Product Market Interventions and Stock Returns: Evidence from Automobile Manufacturing Firms from India

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Abstract

The present paper investigated the impact of product market interventions related to new product announcement, new product launch, and product withdrawal on firms' stock returns using 10 year time series data for a cross section of Indian automobile firms. The multiple regression model was used to establish the impact of marketing initiatives on firms' stock returns. The results showed that all the three market interventions, that is, product announcement, product launch, and product withdrawal significantly affected firms' stock returns for all the firms under the subcategories of commercial vehicles and passenger car manufacturers. However, for two wheeler firms, only product announcement and product launch were found to be statistically significant, but not product withdrawal. This study has valuable implications for two set of stakeholders of firms, namely equity investors and firms' marketing managers. From the equity investors' point of view, the study identified important qualitative variables to examine and predict stock returns beyond the traditional financial metrics. These are new product announcement, product launch, and product withdrawals. For firms' marketing managers, the study confirmed that the capital markets considered firms' product market initiatives as strategic decisions and responded positively to new product announcement and product launch and negatively to product withdrawals.

Keywords: Automobile firms, product market initiatives, stock returns, time series analysis

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firm's ability to generate long term profits and shareholders' wealth in a competitive market is due to the advantage it has over its competitors. These competitive advantages arise on account of a firm's ability to create barriers to entry for competitive firms, economies of scale, and economies of scope for its products and services. Therefore, the magnitude of a firm's product market competition impacts its long term profits and free cash flows, which can be captured by its stock returns. Firms operating in highly concentrated industries experience unstable earnings and greater stock price volatility. Regular product market monitoring and corrective interventions by such firms can stabilize their revenues and earnings. Firms' marketing initiatives consist of a series of activities. It starts with initial market research, developing and launching new products, monitoring performance of the existing product line, and withdrawal of unsuccessful products. These product market interventions are aimed at stabilizing and improving firms' free cash flows, which in turn improve valuation of the firm in the financial market. According to the product life cycle theory, every product passes through the stages of product innovation, growth, maturity, and decline. A firm needs to plan its product market activities such that its product line does not become obsolete. This can be achieved by continuously monitoring the product market competition. To keep its product line buoyant, firms need to continuously upgrade their existing products, develop and launch new products, and withdraw some of the products which are in the declining stage of their life cycle. According to the growth - share matrix of BCG, in order to maintain long term profitability, a firm needs to maintain a balanced portfolio of product line comprising of mature and nascent

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products. Mature products are needed to support a firm's current cash flows, while new products are expected to bring incremental cash flows.

Under the assumptions of perfectly competitive capital markets with no transaction costs or taxes, firms' financing and payout policies do not create any value. Therefore, firms' investments in product market endeavors like new product development and product portfolio management are the solitary value creating activities. Although the assumptions of no transaction costs or taxes are highly unrealistic in the real world, still undertaking positive net present value projects like product development are imperative to generate return on equity investment. Due to the high risk component, product development projects are predominantly equity financed.

Therefore, these initiatives are expected to improve the return on equity for investors. Equity investors are interested in firm's expected cash flows and rationalizing associated risk with the investment. Under traditional valuation methods like discounted cash flow (DCF) and marketing endeavors like product portfolio management can create shareholders' value by affecting one of the two variables: (a) the existing and future cash flows that are expected to be produced by firms' existing and new product line; and (b) capital providers' required rate of return at which these cash flows are to be discounted. A firm can beat the competition and increase its future cash flows by indulging in product innovation and launching such new products which are able to command higher prices in the consumer market. New product innovations can also support revival of products which are on declining stages of their product life cycle, and in turn can reduce the uncertainty around the firm's cash flows. Reduction in cash flow uncertainty results into lower required rate of returns by capital providers. Consequently, new product launches can create shareholders' value, which can be captured by stock returns.

The present paper investigates the impact of marketing initiatives related to product announcement, new product launch, and product withdrawal on firms' stock return using 10 year time series data for a cross section of Indian automobile firms. Multiple regression analysis is conducted using quarterly stock returns as the dependent variable and dummy independent variables to capture qualitative information about marketing initiatives of firms namely, product announcement, new product launch, and product withdrawal. Firm level control variables namely, sales & distribution expenditure to sales, advertisement expenditure to sales, and total marketing expense to sales are also used in the regression analysis.

Literature Review

There is mixed evidence in relation to stock market reactions to marketing initiatives. Pauwels, Silva - Risso, Srinivasan, and Hanssens (2004) examined the impact of marketing activities on firms' financial performance measures such as revenues, profits, and stock price. They reported that product launches improved long term financial performance and firm value; on the other hand, promotional activities had no impact on such measures. It was also observed that investor reaction to new product launch matured over time, which indicated useful information cultivated within the initial few months of product launch. Srinivasan, Pauwels, Silva - Risso, and Hanssens (2009) studied how product innovation and advertisement affected stock returns for the automobile industry in the U.S. They termed product innovation as customer value creation and advertisement as customer value communication. The authors found that augmenting marketing activities to the established finance model significantly improved the explained variance in stock returns. The marketing literature has extensively documented the process of new product planning, evaluation, and testing. In addition, a large progressive research tradition exists that evaluates many aspects of the evolution of new products. Despite this extensive practice, little research has focused on the role that firms' product market endeavors play in the firm. Much of this desertion is entrenched with the lack of integration between marketing and finance literature. Consistent with the conventional finance benchmark (Srinivasan et al., 2009), the effects of marketing interventions on stock returns may occur on account of enhanced cash flows, faster recovery of invested capital, decreased volatility of cash flows, and enhanced residual value of the firm. The success of new products depends on customers' timely

acceptance of the newly launched products (Raassens, Wuyts, & Geyskens, 2012), which can be promoted by new product announcements. Chaney, Devinney, and Winer (1991) and Greenwood and Shleifer (2014) argued that faster new product development could accelerate cash flows. This is especially important in large companies and high-fixed-cost industries, which need fast cash flows to fund their operations. New product announcements generate stock returns by reducing vulnerability and volatility in cash flows.

New products have a greater potential to enhance consumer satisfaction through meeting their demands, thus leading to reduced volatility in future cash flows (Fama & French, 2006). Also, the vulnerability and volatility of companies' cash flows can be curtailed by product portfolio completion with the launch of new products (Livnat & Petrovits, 2009). New product development and test market announcements are perceived as good by the market. The firms are rewarded favorably. However, news like product abandonment and product delays are viewed negatively (Natarajan, Kalyanaram, & Munch, 2010). The variables studied were product launches, product withdrawals, and their effect on the firms' market value which were evaluated in the paper. Event study methodology (Fama, Fisher, Jensen, & Roll, 1969) was employed to calculate the market value of firms following the announcement of new product decisions. Product launch announcements yielded positive returns in the short term. In fact, greater investor sentiments generated robust effect of product launch announcements on stock returns. In the long term, however, a correction in stock returns was found, that is, a negative relationship was observed between investor sentiment and stock returns. The research used two basic variables namely, firm size and firm age, and two financial variables namely, Tobin's Q and the return on assets as control variables. Firm size and firm age were found to be the important characteristics of firms and were associated with the value creation of product launch announcements (Lee & Chen, 2009). Initial announcements of product launches by firms listed on the Shanghai Stock Exchange and Shenzhen Stock Exchange were studied. It was found that increase in shareholder value associated with concurrent announcements was higher than that associated with issuing two similar announcements separately. The theoretical context used in this paper was the efficient market hypothesis which suggests that the total gains from the two announcements should be the same. Specifically, EMH hypothesizes that market participants have access to all public information necessary to estimate the expected returns of all the stocks in the market (Fama, 1970; Sharpe, 1964). The variables studied in this paper were new product announcement and corporate announcements and their impact on cumulative abnormal return, Tobin's Q, and volume of trade. More emphasis was given on concurrent news announcements and their impact rather than on a focused study of product launch and its impact. Market reacted positively to the information pertaining to consolidation of a firm's position, diversification, and growth prospects.

Fernandez, Callen, and Gadea (2007) observed that the market reacted negatively to the information related to new product launches and product upgrades. This paper studied a host of firm specific news and their impact on stock prices pertaining to European firms in the information technology and telecommunications industry. The research findings suggested that product and service launch, or upgrading and improvement in existing products were of vital importance for firms in the high-technology sector as innovation creates a dominant competitive advantage. Chaney et al. (1991) examined public announcements of the introduction of new products and found that launching of new products yielded 0.74% abnormal daily returns. In contrast, some studies reported a high level of failure associated with product launches in the highly-technology oriented sectors (Rajgopal, Shevlin, & Venkatachalam, 2003). The authors showed that market participants anticipated high risks associated with imitation of newly launched products by competitors resulting in high percentage of launch failure, which led to a decrease in stock prices.

Joshi (2017) examined investors' response to new product launches in the period of demonetization in India (October - December 2016). The results suggested that a new product launch had a significant positive impact on quarterly earnings per share growth rate as well as on stock returns in the long run as well as in the short run. Also, in the crisis period of demonetization, where all the firms across various industries registered negative growth in earnings per share and hugely negative stock returns, new product launches worked as saviors for the firms.

Sharma, Mahendru, and Singh (2015) studied the impact of sales, net profit, and earnings per share on stock behavior in emerging markets. Their study found no visible effect of sales, earnings per share, and net profit on future stock prices. These results indicated that no abnormal profits could be made by trading in stocks on the basis of sales, earnings per share, and net profit. Mandhyani (2017) constructed an earnings per share predictor model with 360 degree approach for the Indian pharmaceutical industry. New product announcements generated stock returns by increasing the residual value of the firm. New products were widely regarded as vital for long-term survival and as an engine of growth, and hence, new product's announcements not only led to market expansion, but also signalled the successful commercialization of firms' product development endeavors. They enhanced competitiveness of a firm, and established market confidence in similar forthcoming investments by firms.

Research Methodology

The present paper uses time series data for a cross section of listed Indian firms from the automobile industry to study investors' response to marketing initiatives related to new product announcement, new product launch, and product withdrawal. Ashok Leyland, Force Motors, Eicher Motors, SML Isuzu, and Tata Motors were clubbed into commercial vehicle manufacturers. Bajaj Auto Limited, Hero MotoCorp, and TVS Motors were clubbed into two wheeler manufacturers. Mahindra and Mahindra and Maruti Suzuki India Limited were clubbed into passenger car manufacturing firms.

Multiple regression model is used to establish the impact of marketing initiatives on firms' stock returns. Stock returns are used as the dependent variable for new product launch, product announcement, and product withdrawals along with three firm level marketing oriented control variables namely, sales & distribution expense to sales ratio, advertising expense to sales ratio, and total marketing expense to sales. Quarterly data on firms' stock prices for the last 10 years (2008 - 2018) were collected from Centre for Monitoring Indian Economy (CMIE) database Prowess. Quarterly data for firms' marketing endeavors like announcement of product launch, launch of new products, and withdrawal of existing products were collected from firms' websites and from Society of Indian Automobile Manufacturers (SIAM). The sample included three sub - categories of automobile firms namely, passenger cars and multi-utility manufacturers, commercial vehicle manufacturers, and two/three wheeler manufacturers listed in the Indian market. Automobile manufacturers have been considered for the study as there is a marked distinction for dates of new product announcements, definite product launches, and product withdrawals for these firms.

Model Specification

Stock Returns = $b_0 + b_1$ (New Product Launch) + b_2 (New Product Announcement) + b_3 (Product Withdrawal) + b_4 (Δ Sales & Distribution Exp/Sales) + b_5 (Δ Advertising Exp/Sales) + b_6 (Δ Total Marketing Exp/Sales)

Econometrics software Eviews 8 has been used for regression analysis, and regression results are tested and corrected for heteroscedasticity and autocorrelation. Also, none of the control variables show significant multicollinearity.

Analysis and Results

The Table 1 presents the results of regression of firms' stock returns on product announcement, product launch, and product withdrawal, along with other firm related control variables for commercial vehicle companies.

The results show that for all the firms under the commercial vehicle category, adjusted R^2 is reasonably good,

Table 1. Estimate of OLS Regression of Firms' Stock Returns for Commercial Vehicle Companies

Company	Ashok Leyland	Eicher Motors	Force Motors	SML Isuzu	Tata Motors
Adjusted R ²	0.763	0.6334	0.6584	0.5694	0.7037
F-Statistic	2.4927	3.1816	2.4709	3.0454	2.9268
	0.0000***	0.0000***	0.0031***	0.0011***	0.000***
Product	0.1149	0.0332	0.0668	0.0518	0.0559
Announcement	4.2222***	2.5121***	2.3025***	2.0946**	4.5351***
Product Launch	0.0841	0.0894	0.0556	0.0506	0.0856
	2.3784**	4.1851***	2.0415***	2.0449**	3.0993***
Product Withdrawal	-0.0946	-0.0232	-0.0718	-0.0635	-0.0191
	-3.7764***	-2.9875***	-3.2700***	-2.2314**	-2.5434***
Sales & Distribution	0.0604	29.0842	9.8292	2.5694	6.8570
Expense to Sales Ratio	2.1259**	3.7612***	3.9140***	2.4690***	2.7666**
Advertisement	0.4890	20.0847	0	0.4890	0.4890
Expense to Sales Ratio	6553***	3.4512***	0	6553	6533
Marketing Expense	1.184	33.6691	7.0514	8.7500	28.0157
to Sales Ratio	0.8564	1.6404**	0.5695	0.7268	1.0629

Note. (*p < 0.10, **p < 0.05, ***p < 0.01)

which indicates goodness of fit of the regression model. Product announcement is highly significant and has positive coefficient for all the firms, indicating that there is a significant positive change in the firms' stock returns on the announcement of a new product. Coefficient of product announcement has relatively larger positive value for Ashok Leyland, followed by Force Motors, and Tata Motors. Similarly, product launch is highly significant and has a positive coefficient for all the firms, indicating similar response by the firms' stock returns as recorded in the case of product announcement. For automobile firms, there is a marked distinction between new product announcement date and actual new product launch. Markets consider both the marketing initiatives as positive for firms' stock returns. Contrary to product announcement and product launch, product withdrawal has a negative coefficient for all the firms under the commercial vehicle category. Coefficients for product withdrawal are also statistically significant, indicating a drop in the firms' stock return on the announcement of withdrawal of an existing product. In line with the coefficient value of product announcement, coefficient of product withdrawal also has relatively high negative value for Ashok Leyland. This indicates greater sensitivity of Ashok Leyland's stock prices to its product market announcements.

The control variable - sales and distribution expense to sales ratio, which signifies firms' spending on sales and distribution expenses as a percentage of its total revenue is highly significant statistically, and has a positive coefficient for all the firms under the commercial vehicle category. Significant positive coefficient indicates that a higher allocation of revenue towards sales and distribution expenses results in a positive change in the firm's stock price. Advertisement expense to sales ratio has a positive coefficient for all the firms. However, it is statistically significant for only two firms, namely Ashoka Leyland and Eicher Motors. Similarly, marketing expense to sales ratio has a positive coefficient for all the firms, but it is statistically significant for only one firm namely, Eicher Motors. Overall, new product announcement, new product launch, and firms' allocation of its revenue to sales and distribution expenses impact firms' stock returns positively, while product withdrawals impact firms' stock returns negatively.

The Table 2 presents the results of regression of firms' stock returns on product announcement, product launch, and product withdrawal, along with other firm related control variables for two/three wheeler automobile

Table 2. Estimate of OLS Regression of Firms' Stock Returns for Two/Three Wheeler and Passenger Car/Multi Utility Companies

Company	Bajaj Auto	Hero MotoCorp	TVS Motors	Mahindra & Mahindra	Maruti Suzuki India
F-Statistic	3.2121	3.4147	3.4207	3.5349	2.7841
	0.0070***	0.0001***	0.0000***	0.0017***	0.0000***
Product	0.0109	0.0322	0.0418	0.3031	0.0420
Announcement	2.3576***	2.6065**	3.4668***	2.9596**	2.4503**
Product Launch	0.0990	0.0914	0.0966	0.0613	0.1001
	3.3848***	2.9151***	3.3894***	2.8708**	3.3114***
Product Withdrawal	-0.0126	-0.0916	-0.0953	-0.0682	-0.0904
	-0.3457	-0.6183	-0.3250	-3.8981**	-3.0984***
Sales & Distribution	2.6394	0.5694	1.2059	0.0554	8.8951
Expense to Sales Ratio	2.4616***	2.8740***	3.1803***	3.6702***	2.2856**
Advertisement	1.8534	0.8407	1.6716	-0.6986	5.6588
Expense to Sales Ratio	3.1854***	3.2104**	2.8179***	-2.5663***	3.1112**
Marketing Expense	5.7842	8.7500	0.3158	0.0341	7.3234
to Sales Ration	2.7532**	2.6835***	2.110***	3.0277**	2.2357**

Note. (*p < 0.10, **p < 0.05, ***p < 0.01)

companies, passenger cars, and multi utility vehicle companies. Firms used in the sample for two/three wheeler manufacturers are Bajaj Auto, Hero MotoCorp, and TVS Motor Company.

The adjusted R^2 values of the regression model are 0.5346, 0.5379, and 0.7374 for Bajaj Auto, Hero MotoCorp, and TVS Motors, respectively. Values of adjusted R^2 for two wheeler firms Baja Auto and Hero MotoCorp are relatively lower than for the commercial vehicle firms, but are higher in case of TVS Motors. A higher value of adjusted R^2 signifies overall goodness of fit of the regression model in explaining the firms' stock returns. For all the three firms under this category, product announcement and product launch are statistically significant and have positive coefficients, indicating a positive impact of these marketing initiatives on the firms' stock returns. Product withdrawal has a negative coefficient for all the firms under this category, but it is not statistically significant. In contrast to commercial vehicles, product withdrawals are more frequent amongst two/three wheeler firms. Therefore, the market does not attach much negative sentiments to product withdrawals by two/three wheeler firms. Three control variables namely, sales and distribution to sales ratio, advertisement expense to sales ratio, and marketing expense to sales ratio have large positive coefficients with statistically significant values. Statistically significant positive coefficients of these variables indicate a positive impact of firms' allocation of their revenue towards advertising, distributional, and other marketing expenses on their stock returns.

The sample includes two firms under the passenger and multi-utility vehicle category namely, Mahindra and Mahindra and Maruti Suzuki India. The adjusted R^2 values for the firms are 0.6650 and 0.6433 for Mahindra & Mahindra and Maruti Suzuki India, respectively. Coefficients of product announcement and product launch are positive and statistically significant for both the firms under this category, indicating a positive impact of marketing initiatives on firms' stock returns. The product announcement coefficient has a reasonably large value for Mahindra and Mahindra, and relatively lower value for Maruti Suzuki India. This indicates that for Mahindra and Mahindra, impact of new product announcement is more compelling than that for Maruti Suzuki India.

However, coefficients of product launch for both the firms are more or less the same. Coefficients of product withdrawal are negative and statistically significant for both the firms, indicating a decline in stock prices with respect to product withdrawals.

All the control variables namely, sales and distribution expense to sales ratio, advertisement expense to sales ratio, and marketing expense to sales ratio are statistically significant for both the firms. While sales and distribution to sales ratio has a positive coefficient for both the firms, there is a huge disparity in the value of the coefficients. This coefficient has a very large positive value for Maruti Suzuki India, indicating a substantial impact of distributional expenses on the firms' stock returns. This ratio has relatively lower coefficient for Mahindra and Mahindra. Similarly, the coefficient of advertisement expense to sales ratio has a very large positive value for Maruti. However, surprisingly, the coefficient of this variable is negative for Mahindra and Mahindra, indicating a negative relation between advertisement expenses and firms' stock returns. Coefficient of marketing expense to sales ratio has a positive coefficient for both the firms. Similar to the sales and distribution expense to sales ratio, it has the largest positive value for Maruti Suzuki India and a relatively lower value for Mahindra and Mahindra.

Conclusion and Implications

Overall, the results show that all the three marketing initiatives: product announcement, product launch, and product withdrawal significantly affect firms' stock returns for all the firms under the subcategories of commercial utilities vehicles and passenger car manufacturers. However, for two wheeler firms, only product announcement and product launch are statistically significant, but not product withdrawal. This is in line with the product life cycle of two wheeler firms. Generally, product withdrawals are more frequent for two/three wheeler firms than the other two categories. Also, sunk costs related to product withdrawals for two/three wheeler firms are likely to be substantially lower than what they are for the commercial vehicle manufacturers and passenger car companies. Coefficients of product announcement and product launch are positive, while coefficients of product withdrawal are negative for all the firms under study, indicating their positive and negative impact on stock returns, respectively. For commercial vehicle firms, sales and distribution expense to sales ratio is highly significant and impacts firms' stock returns positively, while the other two control variables namely, advertisement expense to sales ratio and total marketing expense to sales ratio are not significant for all the firms.

For two wheeler and passenger car manufacturing firms, all the three control variables are statistically significant and impact firms' stock returns positively. This study has valuable implications for two set of stakeholders of firms, namely equity investors and firms' marketing managers. From the equity investors' point of view, the study has identified important qualitative variables to examine and predict stock returns beyond traditional financial metrics. These are new product announcements, product launches, and product withdrawals. For firms' marketing managers, the study confirms that capital markets consider firms' product market initiatives as strategic decisions and respond positively to new product announcements and product launches, while they react negatively to product withdrawals.

Limitations of the Study and Scope of Further Research

This study uses time series data for a limited number of listed firms from the automobile industry in India to study investors' response to marketing initiatives related to new product announcement, new product launch, and product withdrawal. A large number of firms competing in the Indian automobile industry are not listed on the Indian stock market. Product market interventions of these firms have considerable impact on the stock returns of listed firms. Therefore, one limitation of the study is that it not able to capture the competitive impact of product

market interventions of unlisted firms into the listed firms' stock returns. To study the competitive impact of product market intervention, further research can be taken up using multi-sector firm data. Also, similar kind of studies can be conducted for high technology firms, where the product life cycle is relatively shorter, and product market interventions are frequent.

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