openness, financial market, labor market, infrastructure) affecting the business competitiveness of industrial oil companies in Bac Giang province. All proposed factors have positive impacts.

To improve competitiveness, the industrial oil companies in Bac Giang province should focus on enhancing the quality of human resources, implementing a reasonable price policy, being flexible in payment, and having cost-effective solutions. Further, they should focus on developing the sales network and invest in modern store equipment.

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