

Marketing Effectiveness in Economic Contraction: An Analysis on Passenger Car Market

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Abstract.

The economic environment is one of the external marketing environment elements that affect the marketing performance of companies. Economic changes or fluctuations are complicated and influence decision-makers by changing consumer demand for specific products/services, market structures, product life cycles, and domestic and foreign competition intensity. Such changes have to encourage the companies to arrange marketing strategies and actions to respond most efficiently and competitively to these changes. This study aims to analyze the impact of "down economic times" on the performance of companies in general and the effectiveness of marketing strategies in particular. This study covers three different types of variables, including marketing activities (price, advertising, and distribution), performance-related variable (sales volume), and macroeconomic variables (GDP, interest rate, consumer price index) as the indicator of economic contraction. The data related to the first group of variables consists of data about the ten models of two different car companies acting as leader and follower in terms of the market share in the B and C segment in the Turkish passenger car market. The data are obtained monthly from both those companies and two other external resources over nine years (2010-2018). Due to the fact that the data is based on an unbalanced panel data set, the model is estimated using Fixed Effect Panel EGLS.

Keywords: marketing activities, economic contractions, performance, sales, passenger car segment

1. Introduction

Economic changes or fluctuations are complicated and affect different decision-makers by changing consumer demand for specific products/services, market structures, product life cycles, and domestic and foreign competition. Thus, marketing decisions can not be taken in isolation because; their impact on the companies' growth does not occur without ignoring the effect of economic factors. Undoubtedly, the most crucial macro-environmental factor influencing the management decisions and the interaction between decisions and company

performance is the economic changes in the general and economic contraction in particular. The topic of economic contraction as one of the well-known types of economic changes was mainly studied in Macroeconomic literature; however, since 2000, many marketing studies on this topic have also increased. From the strategic marketing point of view, it is possible to classify these studies into different categories regarding the focus of the study, data characteristics, etc. (Dekimpe and Deleersnyder, 2018). However, they are mainly based on the same framework depicting an input (marketing activities) and output (performance), then integrates economic contractions to this framework.

This study aims to examine how the effectiveness of different marketing actions changes during the economic contraction, thus analyzing the impact of "down economic times" on the effectiveness of marketing strategies. Studies in the literature have mainly looked at this issue by considering advertising, R&D, and/or prices. One of the objectives of this study is to consider an additional variable- distribution intensity- that has not yet been studied (as extensively) in this context and to extend the studies that generally analyze advertising and/or price as the variables.

Most of the studies in this category have utilized U.S. data due to its significant effect and ease of retrieval. Economic situations are changeable among countries (Ang et al., 2000), the duration of the fluctuations are not always equal (Baxter and Kouparitsas 2005), and also consequences of marketing activities have not resulted in the same output in different countries and regions (see, for example, Deleersnyder et al., 2009). Therefore, one of the fundamental contributions of this study is to expand this type of research beyond the U.S. borders.

In addition, some of those studies' methodology is based on cross-sectional research, while others cover yearly time series data. Despite cross-sectional designs having disadvantages for these types of studies, periodical fluctuations in a particular year, on the other hand, may not be understandable with yearly data. Dekimpe and Deleersnyder (2018) emphasize recessions should ideally be tracked at a lower level of aggregation than the annual level. This study uses monthly and quarterly data to contribute to this aspect. At the same time, this study can respond to the call of Steenkamp and Fang (2011) to conduct a detailed case study involving one company or even one industry. This study focuses on the two companies that constitute considerable shares of the automotive sector, which is one of the locomotive industries of both the global economy as well as one of the emerging country-the Turkish economy. Thus, this study focuses on the car industry by deeply considering brand-based data and aims to analyze the impact of advertising, pricing, and distribution as marketing activities on the sales volume during the economic contraction through monthly or quarterly data for nine years.

2. Literature Review

2.1. Economic Factors and Performance Interaction

The economic environment is one of the external marketing environment elements that affect the performance of companies. As some researchers pointed out, the macroeconomic environment substantially impacts firms' financial performance (Broadstock et al., 2011; Barakat et al., 2016).

The essential elements of the economic situation that will definitely affect the level of demand and consequently the volume of the economic activities of the companies are any change in income distribution, the gross domestic product (GDP), and or GDP growth rate. These factors positively influence specific business performance indicators such as sales volume, profits, and

market share. The performance of an economy can also be measured by the rate of inflation, exchange rate, debt position, stock market prices, consumer price index, interest rate, and many other variables, which can also serve as the major determinants of economic growth (Maysami et al. 2004; Broadstock et al. 2011; Ma et al., 2011; Barakat et al., 2016;). Most of these studies indicate that recessions or any economic contraction reduce firms' demand, revenue, and cash flow due to consumers' experience or expect to experience a wealth reduction, a decrease in consumption (Stock and Watson, 1999). In addition, during an economic contraction, consumers are less willing and able to purchase using credit (Ang et al., 2000). Thus, as an indicator of macroeconomic factors, consumer debt, interest rates, in particular, are expected to decrease during recessions. Therefore, previous studies indicate that major economic indicators have direct positive (GDP, income distribution, etc.) or negative (inflation rate, consumer debt, interest rate, etc.) effects on company performance, such as sales and profits. The economic contraction has also influenced each of these effects' significance, strengths, and directions. Thus, in this study, first, we consider the main effects of macroeconomic indicators on the sales volume as a performance indicator, as shown below:

H1: The macroeconomic indicators have a direct effect on business performance and this effect change during the economic contraction

2.2. Marketing Activities and Performance Interaction in Economic Contraction

Since the 2000s, studies on the interaction between marketing activities and business performance in terms of sales, revenues, profit margins, market shares, etc., have also received increased attention. (Rust et al., 2004; Gupta and Zeithaml, 2006; Srinivasan et al., 2010). Such interest is mainly due to the increased marketing accountability that reinforces corporate performance and adds to marketing credibility. The marketing–finance interface has become an important research field in marketing, helping demonstrate the accountability of marketing within companies and building a necessary interdisciplinary bridge to finance and marketing. At the same time, marketing scholars have also increasingly been interested in the interaction of macroeconomic changes in the marketing–performance framework. Undoubtedly, marketing decisions can not be taken in isolation; thus, the impact of these decisions and related strategies on the companies' growth does not occur without ignoring the effect of changes in the macroeconomic environment. Therefore, each of the economic factors discussed above also has a significant impact on the marketing performance of the companies. As many researchers emphasize (e.g., Barlevy 2007, Deleersnyder et al. 2009), marketing decisions related to the intensity of use of marketing instruments rely on the state of the economy.

For instance, most companies prefer to cut advertising budgets first, especially during economic contraction periods, ultimately diminishing stock market performance. Whereas, as Lamey et al. (2007) point out, this type of preference might become a threat to the long-term health of the companies. Several studies in the literature support Lamey et al. (2007) and indicate that advertising spending during economic contractions often results in better firm performance by providing long-term managerial and social benefits (Sirinavasa et al.) (Deleersnyder et al. 2009; Özturan et al. 2014; Kashmiri and Mahajan, 2014). Advertising and other product-supporting decisions and the companies' pricing decisions need to be revised during economic contractions. Shama (1978), Green and Porter (1984) emphasize that an economic crisis mainly forces companies to reduce the prices of their products to increase sales

volume. Deleersnyder et al. (2004) conclude that prices tend to increase during an economic contraction and decrease during an expansion by finding evidence of counter-cyclical pricing. Despite the number of research on how companies respond to the economic contractions cited above, a limited number of studies examine why and how much the effectiveness of marketing actions changes during the economic contractions. Within this category, as one of the prior studies, Graham and Frankenberger (2000) examine the impact of advertising expenditures on the financial performance of the firms for a sample of 320 publically traded firms with reported advertising expenditures for ten consecutive years. Their results indicate a long-run relationship between advertising and future earnings and market values. Graham and Frankenberger (2000) insert that, "...depending upon the type of product, changes in advertising expenditures are significantly associated with earnings up to 4 years following the year of the expenditures". Notta and Oustapassidis (2001), on the other hand, examine the asset value of advertising for television (TV), radio, magazines, and newspapers for 350 food manufacturing firms. They show that only TV advertising positively affects profitability.

These studies showed that, in order to sustain long-term business performance, companies should not decrease their marketing budgets during economic fluctuations.

A study by Steenkamp and Fang (2011) also confirmed that increasing advertising and R&D shares during economic contractions resulted in long-term business profitability and market share. Graham and Frankenberger (2011), in their study to analyze the effectiveness of marketing communication strategies (advertising and promotion) on the future earnings during economic fluctuations, also supported that marketing communications of a firm contribute to a business's current and future earnings, not only in the noncontraction periods but also in economic contraction periods. Therefore, decreasing the marketing communication shares within the economic crisis resulted in delayed future earnings.

Srinivasan and Lilien (2009), on the other hand, examined two different marketing strategies and their effects during economic declines. Their study indicated that advertising spending during recessions increased the current and future profits of consumer and business-to-business organizations. However, the same research also shows that depending on the industry type; the companies may not be experienced any change in profits from advertising expenditures during economic contractions. The results can change from one sector to another because each market has its own industry dynamics (Graham and Frankenberger, 2000; Srinivasan and Lilien, 2009; Srinivasan et al., 2011; Gordon et al., 2013). During economic shortages or fluctuations, consumers who are generally motivated to reduce spending may rely on advertising and promotion to increase confidence, eliminate uncertainty, and be reminded of brand value. Therefore, advertising and promotion can legitimize and reinforce purchase behaviors through strong brand relationships. Thus, this relation increase the mind and heart share of the particular brand and, in turn, may have the

potential to increase the market share of the related brand.

Based on the discussions above, the assumptions of this study about the effectiveness of advertising on performance in general and during the economic contractions are as follows;

H2. Increasing advertising expenditure of each model in the study has a positive effect on sales volume in economic contractions.

Price reduction is the standard and suggested strategy by most companies during economic contraction. This tendency is also based on studies by several empirical studies in the literature (Steenkamp and Fang (2011); Estelami et al. (2001), Gordon et al. (2013), van Heerde et al. (2013). In addition, some studies such as Bijmolt, Van Heerde, and Pieters 2005;

Sethuraman, Tellis, and Briesch 2011 indicate that although advertising is one of the most essential marketing weapons, existing empirical generalizations support that price elasticities are almost more than ten times larger than advertising elasticities. This supports the argument that pricing decisions are even more critical for brand performance than advertising decisions. The latter authors have also shown that consumers have become increasingly price-sensitive over time. Mela, Jedidi, and Bowman (1998) support this conclusion by pointing out that households develop price expectations on the basis of their previous exposure to promotions over a long period of time. As Estelami, Lehmann, and Holden (2001) and Quelch (2008) emphasize that consumers are interested in lower prices due to their lower disposable income during economic downturns.

Lamey et al.(2007) also underline that consumers are looking for price deals and tend to switch to lower-priced retail brands. We, therefore, expect an increase in the magnitude of both short- and long-term price elasticity (i.e., more negative value) during economic downturns. In the light of these arguments, the hypothesis of our study is as follows;

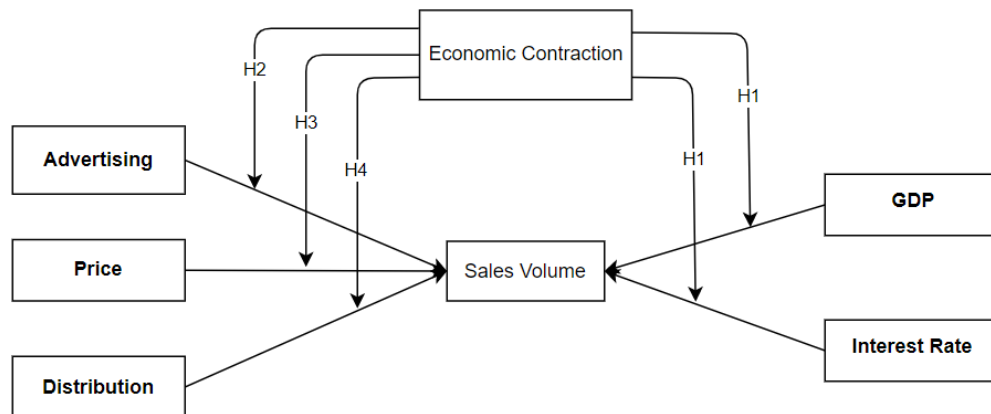
H3. Increasing average price level of each model in the study has a negative effect on sales volume.

The elimination of unprofitable intermediaries in the distribution channel and reallocation of scarce company resources to the better-performing channel members is the most appropriate strategy in economic contradiction conditions. Undoubtedly, distribution channels have crucial roles in implementing the company's marketing strategies and enhancing each brand's sales volume and market share in specific industries. The automotive industry is one of the industries in which dealers have valuable roles in implementing all marketing activities in general, mainly selling. Despite the contribution of distribution channels in the industry, building and effectively managing the whole distribution system requires considerable effort, investment, and long-term commitment. For this reason, in such an industry, it is not easy to eliminate unprofitable intermediaries in the relatively short run. Ang et al. (2000) suggest that the Company choose the best channel and direct their efforts to discount stores or wholesalers. Furthermore, the preferred alternative distribution channels can positively affect company performance by lowering operating costs and improving cooperation within the channel.

H4. Increasing number of distributors of each model in the study has a positive effect on sales volume

Based on the theoretical framework summarized above and developed hypotheses, the conceptual model of our study is depicted in Fig.1

Figure 1: Conceptual Model



3. Methodology

The Automotive sector is one of the leading industries both in Turkey and globally, with 66.7 million automobile sales worldwide in 2021. Almost 40 % of the sales in the automotive sector have come from passenger cars in the Turkish automotive industry (ODD, 2021).

In the last month of 2018, 83,1% of the passenger car sales volume consisted of the vehicles in the B and C segments. In this study, data have been collected from 2 leading companies/brands in the B and C segments of the passenger car industry, covering the 2010-2018 years, quarterly, with a total of 10 models. It represents nearly 40 % of these segments. This study covers three different types of variables including, marketing inputs, performance-related output variables, and macroeconomic variables as the indicators of economic contraction. The data are obtained monthly from both those companies and two other external resources over nine years (2010-2018). Table 1 includes all of these variables, their measurements, and different data sources.

To assess the impact of business cycles on marketing-mix effectiveness, we must first capture the business cycle itself. We categorize periods with an increase in the cyclical component as expansions and periods with a decrease as contractions. Firstly, we apply the Christiano-Fitzgerald (CF) filter to log-transformed quarterly GDP data and transform the resulting series to a monthly sequence (the temporal aggregation level of our sales and marketing-support series) through linear interpolation.

Before we estimate our theoretical model, we check stationarity in the time series, heteroscedasticity or serial correlation in error terms. In accordance with these, various adjustments have been made in model estimations, such as using robust standard errors, taking natural logarithms, taking the first difference.

Table 1: Data Sources and Variables

Variables	Data Source
<i>Marketing Activities</i>	
Price of Car / Car Consumer Price Index (TL)	JATO-Automotive Business Intelligence
Advertising Expense / Consumer Price Index (million TL)	Kantar Turkey
Distribution (# of dealers)	Internal Company Data
<i>Performance</i>	
Sales Volume	Internal Company Data, JATO
<i>Economic Factors</i>	
GDP (constant, 2009 billion TL)	The Central Bank of the Republic of Turkey
Interest Rate	The Central Bank of the Republic of Turkey
Consumer Price Index and Car Consumer Price Index (indicators of the average market price)	The Central Bank of the Republic of Turkey

The Model

The first main prediction model with sales volume as a dependent variable is given below:

$$\log(\text{Sales Volume}_{it}) = \beta_0 + \beta_1 * \log((\text{Price of Car}/\text{Car CPI})_{it}) + \beta_2 * \log(\text{GDP}_t) + \beta_3 * D(\text{Interest Rate}_t) + \beta_4 * (\text{Distribution}_{it}) + \beta_5 * \text{Dum1}_{it} + \beta_6 * \log((\text{Advertising Expense} / \text{CPI})_{it}) + e_{it} \quad (1)$$

where,

Sales Volume_{it} = The sales volume of the ith model at time t,
 Price of Car/CPI_{it} = Price of the ith model at time t, with deflated CPI,
 GDP_t = Gross Domestic Product at time t (constant 2009, billion TL),
 Car CPI_t = Car Consumer Price Index at time t (an indicator of the average market price),
 CPI_t = Consumer Price Index at time t (an indicator of the average market price),
 D(Interest Rate) = Car Interest rate at time t,
 Distribution_{it} = Number of Dealers whose sales model ith
 DUM1_{it} = the dummy variable = 1 if the ith model is pulled out of the market, 0 otherwise,
 Advertising Expense_{it} = The total advertisement expense of the ith model at time t (million TL),

Due to the fact that the number of brands is limited to two, in this study, the regression equations are estimated based on automobile models. In the analyses, 2010-2018 period, all the models are not in the market in all-time slices. Some of the models which were in the market at the beginning of the analyzed period were pulled out of the market toward the end of the research period. In contrast, some new models are introduced to the market in the second part of the period.

Due to the fact that the data is based on an unbalanced panel data set, the model is estimated using Fixed Effect Panel EGLS. In the case of heteroscedasticity, the generalized least squares (GLS) method is BLUE (Best Linear Unbiased Estimator), not ordinary least squares (OLS). The OLS method shows variability and does not use the information contained in the unequal variability of the dependent variable. However, the GLS method explicitly takes such information into account and can therefore produce estimators that are BLUE. The procedure for transforming the original variables in such a way that the transformed variables meet the model's assumptions and applying OLS to them is known as GLS. On the other hand, since the data used in this study were panel data, the fixed effect was also used (Arif, 2015). On the other hand, due to the autocorrelation among the residuals of the same time period, the variance of the coefficients is calculated using the panel-corrected standard errors (PCSE) and covariance method.

In order to see the impact of the independent variables' changes in the recession periods, interaction variables with "Dum" are added to the main equation. The resulting equation 2 is given below. Here, "Dum" shows the dummy variable to indicate whether or not a recession exists in the economy at time t.

$$\begin{aligned} \log(\text{Sales Volume}_{it}) = & \beta_0 + \beta_1 * \log(\text{Price of Car / Car CPI}_{it}) + \beta_2 * \log(\text{GDP}_t) + \beta_3 * \\ & D(\text{Interest Rate}_t) + \beta_4 * (\text{Distribution}_{it}) + \beta_5 * \text{Dum1}_{it} + \beta_6 * \\ & \log(\text{Advertising Expense / CPI}_{it}) + \beta_7 * \text{Dum} * \\ & \log(\text{Price of Car / Car CPI}_{it}) + \beta_8 * \text{Dum} * \log(\text{GDP}_t) + \beta_9 * \text{Dum} * \\ & \log(\text{Interest Rate}_t) + \beta_{10} * \text{Dum} * D(\text{Car Loan Volume}_t) + \beta_{11} * \text{Dum} * \\ & (\text{Distribution}_{it}) + \beta_{12} * \text{Dum} * \log(\text{Advertising Expense / CPI}_{it}) + \\ & e_{it} \end{aligned} \quad (2)$$

4. Estimation Results

Considering Equations 1 and 2, the model estimation of automobile sales is estimated using the E-views software, and the results are given in Table 2. We used the Durbin Wu Hausman endogeneity test (Baum et al. 2003) to test whether advertising, price, and distribution intensity are independent of remaining contemporaneous random events. We implemented the test using instruments that are lagged one period beyond the error term.

Table 1: Data Sources and Variables

	Model I	Model II	Model III
Constant	-18,661***	-17,162**	-17,435***
Log(Price of Car / Car CPI)	-1,019***	-0,628***	-1,114***
Log(GDP)	1,300***	1,081***	1,253***
D(Interest Rate)	-0,153***	-0,249***	-0,172***
Dum1	-2,096***	-1,802***	-1,918***
Log(Advertising Expense / CPI)	0,027***	0,026***	0,029***
Distribution	0,003**	0,002**	0,003**
Log(Sales Volume (-1))	0,82***	0,900***	0,84***
Dum*Log(Advertising Expense / CPI)		-0,027**	-0,025*

Dum*D(Interest Rate)		0,178	
Dum*Distribution		-0,005*	-0,003
Dum*Log(Price of Car / Car CPI)		1,161**	1,108
Dum*Log(Sales Volume(-1))		-0,033	
Dum*Log(GDP)		-0,665	0,143
Dum		7,176	-8,681
Adjusted R-squared	0,84	0,92	0,85
F-statistic	174,99	183,30	108,60

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$ (two-tailed)

In order to interpret the long-term effects of these equations, the lagged values of the dependent variable are added to the model. Model 1 shows the impact of economic and marketing variables that may have an effect on car sales (in equation 1). In contrast, model II shows the change in the impact of these variables on car sales during the recession period (equation 2). Model III, on the other hand, is the exclusion of some statistically insignificant variables from the model. The results of Model III are more appropriate in terms of short-term and long-term interpretation.

Car sales are expected to increase with the increase in the welfare level of the countries (see Hülsmann et al., 2012; Karaatli et al., 2012; Gao et al., 2017). According to the results of the regression output, a 1% increase in GDP increases automobile sales by approximately 1.25% in the short run ($p < 0.01$). In the long term, this effect is 7.84% ($1.25/(1-0.84)$). However, during the recession periods, the short-term effect does not change ($p > 0.10$).

Since many car buyers do not pay cash, the interest rate of the loan they will pay for the car adversely affects the purchase decision. The higher the loan interest rate, the lower the car sales (Rattanametawee et al., 2016). According to the results, the effect of interest rates on sales is negative and statistically significant ($p < 0.01$). The increase in the growth of the average car loan by 1 point decreases car sales by 17%. In recession periods, this effect does not change significantly.

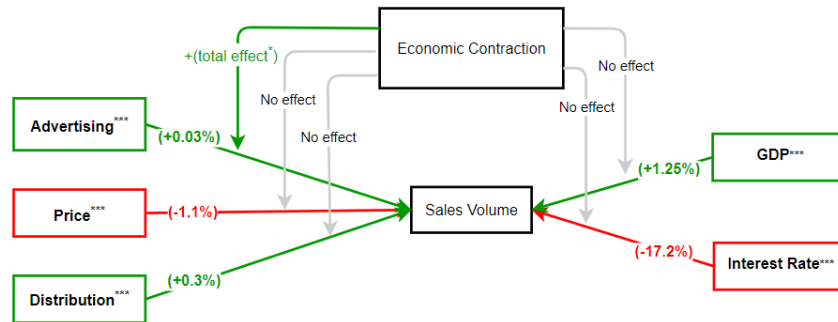
Hypothesis 2 assumes that “Increasing advertising expenditure of each model in the study positively affects volume in economic contractions.” In Table 2, regression output reveals that the increase in the advertisement expenses by 1% increases the sales by almost 0.03% ($p < 0.01$). This increase reaches 0.18% ($0.03/(1-0.84)$) in the long term. During the recession, the total effect is still positive. So, these results support hypothesis H2.

According to the literature, when prices increase, sales decrease. According to the regression results, when the average price of automobiles is held constant, a 1% increase in a model price reduces the car sales by 1.11% in the short term ($p < 0.01$) and by 7% ($-1.11/(1-0.84)$) in the long term. These results support the H3 hypothesis. On the other hand, when the average price of the other automobile brands and models increases by 1% while the price of the investigated model remains constant, there is a totally reverse impact on the sales of the related model. In the recession period, the reducing effect of the model price on short-term car sales is not significant.

Lastly, Hypothesis 4 assumes that “Increasing number of distributors of each model in the study positively affect sales volume.” In Table 2, regression output reveals that the increase in the number of dealers by 1% increases the sales by 0.3% ($p < 0.01$). This supports H4. However,

this effect does not change during the recession period. On the other hand, the lagged variable coefficient of car sales is found as 0.82. It is the adjustment coefficient, and since it is close to one, this shows that a rapid adaptation process is experienced. The average reaction period is 3.5 quarters. In addition, car sales are expected to decrease if a car model is withdrawn from the market ($p < 0.01$). All findings are summarized in Figure 2.

Figure 2: Summarized findings for the estimated model



Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$ (two-tailed)

5. Conclusion

Although, most companies prefer to cut advertising budgets first, especially during economic contraction periods, ultimately diminishing financial and market performance. The results of our study support Lamey et al.'s (2007) argument that the preference for cutting advertising budget in economic contractions might become a threat to the long-term health of the companies. Our study supports that passenger car brands that increase their advertising spending provide short-run and long-run benefits and positively affect economic contraction.

Our study also suggests that price is elastic both in the short-run and long-run.

Deekimpe (2018), on the other hand, emphasizes, consumers quickly cut back on their durable expenditures in a contraction, while upward adjustments after the contraction are slow. It takes considerably more time to restore the initial consumer spending. This implies that the level of price is a very important element of marketing activities during economic contraction.

Thus, in this product class, it makes sense to remain price competitive and invest in advertising.

Finally, in the Turkish passenger car market, in which sell of cars is mainly realized through an extensive dealer system, distribution intensity is found to positively impact the sales volume of each brand/model.

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References

- Ang, S. H., Leong, S. M., and Kotler, P. (2000). The Asian apocalypse: crisis marketing for consumers and businesses. *Long Range Planning*, 39(6), 97-119.
- Arif, M. (2015). The Impact of Corporate Governance on Financial Performance of Banks: Evidence from Pakistan. *Journal of Business and Management*, 17(3), 56-71.
- Barlevy, G. (2007). On the cyclical nature of research and development. *American Economic Review*, 97(4), 1131-1164.
- Barakat, M. R., Elgazzar, S. H., and Hanafy, K. M. (2016). Impact of macroeconomic variables on stock markets: Evidence from emerging markets. *International journal of economics and finance*, 8(1), 195-207.
- Baxter, M., and Kouparitsas, M. A. (2005). Determinants of business cycle movement: a robust analysis. *Journal of Monetary Economics*, 52(1), 113-157.
- Broadstock, D. C., Shu, Y., and Xu, B. (2011). Do macroeconomic conditions affect firm-level earnings forecasts?. *International Journal of Trade, Economics and Finance*, 2(5), 450.
- Dekimpe, M. G., and Deleersnyder, B. (2018). Business cycle research in marketing: a review and research agenda. *Journal of the Academy of Marketing Science*, 31-58.
- Deleersnyder, B., Dekimpe, M. G., M. Steenkamp, J.B.E., and Leeftang, P. H. (2009). The Role of National Culture in Advertising's Sensitivity to Business Cycles: An Investigation across Continents. *Journal of Marketing Research*, 46, 623-636.
- Deleersnyder, B., Dekimpe, M. G., Sarvary, M., and Parker, P. M. (2004). Weathering Tight Economic Times: The Sales Evolution of Consumer Durables Over the Business Cycle. *Quantitative Marketing and Economics*, 347-383.
- Estelami, H., Lehmann, D. R., and Holden, A. C. (2001). Macro-economic determinants of consumer price knowledge: a meta-analysis of four decades of research. *International Journal of Research in Marketing*, 18(4), 341-355.
- Gao, J., Xie, Y., Gu, F., Xiao, W., Hu, J., and Yu, W. (2017). A hybrid optimization approach to forecast automobile sales of China. *Advances in Mechanical Engineering*, 9(8), 1-10.
- Gordon, B. R., Goldfarb, A., and Li, Y. (2013). Does price elasticity vary with economic growth? A cross-category analysis. *Journal of Marketing Research*, 50(1), 4-23.
- Graham, R. C., and Frankenberger, K. D. (2000). The Contribution of Changes in Advertising Expenditures to Earnings and Market Values. *Journal of Business Research*, 50, 149-156.
- Green, E. J., and Porter, R. H. (1984). Noncooperative collusion under imperfect price information. *Econometrica*, 52(1), 87-100.
- Gupta, S., and Zeithaml, V. (2006). Customer Metrics and Their Impact on Financial Performance. *Marketing Science*, 25(6), 718-739.
- Hülsmann, M., Borscheid, D., Friedrich, C. M., and Reith, D. (2012). General sales forecast models for automobile markets and their analysis. *Transactions on Machine Learning and Data Mining*, 5(2), 65-86.
- Kashmiri, S., and Mahajan, V. (2014). Beating the recession blues: Exploring the link between family ownership, strategic marketing behavior and firm performance during recessions. *Journal of Research in Marketing*, 31(1), 78-93.
- Lamey, L., Deleersnyder, B., Dekimpe, M. G., and Steenkamp, J.-B. E. (2007). How business cycles contribute to private-label success: evidence from the United States and Europe. *Journal of Marketing*, 71(1), 1-15.

- Ma, Yu, Kusum L. Ailawadi, Dinesh K. Gauri, and Dhruv Grewal. "An empirical investigation of the impact of gasoline prices on grocery shopping behavior." *Journal of marketing* 75, no. 2 (2011): 18-35.
- Maysami, R., Howe, L., and Hamzah, M. (2004). Relationship between macroeconomic variables and stock market indices: Cointegration evidence from stock exchange of Singapore's all-S sector indices. *Journal Pengurusan*, 24(1), 47-77.
- Mela, C. F., Jedidi, K., & Bowman, D. (1998). The long-term impact of promotions on consumer stockpiling behavior. *Journal of Marketing research*, 35(2), 250-262.
- Notta, O., and Oustapassidis, K. (2001). Profitability and media advertising in Greek food manufacturing industries. *Review of Industrial Organization*, 18(1), 115-126.
- Özturan, P., Özsoyer, A., and Pieters, R. (2014). The Role of Market Orientation in Advertising Spending During Economic Collapse: The Case of Turkey in 2001. *Journal of Marketing Research*, 51(2), 139-152.
- Otomotiv Distribütörleri Derneği | ODD. (2021). Retrieved 2 March 2022, from <https://www.odd.org.tr/>
- Quelch, J. (2008). Marketing your way through a recession. *Harvard Business Review*, 3.
- Rattanametawee, W., Leenawong, C., and Netisopakul, P. (2016). The effects of special events on regression for subcompact car sales in Thailand. *Journal Technology*, 78(11), 161-165.
- Rust, R. T., Ambler, T., Carpenter, G. S., Kumar, V., and K. Srivastava, R. (2004). Measuring Marketing Productivity: Current Knowledge and Future Directions. *Journal of Marketing*, 68(4), 76-89.
- Shama, A. (1978). Management and Consumers in an Era of Stagflation. *Journal of Marketing*(July), 43-52.
- Srinivasan, R., & Lilien, G. L. (2009). R&D, Advertising and Firm Performance in Recessions. *ISBM Report*, 1-26.
- Srinivasan, S., Vanhuele, M., and Pauwels, K. (2010). Mind-set metrics in market response models: An integrative approach. *Journal of Marketing Research*, 47(4), 672-684.
- Steenkamp, J.-B. E., & Fang, E. (2011). The impact of economic contractions on the effectiveness of R&D and advertising: evidence from U.S. companies spanning three decades. *Marketing Science*, 30(4), 628-645.
- Stock, J. H., & Watson, M. W. (1999). Forecasting inflation. *Journal of Monetary Economics*, 44(2), 293-335.
- Van Heerde, H. J., Gijsenberg, M., Dekimpe, M. G., and Steenkamp, J.-B. (2013). Price and advertising effectiveness over the business cycle. *Journal of Marketing Research*, 50(2), 177-193.
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