



Effect of Product Pricing on Equity Return of Manufacturing Firms Listed at Nairobi Securities Exchange in Kenya

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Purpose of Study: The study aimed to assess how product pricing affects the equity return of manufacturing firms listed at the Nairobi Securities Exchange in Kenya.

Research Design: The study employed both longitudinal and cross-sectional research designs.

Place and Study Duration: the study covered manufacturing firms listed at Nairobi Securities Exchange in Kenya. Data was collected from the year 2008 to the year 2021.

Research Methodology: The study's target population included 7 listed manufacturing companies in the Nairobi securities exchange. The current study relied on secondary data sources for the period between the year 2008 and year 2021 that was gathered from the Nairobi Securities Exchange, the capital market authority library and the annual reports of individual companies that were obtained from their websites. Descriptive and inferential measurements were used to evaluate the secondary data. Descriptive statistics comprised the mean and the standard deviation.

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Inferential statistics on the other hand comprised panel regression and Pearson's product-moment correlation analysis. Analysis was conducted using Stata 14 software to produce tables, graphs, charts, diagrams and statistical parameter estimates.

Results: The findings showed that product pricing has a positive influence on the equity returns of listed manufacturing firms in the Nairobi Securities Exchange. Also, the influence was found to be significant. This meant that product pricing had a positive significant influence on the equity returns of listed manufacturing firms in the Nairobi Securities Exchange. The study, therefore, rejected the null hypothesis and concluded that product pricing has a positive significant influence on equity returns of listed manufacturing firms in the Nairobi Securities Exchange.

Conclusions: According to the study's findings, product price has a favourable impact on the equity returns of manufacturing companies listed on the Nairobi Securities Exchange. The impact was also shown to be substantial. This indicated that product pricing had an important beneficial impact on the equity returns of manufacturing companies listed on the Nairobi Securities Exchange.

Keywords: Equity return; manufacturing firms; Nairobi securities exchange; product pricing.

1. INTRODUCTION

The manufacturing sector is also considered the principal edge of modernization and skilled employment creation thus a foundation for economic development [1]. It plays an important part in fundamental dynamics and transformation in the form of improved share in collective production leading to hastened growth and reduced instability [2]. In Kenya, manufacturing is earmarked as one of the pillars of Vision 2030, which aims to transform Kenya into an industrial country by 2030, and the big four agenda. This sector is not only perceived as the economy's engine of progression but also as a means of expanding it [3]. Over the years, the contribution of the manufacturing sector's Gross Domestic Product (GDP) has stagnated at around 10%. However, the trend started reversing from 2016 declining to 9.3% in 2016, 8.4% in 2017 and 7.2% in 2021. Despite the decline, it's hoped that the contribution of the manufacturing sector to GDP can be increased by 1.5% annually to 15% by 2022 and 20% by 2030 [4]. If this is achieved, the manufacturing sector will increase jobs created from 338,000 in 2022 to nearly 1 million in 2030 and real value-added growth from Ksh 876 billion to Ksh 5.2 trillion during the same period (KAM), [4].

Cadez and Guiding [5] refer to management accounting appraisal metrics as various methods that are considered by businesses to support management accounting appraisal and processes and the decision-making infrastructure of the organization. Management accounting processes and practices include but are not limited to the following budgeting, pricing decisions, costing decisions, competitor performance evaluation, competitive positioning

measurements and strategic analyses among many others. An all-inclusive pricing scheme comprises numerous layers that produce a basis for setting prices that minimize erosion of profits but maximizes profit in the long run. The layers pool together to make the strategic pricing pyramid. In line with the value-based view, value addition is usually the base of the pyramid [6]. This understanding is critical because a price structure can only be developed through a clear understanding of the way goods and services generate value to customers and this can be used in pricing of the products. On the determination of the price structure, the marketing department can come up with ways of informing the customers about the value created by them [7]. Lastly, before the price is set, it is important to ensure that the price-setting process of the organization can maintain the integrity of the price against aggressive competitors and customers [8].

In Kenya, the manufacturing sector has been identified as a key economic pillar to achieve an over 10% GDP growth rate per annum as outlined in Vision 2030 [9]. Further, the sector has been identified as critical to achieving the Big Four Agenda Master Plan that aims at increasing its contribution to GDP to 15% by the year 2022 (KAM, 2021). Given this, there have been efforts to improve the manufacturing sector through policy interventions. Empirical studies find that the adoption of product pricing can provide a business with a defensive competitive advantage over its rivals and hence enable them to have higher market values [10].

However, the performance of listed manufacturing firms in Kenya elicits a mixed trend. In 2008 the equity returns of the

manufacturing firms listed at NSE had an average return of -24.2% in 2011, 25.6% in 2013, -18.4% in 2015, 25.9% in 2017, -29.9% in 2018 and 11.1% in the year 2021. This trend is further evidenced by a decline in the contribution of the sector to the GDP during the period of this study. For instance, the contribution to the GDP by this sector declined from 10% in 2012 to 9.4% in 2015, 9.2% in 2016, 8.7% in 2017, 8.4% in 2018, 7.9% in 2019 and 7.6% in 2020 (KAM, 2021). This trend portrays a phenomenon of deindustrialization which if not checked will hinder the achievement of the big four agenda and the vision 2030. This study sought to assess how product pricing affects the equity return of manufacturing firms listed at the Nairobi Securities Exchange in Kenya.

2. LITERATURE REVIEW

The study was guided by the contingency theory. The term was coined by Lawrence and Lorsh in 1967, arguing that uncertainty and the rate of change in an environment affect the development of internal features in organizations. Contingency theory currently provides an important framework for the study of organizational design [11]. Contingency theory is still considered a dominant paradigm in management accounting research [5]. One of the earliest works in management accounting research that follows the contingency perspective is Hofstede's [12] classic fieldwork. Contingency theory is an approach to organizational behaviour, in which explanations are provided for how contingent factors such as technology, culture, and external environment affect the design and functioning of organizations. The idea of contingency theory is that a good fit between management accounting and control system and environment variables such as environmental uncertainty, business strategy, market orientation and firm size will improve the company's performance. The assumption underlying the contingency theory is that no single organization structure can apply equally to all firms. Rather, organizational performance depends on the type or nature of the technology, the environmental volatility, the size of the organization, the features of the organizational structure, and its information system [13]. The essential idea of management accounting contingency theory is based on the assumption that no universally appropriate management accounting system can be applied to all organizations in all circumstances [14]. The form or design of the management accounting system implemented in

an organization must match the conditions and situations in which the organization is operating to enhance performance.

Contingency theory emphasizes specific situational aspects that can influence direct interactions between independent and dependent variables. The theory states that there is no best way to organize an enterprise, lead a firm, or make decisions. Instead, the optimal path of action is contingent (dependent) on internal and external conditions. Contingency theory suggests that there are specific situational factors that can influence the direct relationship between independent and dependent variables in the study of organizational behaviour. Independent variables are the cause of the change in the dependent variable, while the dependent variable is a response influenced by an independent variable [13]. Management accounting appraisal metrics are some of the independent variables of contingency theory, while equity return is the dependent variable. Dependent variables are influenced by independent variables. This study sought to examine the impact of product pricing on the equity return of listed manufacturing companies on the NSE.

Wuolet [15] focused on pricing strategy and revenue model; several case studies from the IT services sector in Finland. The multiple case study method employed in this study helped the interviewees overcome the knowledge gap of novel pricing concepts by providing clarity of concepts. Interviews were structured that encouraged comparability between cases. The integrity of the interview data was ensured by conducting all interviews within a short time frame, producing full tapes of interviewees' comments and translating entire texts. The results showed that firms with premium differentiation were those who placed pricing before sales.

Ritz [16] conducted a study on strategic pricing and performance and focused on the effects of pricing on the sales force and the firm. This study investigated the impact of the firm's pricing strategy on the sales force and evaluated the importance of identifying the misalignment of pricing and goals of sales force compensation strategies as a possible root cause of disappointing program outcomes. This qualitative research gave researchers a new direction to examine the firm's pricing strategy as a motivational influencer on the sales force.

According to the proposed study, adverse behaviour is detected by the sales force as a result of the terms of the pricing strategy from this firm. When the goals of the pricing and sales force compensation strategy conflicted, they expressed perceptions of a more necessary effort to succeed.

Liozu and Hinterhuber [17] on the other hand focus on pricing orientation, pricing capabilities and firm performance. Through a quantitative research design, the study surveyed 1,812 professionals involved in pricing to measure the impact of pricing approaches on a firm's performance. All multivariate statistical assumptions (multivariate normality, symmetry, linearity, and multicollinearity) were used to use the structural equation modelling (SEM) technique. The study found a positive relationship between price-based pricing (but not competition-based pricing) and firm performance. In addition, the study established that the three pricing orientations affect different pricing capabilities, which in turn are positively related to performance.

3. RESEARCH METHODOLOGY

The research applied both the cross-sectional and the longitudinal research design. The justification for using the longitudinal research design was that the collected data was for more than one time period therefore the data had time series characteristics. The population of the research study included 7 listed manufacturing companies in the Nairobi securities exchange. The study collected data from the year 2008 to the year 2021 for the 7 listed manufacturing companies. Thus, a panel dataset of 98 firm-year observations was obtained, with the observation of 7 firms between the years 2008 to the year 2021. The study focused on listed manufacturing companies since they are consistent in reporting their annual financial statements hence the data was easily accessible. The study examined panel

data of 7 listed manufacturing firms from the year 2008 to the year 2021.

This study used secondary data. Secondary data was the main source of data for this research study. The secondary data was collected using a secondary data collection sheet. Secondary data collected related to published data such as actual operational cost, sales level, cost of sales, profit, shareholders' equity, total assets and market price of equity for a period of fourteen years from 2008 to 2021. The data was obtained from the websites of the specific manufacturing firms, the website of the Nairobi Securities Exchange (NSE) and from the website and library of the Capital Market Authorities (CMA).

The secondary data were analysed by use of descriptive statistics as well as inferential statistics. The descriptive analysis that was used included the mean (average) and the standard deviation. The inferential analysis used included simple regressions under the panel data framework and Pearson's Product Moment correlation analysis [18]. The effects of product pricing on equity returns of the quoted manufacturing firms in the NSE for a period of fourteen years from years 2008 to 2021 were determined using simple regression analysis. The relationship that may exist between two or more study variables is tested by the use of correlation analysis.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

The overall and within statistic for the variable is calculated over all 98 observations. The between statistic is calculated over the 14 years (2008-2021) and the average number of times the variable was observed in the data set was $T = 7$. The findings also show minimums and maximums.

Table 1. Descriptive statistics

Vairable		Mean	Std. Dev.	Min	Max	Observations		
ER	Overall	5.78098	34.30757	-87.44966	116	N	=	98
	Between		18.8495	-24.10784	32.93512	n	=	14
	Within		29.04623	-60.5018	109.9525	T	=	7
Pp	overall	1.877445	1.739229	0.9978346	18.06585	N	=	98
	Between		6.038977	1.639626	3.969158	n	=	14
	Within		1.63792	-0.9730796	15.97414	T	=	7

The findings show that the Equity return (ER) for the seven companies between 2008 and 2021 had an average of 5.7809 and varied between -87.44966 (minimum) and 116 (maximum). The average equity returns for each company varied between -24.1078 and 32.9351. The findings also show that equity return varied between -60.5013 and 109.9525. The within number refers to the deviation from each individual's average. The reported standard deviation (18.8495) and within (29.0462) indicates that the variation in equity return across companies is not equal to that observed within a company over time; this is because the standard deviations are far from equal. This means that if we draw two companies randomly from our data, the difference in equity return is not expected to be nearly equal to the difference for the same companies in two randomly selected years.

The product pricing (PP) findings show that the seven listed manufacturing companies recorded an average of 1.8774 between 2008 and 2021. A low standard deviation ($1.7392 < 2$) suggests that on average, the product pricing for each company had a small deviation from the mean calculated. The findings also show that the data collected varied from 0.9978 (minimum) and 18.0658 (maximum). The findings also show that the average product pricing for each company varied between 1.0814 and 4.1014. The results also show that product pricing within varied between -0.5764 and 15.8418. This does not imply that product pricing was negative because the within number shows the deviation from each

individual's average. Further, the reported standard deviation (.8445) and within (1.5348) tells us that the variation in product pricing across companies is not equal to that observed within a company over time; this is because the standard deviations are not equal or almost equal. This means that if we draw two companies randomly from our data, the difference in product pricing is not expected to be nearly equal to the difference for the same companies in two randomly selected years.

4.2 Trend Analysis

4.2.1 Equity return

Equity Return (ER) was the dependent variable in this study. Equity return is a measure of the return that a firm's management can earn on a common stock holders' investment [19]. Equity Return also termed stock market return is measured by dividing the gain or loss in the market price of a share by the base price of the share. This study measures equity return using changes in the market price of ordinary shares. The study sought to show the trend in equity return of the seven companies over the period 2008 and 2021. Fig. 1 presents the results on the trend of equity return for the period ranging between 2008 and 2021.

From the findings in Fig. 1, the equity returns of manufacturing companies listed at the Nairobi Securities Exchange have shown significant fluctuations between 2008 and 2021, with the

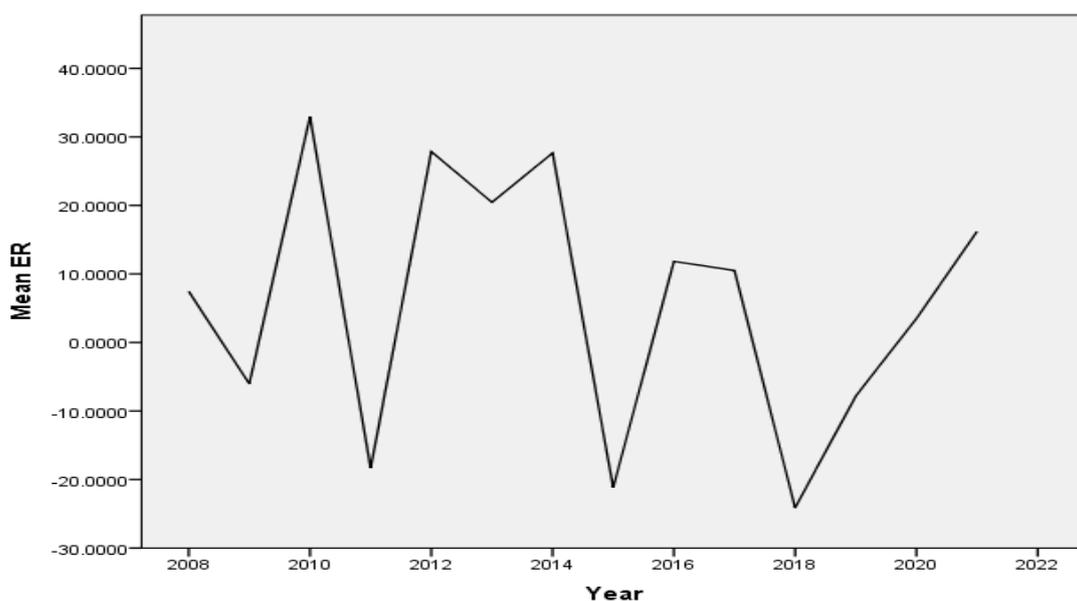


Fig. 1. Trend analysis for equity return

lowest equity returns observed in 2018 and the highest in 2008. The study aimed to explore the underlying factors that could potentially explain these fluctuations in equity returns. Specifically, the study investigated the relationship between product pricing and equity returns. According to Roja and Rodan (2011), the importance of price as a purchase incentive has an important role in price management because it not only determines how prices determined, but also how it drives consumer purchasing decisions (Vanhuele and Dreze, 2002). Studies have shown price as an important factor in purchasing decisions, particularly for frequently purchased products, affecting store, product, and brand choices (Rondan, 2004). Therefore, it is plausible that these factors may have contributed to the observed fluctuations in equity returns of manufacturing companies listed at the Nairobi Securities Exchange.

4.2.2 Product Pricing

Product Pricing (PP) is a comprehensive pricing strategy comprised of multiple layers creating a foundation for price setting that minimizes erosion of profit and maximizes profit over time. This study used Price to cost ratio to measure product pricing. Fig. 2 presents a trend analysis of the average product pricing recorded by the seven listed manufacturing firms between 2008 and 2021.

The findings in Fig. 2 show that between 2008 and 2021, there was a fluctuation in average product pricing by listed manufacturing companies at Nairobi Securities Exchange. From

the graph, it can also be seen that there was an increase and decrease in average product pricing between 2008 and 2021. The results also indicate that there was a decreasing trend in product pricing over the study period. The study, therefore, sought to establish whether changes in product pricing affect equity return. Liozu and Hinterhuber [17] found a positive relationship between price-based pricing (but not competition-based pricing) and firm performance. In addition, the study established that the three pricing orientations affect different pricing capabilities, which in turn are positively related to performance. Dudu and Aguva [20] also found that competitive prices influenced the purchase of firm products and that they influenced online pricing information and purchasing decisions. In addition, Nyariki [21] found that product pricing and cost control have a positive relationship with organizations' competitive advantage, and SMEs adopted strategies to gain competitive advantage.

4.3 Test of Hypotheses

The objective of the study was to assess how product pricing affects the equity return of listed manufacturing firms in the Nairobi Securities Exchange in Kenya. The tested hypothesis was that product pricing does not significantly affect the equity return of listed manufacturing firms in the Nairobi Securities Exchange. To test the hypothesis equity returns were regressed on product pricing of listed manufacturing firms in the Nairobi Securities Exchange in Kenya. The results were summarized in Table 2.

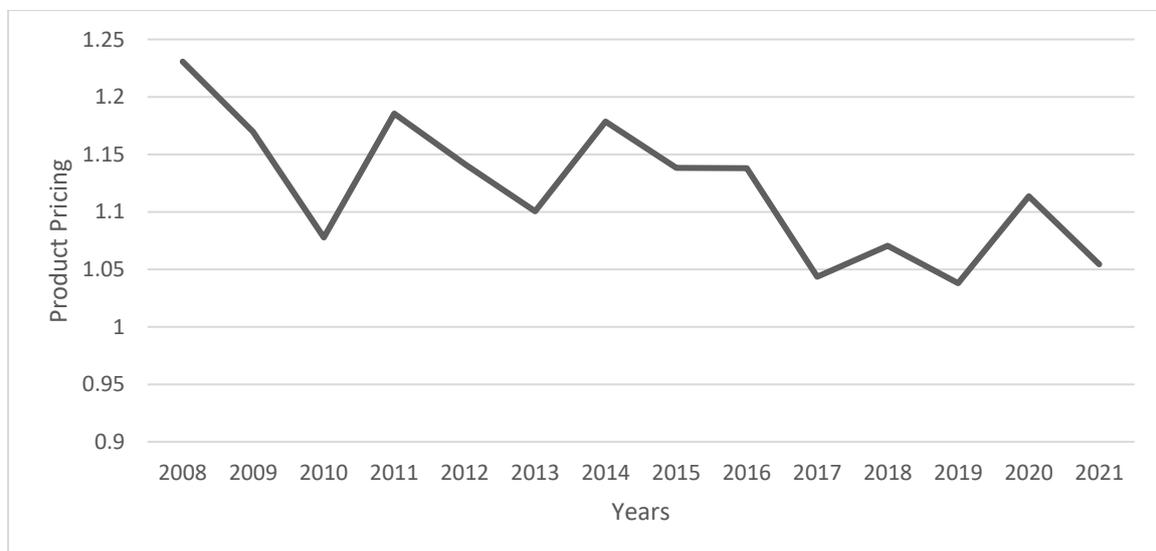


Fig. 2. Trend analysis for product pricing

Table 2. Regression analysis for product pricing and equity return

Fixed-effects (within) regression				Number of obs =		98
Group variable: Year				Number of groups=		14
R-sq:	Within =	0.5726	Obs per group: min =			7
	Between =	0.6001	Avg =			7.0
	Overall =	0.5813	Max =			7
	Adj R-sq: =	0.5770	F (1,83) =			56.9674
	corr(u_i, X) =	0 (assumed)	Prob > F =			0.0280
ER	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
PP	0.239107	0.110081	2.17	0.002	-.1918454	-.02396667
_cons	0.304971	0.135016	2.26	0.021	-.2951254	-.0341039
sigma_u	0					
sigma_e	.325221618					
rho	0	(fraction of variance due to u, i)				

The results in Table 2 were fitted in the following regression model.

$$Y = 0.3049 + 0.2391 PP_{it} + \varepsilon$$

Results show the value of the overall R-squared was 0.5813 which suggests that the 58.13% variation in equity return of listed manufacturing firms on the Nairobi Securities Exchange in Kenya can be explained by changes in product pricing. This also means that 41.87% of the variations in equity return of listed manufacturing companies in the Nairobi Securities Exchange are caused by other factors other than product pricing practices. The F-value was 56.9674 which indicates that there is a significant relationship between the independent variable and the dependent variable in the model. The findings further showed that Prob>F= 0.0280 was less than 0.05 significance level suggesting that the model was fit to predict the equity of listed manufacturing firms on Nairobi Securities Exchange in Kenya.

The coefficient results showed that the model constant was 0.305; indicating that holding all other factors constant at zero (0), equity returns of listed manufacturing firms on Nairobi Securities Exchange in Kenya would be equal to 0.305. The constant was significant at 0.05 significance level (P-value =0.021< 0.05). The coefficient for product pricing was 0.2391 postulating that holding all other factors constant, a unit increase in product pricing would result in 23.91% increase in equity return of listed manufacturing firms on Nairobi Securities Exchange in Kenya. The variable was significant since the p-value obtained (0.002) was less than the significance level of 0.05. On the basis of these results, the study rejects the second null hypothesis that product pricing does not

significantly affect the equity return of listed manufacturing firms in the Nairobi Securities Exchange and concluded that product pricing has positive significant effect on equity returns of listed manufacturing firms in the Nairobi Securities Exchange.

These findings were explained based on descriptive results, correlation analysis, theoretical foundation and empirical literature review. Based on descriptive analysis, it was noted that product pricing as measured by product cost to total revenue ratio was 1.8774. The high ratio indicates the high effect product pricing had on the equity return of listed manufacturing firms in the Nairobi Securities Exchange in Kenya. Thus, there was an emphasis on cost management, revenue generation or both among listed manufacturing firms. This was in line with Dudu and Aguva [20] observations which showed a significant effect of product pricing on performance. The fairly large standard deviation (1.7392>1) with 0.9978 (minimum) and 18.0658 (maximum) means that there were large variations from the mean. Trend analysis results also showed variation in product pricing between 2008 and 2021 with the highest ratio being observed in 2014 and the lowest in 2019.

This finding agrees with Nyariki [21] product pricing, cost control have a positive relationship with organizations' competitive advantage, and SMEs adopted strategies to gain competitive advantage. Oke, Olarewaju and Ayuluwade [22] pricing strategies have a great influence on the performance of the brewery as it shows that 91% of the industry's performance can be explained by the pricing strategy. Therefore, if manufacturing firms in the Nairobi Securities Exchange in Kenya improve their product pricing,

they will see an increase in their equity returns through improved equity returns.

5. CONCLUSIONS

The findings of the study found that product pricing has a positive influence on the equity returns of listed manufacturing firms in the Nairobi Securities Exchange. Also, the influence was found to be significant. This meant that product pricing had a positive significant influence on the equity returns of listed manufacturing firms in the Nairobi Securities Exchange. The study, therefore, rejected the second null hypothesis and concluded that product pricing has a positive significant influence on equity returns of listed manufacturing firms in the Nairobi Securities Exchange.

6. RECOMMENDATIONS

Product pricing was also found to have a positive influence on equity return. The study, therefore, recommends the management of manufacturing companies to ensure that they have the best and optimal product pricing. They need to embrace strategies and ways of ensuring that their product pricing will give them optimal equity returns. This study recommends the adoption of different pricing strategies such as Price skimming which is best suited to attract consumers, especially high-income shoppers, who consider themselves early adopters or trendsetters.

7. LIMITATION

Penetration pricing strategy can be used when the company is seeking to put the spotlight on their brand. Premium pricing can help build the perceived value of a company's product or service, straight from their initial launch. Therefore, the company should be certain of what its main goal is before deciding the most appropriate pricing strategy to use.

CONTRIBUTION OF THE STUDY

The study contributes to the body of knowledge on how product pricing affects equity returns in firms. Businesses may use this information to examine the need to adopt product pricing with the view of tilting the financial performance curve of their businesses.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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