

# **MARKETING AND FIRM VALUE**

Metrics, Methods, Findings and Future Directions

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## **ABSTRACT**

The marketing profession is being challenged to assess and communicate the value created by its actions on shareholder value. These demands create a need to translate marketing resource allocations and their performance consequences into financial and firm value effects. The objective of this paper is to integrate the existing knowledge on the impact of marketing on firm value. We first frame the important research questions on marketing and firm value and review the important investor response metrics and relevant analytical models, as they relate to marketing. We next summarize the empirical findings to date and offer nine empirical generalizations on the marketing-finance interface, pertaining to the impact of brand equity, customer equity, customer satisfaction, R&D and product-quality, and specific marketing-mix actions on firm value. We conclude by formulating an agenda for future research challenges in this emerging area.

## 1. INTRODUCTION

Traditionally, marketing activities have focused on success in the product marketplace. Increasingly, however, top management requires that marketing view its ultimate purpose as contributing to the enhancement of shareholder returns. Rust et al. (2004), for example, note that marketers have not been held accountable for showing how marketing adds to firm valuation and that “this lack of accountability has undermined marketers’ credibility, threatened the standing of the marketing function within the firm, and even threatened marketing’s existence as a distinct capability within the firm.” As a result, it has become even more important for marketing managers to understand and measure marketing’s impact on firm value (Lehmann 2004). These demands create a need to translate marketing resource allocations and their performance consequences into financial and firm value effects (Srivastava and Reibstein 2005).

This evolution presents a great opportunity for marketing. Indeed, firms, by focusing on short-term profits at the expense of intangible assets, may marginalize marketing. For example, current accounting criteria may dictate the arbitrary reduction of sales training budgets in order to meet quarterly profits, but this reduction may have a negative impact on the firm in the long run (Cleland and Bruno 1996). In order to capitalize on this opportunity, marketing will have to justify its budgets in shareholder value terms. This is a difficult task, as the goals of marketing are traditionally formulated in customer attitude or sales performance terms. Furthermore, marketing may impact business performance in both tangible and intangible ways.

This paper describes the critical challenges, research methods and findings to date on the relationship between marketing and investor response. We begin by reviewing important investor response metrics as they relate to marketing. We then examine different research approaches, based in part on the extant finance literature, and we review empirical findings to date. We conclude with an enumeration of important directions for future research.

## 2. MARKETING AND INVESTOR RESPONSE

### 2.1 *Why should marketers care about investor response?*

Marketing's impact on product performance (e.g., sales revenue) is well quantified. Specifically, empirical research in marketing has quantified that the price elasticity of demand is around  $-2.5$ , sales force elasticity ranges from 0.3 to 0.5, advertising elasticity for established versus new products ranges from 0.01 to 0.3, distribution elasticity ranges from 0.7 to 1.8, product quality elasticity is around 0.4, short-run price promotion elasticities range from 4 to 12, and long-run price promotion elasticities are zero (Hanssens, Parsons and Schultz 2001).

Thus, in general, when firms engage in *changes* in their marketing mix, one should expect *changes* in their top-line performance. Depending on the cost-benefit ratio of these actions, bottom-line performance will be affected as well. This provides a connection between consumer and investor reaction, as it is well known that investors are motivated by cash-flow expectations: when these expectations change, stock prices fluctuate, and positive or negative stock returns are created. Thus, the central research question is, how does marketing influence the attractiveness of the firm to investors? Figure 1 illustrates the ways in which marketing investments generate cash flows (adapted from Joshi and Hanssens 2005). The indirect or tangible route is via revenue creation, and the direct route or intangible route is via asset building, such as brand equity and customer equity. This provides a simple, yet workable framework for understanding the impact of marketing spending on firm value.

--- Insert Figure 1 about here ---

### 2.2 *Three routes to driving cash flows and shareholder value*

Srivastava, Shervani and Fahey (1998) argue that shareholders are motivated by three distinct behaviors of cash flows: magnitude, speed and volatility. We discuss, in turn, how marketing may influence each component.

*Enhancing cash flows.* Marketing actions, which can involve substantial costs in the short run, can increase shareholder value by enhancing the level of cash flows (i.e., more cash),

notably by increasing revenues and lowering costs. Importantly, while the link between marketing and firm value can be noisy, sales/revenue growth can be directly linked to marketing activities. As an example, automobile innovations that are responsive to unmet customer needs in specific segments, including the Ford Mustang for young drivers and the Chrysler Minivan for families with children, have resulted in substantial revenue increases for these companies. Empirical studies that we will discuss in subsequent sections indicate several performance rewards to marketing initiatives such as advertising (e.g., Srinivasan et al. 2006), innovation (e.g., Pauwels et al. 2004, Sorescu et al. 2006), setting up new channels of distribution (e.g., Geyskens, Gielens and Dekimpe 2002) through *enhancements in cash flows* (i.e., increased sales revenues), and hence in firm valuation. Similarly, empirical studies have examined the link of customer impact metrics (Fornell et al. 2006) as well as the link between brands and intangible value of the firm (Barth et al. 1998, Rao et al. 2004).

*Accelerating cash flows.* Marketing investments can enhance shareholder value by accelerating the receipt of cash flows (i.e., faster cash). This is especially important in high-fixed cost industries that depend on fast turnovers to finance their operations. The acceleration of cash flows is affected by the faster speed of customer-value generating marketing initiatives relative to competition (Srivastava and Reibstein 2005). As an example, when products are developed faster as a result of marketing initiatives (e.g., accelerating time-to-market of new product introductions), and are adopted faster by the customers (e.g., aggressive pre-launch advertising that attracts viewers to theaters on opening weekends), with the marketing assets such as customer equity and brand equity serving to speed up revenue generation, then cash flow stream is accelerated. Overall, when cash inflows are accelerated, this influences shareholder value of the firm. There is no empirical evidence, thus far, that directly relates cash flow acceleration to shareholder value.

*Lowering volatility of cash flows.* Finally, marketing investments can increase shareholder value by lowering the vulnerability and volatility of these cash flows (i.e., *safer cash*), which lowers the firm's systematic risk and results in a lower cost of capital

or discount rate (e.g., Srivastava et al. 1998, McAlister et al. 2006).<sup>1</sup> Thus, all else equal, cash flows that are predictable and stable have a higher net present value and thus create more shareholder wealth. As an example, advertising may help smooth out the variability in highly seasonal demand patterns (e.g., Fischer, Shin and Hanssens 2006).

In conclusion, research that relates marketing actions to investors' cash-flow expectations should recognize these different dimensions, which has implications for the models to be used.

### *2.3 Investors' interpretation of marketing actions*

By definition, the stock price reflects the available information about cash-flow outlooks. Hence, favorable developments affecting cash flows would result in increases in stock prices, and unfavorable developments would result in decreases in stock prices (Mizik and Jacobson 2004). That is, all else equal, investors should reward firms with higher stock prices as “good news” about improved value of firms' marketing actions becomes available. In contrast, “bad news” about marketing should have the opposite effect. In other words, *investor market valuation should be in sync with product market valuation* – actions that drive value in product markets should also drive value in investor markets. For example, if innovations are known to have a long-term impact on sales revenues in product space, this knowledge should impact stock prices of the innovating firm as well, and vice versa.

The following recent quotations from the business press serve as a few illustrative examples of investor response to marketing actions or outcomes in different areas:

*Pricing.* In November 2004, Netflix lowered its monthly rate to \$18 from \$22, and investors reacted with a stock price drop of nearly 41% to the “bad news” about the deteriorating effect of the price drop (Wall Street Journal 2004).

*New product introductions.* In April 2006, the introduction of Boot Camp software by Apple, allowing users to operate Windows XP on Macs, led to an increase in Apple's share price, with the stock closing up \$6.04 (Wall Street Journal, Apr. 2006).

*Channels of distribution.* In July 2006, Wal-Mart closed its operations in Germany, and its share price increased by 1% to \$43.91 (Reuters 2006).

*Perceived quality.* In September 2006, GM announced that it will extend warranties to 100,000 miles on 2007 cars and trucks as part of a plan to tout quality and win back buyers lost to Toyota Motor Corp. and other rivals, and investors reacted with a 2.4 % increase in price (Wall Street Journal, Sept. 2006).

*Customer satisfaction.* In August 2005, when Dell's customer satisfaction rating dropped a steep 6.3% to 74 out of a possible 100, the biggest drop among the major PC makers, its shares closed down from \$41.79 to \$ 36.58 (Forbes 2005).

These examples suggest investors react quickly, rewarding firms with a higher stock price as information perceived as “good news” becomes available, and vice versa. According to the well-known Efficient Markets Hypothesis (EMH) in finance, these investor reactions fully and accurately incorporate the new information.<sup>ii</sup> However, in the case of marketing-induced developments, it is not clear a priori that the reaction mechanism is correct. In the Netflix example, did the investors accurately infer the price elasticity for this subscription service? Indeed, there are two reasons why accurate investor response to marketing developments is inherently difficult to assess. First, *investors are not necessarily marketing experts*, and thus, they may wrongly evaluate the impact of a marketing driver on future cash flows. For instance, it has been reported that shares of “intangibles-intensive” firms are systematically undervalued (Lev 2004). This results in adverse consequences, including excessively high costs of capital for such firms, leading them to under-invest in intangibles such as brand building, which would reduce future opportunities for the earnings growth that investors seek.

Second, investors may be biased for a variety of reasons. First, investor *overconfidence bias* has been well documented by researchers (e.g., Daniel and Titman 1999). Overconfidence is said to stem from illusions of control and knowledge. Second, investor *familiarity bias* occurs when investment decisions are based on familiarity due to the cognitive inability to apply the same level of expertise across an entire universe of stocks (Freider and Subrahmanyam 2005, Shiller 2002). Furthermore, investors are subject to *loss-aversion bias* (Benartzi and Thaler 1995). Since investors are averse to negative returns, even those with long-term investment horizons are tempted to change course at the prospect of short-term losses. In addition, investors may be biased by *persuasive communication*, either by companies themselves or by stock analysts.

Companies spend substantial resources in dealing with capital markets through press releases, corporate advertising, CEO appearances and the like. Stock analysts specialize in certain sectors and compete with each other for influence over investors when they make stock recommendations. Recent work shows that investor portfolio choices for mutual funds are affected by fund advertising (Cronqvist 2006), although such advertising provides little direct informational content (e.g., Nelson 1974) or indirect signaling information (e.g., Becker and Murphy 1993). In other words, there is an investor bias in terms of investing more in mutual funds with higher levels of advertising, even though these funds are not associated with higher post-advertising excess returns (Mullainathan and Shleifer 2005). Similarly, analysts may have a biasing influence on investors as well. Specifically, analyst forecasts could be positively biased due to client-relationships (e.g., Kothari 2001) or due to herding behavior (e.g., Trueman 1994).

In conclusion, there are logical reasons why the connection between marketing activity and firm value should exist, so long as we adopt a cash-flow expectations perspective. These cash flows differ in magnitude, speed and volatility, and marketing can contribute to them in both tangible and intangible ways. Finally, there are discernable reasons why investor reactions to marketing developments may deviate from the standard EMH model.

High-quality research on the marketing-firm value relationship requires good research methods--i.e. metrics and models--, which are discussed next. Some of these methods have relied on cross-sectional data, which allow for a comparison of equilibrium investor response. Other methods have focused on time-series data, which allow the study of how investor response to new marketing develops over time. For each approach, we will explain the research design and provide an illustrative example. Table 1 provides a schematic overview of these different approaches and lists the advantages and disadvantages of each of these methods.

--- Insert Table 1 about here ---

### 3. MEASURING INVESTOR RESPONSE – RESEARCH APPROACHES

#### 3.1 Dependent and independent variables

The ultimate metric of shareholder value is firm value or market capitalization, i.e., the share price multiplied by the number of outstanding shares. In order to operationalize firm value for empirical work, two factors need to be taken into account:

- Isolating the book value of the firm, which is typically not related to marketing activity.<sup>iii</sup> This is achieved by Tobin's q, the ratio of market value to the replacement cost of the firm's assets, or by the market-to-book ratio (MBR), the ratio of market value to book value.
- Incorporating the random-walk behavior in stock prices. Unlike the typical time series behavior of consumer sales or product prices, the permanent component in stock price fluctuations dominates; i.e., the series are in a constant state of evolution. By taking the first differences of the logarithm of stock prices, a stationary time series of stock returns is obtained as a dependent variable. Fama and French (1992) proposed that a three-factor model consisting of firm size, market returns and book-to-market ratio explains stock returns. Specifically, smaller firms are expected to outperform larger firms, and stocks with lower market-to-book ratios are expected to outperform stocks with higher market-to-book ratios (Fama and French 1993). Both of these effects imply that riskier stocks are characterized by higher returns. These factors reflect the a priori investor expectations in stock returns that are based on the past operations of the firm, and thus, they are lagged in the model. Jegadeesh and Titman (1993) added momentum as an explanatory factor, which captures the past trend in stock returns.

As a result, the typical financial benchmark model for stock returns is estimated as:

$$RET_{it} = \alpha_0^B + \alpha_1^B ASSETS_{it-1} + \alpha_2^B VBR_{it-1} + \alpha_3^B MNT_{it} + \alpha_4^B EARN_{it} + \alpha_5^B SP500_t + \alpha_6^B DWTR_t + \varepsilon_{it} \quad [1]$$

where  $RET_{it}$  is the stock return for firm  $i$  at time  $t$ ,<sup>iv</sup>  $ASSETS_{it-1}$  (firm size at time  $t-1$ ),  $VBR_{it-1}$  (market-to-book ratio in logs at time  $t-1$ ),  $MNT_{it}$  (momentum in stock returns),  $EARN_{it}$  (firm income), and  $\varepsilon_{it}$  is the error term, which is normally and independently

distributed. Additionally, financial market characteristics, such as the  $SP500_t$  (the S&P 500 Index) and  $DWTR_t$  (the Dow Transportation Index), are included as covariates.

While commonly used, stock return is not the only dependent variable in valuation models. Table 2 provides an overview of different investor response metrics, each with its own strengths and weaknesses. On the independent variable side, marketing is represented by one or more asset metrics, or by direct marketing actions (investments). Table 3 provides an overview of the commonly used marketing asset metrics, and Table 4 summarizes marketing action metrics. The asset metrics are intermediate performance metrics, so an important empirical question is whether or not investors react differently to movements in asset metrics versus directly observable marketing investments. In addition, models must recognize that investors react only to *new* information, which is often operationalized as the difference between the actual and the expected level of the independent variable.

--- Insert Tables 2 - 4 about here ---

### *3.2. Measuring investor response using cross-sectional approaches*

Several recent studies have examined the relationship between marketing and firm value using cross-sectional data. Such studies capture *equilibrium* outcomes by comparing different marketing regimes and have focused on (i) the *levels* of financial performance (e.g., Barth et al. 1998, Rao et al 2004), and (ii) the *variability* in financial performance (e.g., Gruca and Rego 2005, McAlister et al. 2006). We illustrate the former using the approach of Rao et al. (2004) and the latter using the recent paper by McAlister et al. (2006).

#### *3.2.1 Illustrative example of cross-sectional approach on financial performance levels*

Rao, Agarwal and Dahlhoff (2004) estimate the relationship between brand strategy and firm value (as measured by Tobin's  $q$ ) while controlling for firm-specific variables reflecting either previous operations or future growth opportunities. The first category includes variables such as the age of firm, its operating margin, leverage, advertising expenditures and operational focus. The second category includes research and development (R&D) expenditures, acquisitions, industry characteristics and competition.

They employ two variants of a regression-like model using relevant financial and advertising data for companies in the S&P500 index of the top 500 companies for five consecutive years as of December 2000 (1996-2000). The basic model at the aggregate level is:

$$\begin{aligned}
 Y_{rt} = & \beta_0 + \beta_1 \text{Operating\_margin}_{rt} + \beta_2 \text{Leverage}_{rt} + \beta_3 \text{Focus}_{rt} + \beta_4 \text{Concentration\_index}_{rt} \\
 & + \beta_5 \text{R\&D}_{rt} + \beta_6 \text{Advertising}_{rt} + \beta_7 \text{Age\_of\_firm}_{rt} + \beta_8 \text{Acquisitions}_{rt} \\
 & + \beta_9 \text{Growth\_rate}_{rt} + \gamma_{cb} \text{Corporate\_branding\_dummy}_{rt} \\
 & + \gamma_{hb} \text{House\_of\_brands\_dummy}_{rt} + \varepsilon_{rt}
 \end{aligned} \tag{2}$$

where  $Y_{rt}$  is Tobin's  $q$  for firm  $r$  at time  $t$ , and  $r=1, \dots, R$  (firms), and  $t=1, \dots, T$  (years). Here, the  $\beta$ s and  $\gamma$ s are parameters to be estimated, and the error term is assumed to be normally and independently distributed with common variance. While the  $\beta$  coefficients measure the effects of the control variables, the coefficients ( $\gamma_{cb}$  and  $\gamma_{hb}$ ) measure the average impacts of branding strategy and firm value for the subset of companies that employ the sample branding strategy, after accounting for the effects of several control variables. The model is estimated using both a standard OLS model, which assumes constant regression coefficients, as well as a hierarchical Bayesian estimation, which allows for firm-specific effects. While a few time-series observations are available, these are not sufficient to explore the long-term evolution of firm value in this context.

The authors' results indicate that, all else being equal, the "branded-house" strategy dominates in that it induces a systematic lift in the level of firm valuation.

### *3.2.2 Illustrative example of cross-sectional approach on financial performance variability*

McAlister et al. (2006) examine the relationship between the advertising and R&D expenditures of firms and their systematic risk. They propose that firms' advertising and R&D create market-based intangible assets that will insulate the firm from fluctuations in the financial markets, thereby lowering the firms' systematic risk. They proceed in two steps: first, they estimate a firm's systematic risk,  $\beta$ , for a five-year moving window using stock returns from the previous 60 months, relative to the equal-weighted return for the stock market for that period. By construction, the stock market as a whole has a  $\beta$  of 1.0. A stock whose return falls (or rises) more than the fall (or rise) in market return has a

$\beta > 1.0$ , and vice versa. Thus,  $\beta$ , a measure of the stock's sensitivity to market changes, is an important metric for publicly listed firms. To compute the firm's systematic risk,  $\hat{\beta}_i$ , they use monthly stock data by using least-squares regression of the form:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}, t = Start, \dots, End \quad [3.1]$$

where  $R_{it}$  is the ex post rate of return for stock  $i$  during period  $t$ ,  $R_{mt}$  is an index of the ex post return for all NYSE firms during the month  $t$  (i.e., the market rate of rate), and  $\alpha_i$  is the intercept of the fitted line of  $R_{it}$  using  $R_{mt}$ . In a second step, they estimate the effect of advertising/sales and R&D/sales on systematic risk, incorporating unobserved firm heterogeneity and serial correlation in the errors by estimating a model of the following structure:

$$Y_{it} = \alpha + X_{it}\beta + v_i + \varepsilon_{it} \quad i = 1, \dots, N; t = 1, \dots, T_i \quad \text{and where} \quad [3.2]$$

$$\varepsilon_{it} = \rho\varepsilon_{it-1} + \eta_{it}$$

with  $|\rho| < 1$  and where  $\eta_{it}$  is independently and identically distributed with mean 0 and variance  $\sigma_\eta^2$ , and  $v_i$  are assumed to be fixed parameters that may be correlated with the covariates  $X_{it}$ . The  $X_{it}$  variables include the accounting variables of growth, leverage, liquidity, asset size, earnings variability, dividend payout, age, competitive intensity and advertising, and R&D. The results suggest that, after controlling for accounting and finance factors known to be associated with systematic risk, a firm's advertising/sales and R&D/sales ratios lower its systematic risk.

### 3.2.3. Limitations

Whether the dependent metric is the level or variability of financial performance, it is important to note two caveats in using cross-sectional approaches. First, cross-sectional models of firm financial performance implicitly assume that investors *immediately* understand all the financial consequences of marketing investments. This assumption is a fundamental premise of the efficient markets hypothesis (EMH) that investors use all publicly known information about the firm's future earnings prospects and that shocks (surprises) that alter earnings expectations are incorporated immediately (Fama and French 1992). However, recent research in finance (Brav and Heaton 2002, Brennan and Xia 2001) and marketing (Pauwels et al. 2004, Sorescu et al. 2006) has shown that

investor reaction to new information grows over time, pointing to the need for time-series information that becomes available to investors. Second, cross-sectional studies are correlational in nature. Thus, a closer examination of the interdependence of marketing actions and investor response requires a time-series research approach (Dekimpe and Hanssens 2000, Granger 1969), which we turn to next. We discuss, in turn, the use of event studies, stock-return response models, calendar portfolio models and vector-autoregressive models.

### *3.3 Event studies*

Event studies eliminate the dependence on accounting information--assuming that markets are efficient<sup>v</sup>--and allow for an inference of cause and effect in a quasi-experimental setting. The intuition behind the event-study methodology is that, given market efficiency, perfect information and rationality of investors (Fama 1970), the effect of an event should be immediately reflected in stock prices. Event studies require that the share-price reaction to the event of interest can be clearly isolated while controlling for other relevant information, and require that an appropriate benchmark be used to compute normal and abnormal returns.

Event studies have been used to measure investor impact of new-product announcements (Chaney et al. 1991), corporate name changes (Horsky and Swyngedouw 1987), brand extensions (Lane and Jacobson 1995), celebrity endorsements (Agarwal and Kamakura 1995), joint ventures (Johnson and Houston 2000), Internet channel additions (Geyskens, Gielens and Dekimpe 2002), new-product quality (Tellis and Johnson 2006) and new-product advertising (Joshi and Hanssens 2006). We use the latter paper as an illustration of this methodology.

As an illustrative example, Joshi and Hanssens (2006) use event study methodology to analyze the impact of opening weekend box-office revenues on stock returns of the movie studio. By considering the excess return of the studio stock for the week after the opening weekend of the movie, they argue that the observed change in excess return is due to investors' adjustment of their performance forecast for that movie and its financial impact on the studio. The excess return for a stock is the ex-post return of the stock during the course of the event window, less the normal expected return

assuming that the event had not taken place (Srinivasan and Bharadwaj 2004). The excess/abnormal return for a stock is calculated as follows:

$$\varepsilon_{it} = R_{it} - \alpha_i - \beta R_{mt} \quad [4]$$

where  $R_{it}$  is the period  $t$  return on stock  $i$ ,  $R_{mt}$  is the period  $t$  return on the market portfolio, and  $\alpha$ ,  $\beta$  are the standard parameters in the market model. The excess return is then aggregated over the length of the window after the event to arrive at the cumulative excess return (CAR). The statistical significance of the excess return is calculated by dividing the CAR by its standard error.

The opening-weekend performance forecasts are affected, in turn, by the degree to which the new product was advertised pre-launch. The authors expand the CAR model (4) to include such pre-launch advertising. They find that if expectations are high due to aggressive advertising, even a successful opening-weekend performance can cause a decline in stock returns. Thus, advertising impacts the consumer market as well as the investor market.

### *3.4 Calendar portfolio theory*

The event study methodology, however, has a limitation which makes it inappropriate for measuring long-term abnormal returns to events that are clustered in time: the inability to properly account for cross-sectional dependency (or overlap) between events that could lead to misleading statistical inferences (Barber and Lyon 1997, Kothari and Warner 2005, Mitchell and Stafford 2000). To appropriately measure long-term returns, the calendar-time portfolio method may be used (Fama 1998, Mitchell and Stafford 2000) as illustrated with its first application in marketing (Sorescu, Shankar and Kushwaha 2006).

As an illustrative example, calendar-time portfolio analysis involves the construction of a portfolio to include all stocks of the pre-announcing firms and then measure the long-term abnormal returns to that portfolio. After constructing the calendar-time portfolio, its abnormal returns are obtained using the three-factor model proposed by Fama and French (1993). This model, which has been shown to produce a better estimate of expected stock returns than the CAPM (Fama and French 1993), posits that the expected rate of return of a portfolio is a function of the overall stock market returns, as well as the size and book-to-market ratio of the portfolio.

To compute abnormal returns using this three-factor model, Sorescu et al. (2006) regress the raw returns of the calendar-time portfolio on the market, size, and book-to-market factors as follows:

$$R_{pt} - R_{ft} = \alpha_p + \beta_p (R_{mt} - R_{ft}) + \gamma_p SMB_t + \delta_p HML_t + \varepsilon_{pt} \quad [5]$$

where  $R_{pt}$  is the rate of return of the calendar-time portfolio  $p$  during month  $t$ , and  $R_{ft}$  is the rate of return on a US Treasury bond  $f$  during the same period.  $R_{mt}$  is the average rate of return of all stocks trading on the US stock market,  $SMB_t$  is the difference between the rate of returns of small and big firm stocks (small minus big), and  $HML_t$  is the difference in returns between high and low book-to-market stocks (high minus low), all during month  $t$ .  $\varepsilon_{pt}$  is an error term,  $\alpha$  is the model intercept, and  $\beta$ ,  $\gamma$ , and  $\delta$  are parameter loadings of the three factors used in the model. If the portfolio's post-event stock performance is "normal" given its market risk, size and book-to market characteristics, the variation in post-event returns  $R_{pt}$  is entirely captured by the three risk factors, and the regression intercept is zero. Thus, the intercept  $\alpha_p$  is the mean *monthly abnormal return* of the portfolio.

As pointed out by the authors, an advantage of the calendar-time method is that it automatically accounts for cross-sectional correlation of returns (Lyon, Barber and Tsai 1999, Mitchell and Stafford 2000). This is because the standard error of the abnormal return estimates  $\alpha_p$  is not computed from the cross-sectional variance (as is the case with the event-study method), but rather from the *inter-temporal* variation of portfolio returns. Given rational investors, monthly stock returns are serially uncorrelated (Kothari and Warner 2005), so the methodology is well-specified, and statistical inferences are likely to be more accurate than those obtained with event studies in which the standard error is computed within the cross-section. On the other hand, since stocks are grouped into a portfolio and a single measure of returns is obtained for the entire group, it is not possible to use a cross-section regression model to analyze the relationship between financial performance and marketing drivers (e.g., marketing actions). Stock-return response models are better suited for that purpose.

### *3.5 Stock-return response models*

Stock-return response models are similar to event studies, except they are continuous rather than discrete in nature. Both approaches build upon the efficient-markets hypothesis, and they both assess the stock-return reaction to unanticipated events, i.e., the effect of new information on investors' expectations of discounted future cash flows. Unlike event studies, stock-return models are not restricted to discrete occurrences, but rather may involve continuous variables such as price movements, advertising spending, distribution outlets, etc. Furthermore, stock-return models may be specified on whatever data interval is appropriate for the marketing resources being deployed, e.g., weekly data for advertising and promotion, monthly data for major new-product innovations, etc.

As a consequence, since event studies are designed as controlled, natural experiments where post-event behavior of the stock price is tested relative to the expected pre-event behavior, the analysis is causal in nature, though "signaling" interpretations are possible as well. For instance, suppose an automobile manufacturer announces a significant increase in its promotional incentives, and its stock price goes down. The observed decrease could have the direct-causal interpretation that promotions directly reduce the firm's profit margins and therefore cash flow. It could also have a non-causal interpretation that the market viewed the increase in promotional spending as a signal of reduced future financial performance, and hence, adjusted its valuation of the firm. In contrast, stock-return response models establish whether or not investors perceive information on marketing activity such as advertising spending as contributing to the projection of future cash flows (Mizik and Jacobson 2004).

As an illustrative example, Srinivasan et al. (2006) estimate a model for stock returns to investigate product innovation and advertising impact on market value for automotive manufacturers. The financial benchmark model (Equation 1) is augmented with marketing variables in order to assess hypotheses on their impact on future cash flows and is expressed in changes, i.e., deviations from past behaviors that are already incorporated in investor expectations. Each model is defined at the brand level and the category level, while controlling for sales performance:

$$\begin{aligned}
RET_{it} = & \alpha_0 + \alpha_1 ASSETS_{it-1} + \alpha_2 VBR_{it-1} + \alpha_3 MNT_{it} + \alpha_4 EARN_{it} + \alpha_5 SP500_t \\
& + \alpha_6 DWTR_t + \sum_{l=1}^6 \alpha_{7,l} SEAS_{lt} + \beta_1 INN_{ijkt} + \beta_2 PION_{ijkt} + \sum_{r=0}^R \beta_3^r \Delta ADV_{ijkt-r} \\
& + \sum_{s=0}^S \beta_4^s \Delta PROM_{ijkt-s} + \beta_5 \Delta APL_{ijkt} + \beta_6 \Delta IQS_{ijkt} + \gamma_1 \Delta SIZE_{kt} \\
& + \gamma_2 \Delta GRW_{kt} + \gamma_3 \Delta CONC_{kt} + \xi_{it} + \varepsilon_{it} \quad [1]
\end{aligned}$$

where  $RET_{it}$  is the stock return for firm  $i$  at time  $t$ ,  $ASSETS_{it-1}$  (firm size at time  $t-1$ ),  $VBR_{it-1}$  (market-to-book ratio in logs at time  $t-1$ ),  $MNT_{it}$  (momentum in stock returns), and  $EARN_{it}$  (firm income). Additionally, they control for financial market characteristics by including as covariates the  $SP500_t$  (the S&P 500 Index) and  $DWTR_t$  (the Dow Transportation Index). The brand characteristics for brand  $j$  in category  $k$  for firm  $i$  at time  $t$  are  $INN_{ijkt}$  (brand innovation level),  $PION_{ijkt}$  (brand pioneering),  $ADV_{ijkt}$  (brand advertising),  $PROM_{ijkt}$  (brand promotions),  $APL_{ijkt}$  (brand's perceived appeal) and  $IQS_{ijkt}$  (brand's perceived quality) and the symbol ' $\Delta$ ' denotes the changes. The pioneering variable,  $PION_{ijkt}$ , has the time subscript ' $t$ ' to denote the week of introduction of the pioneering innovation. The category characteristics are  $SIZE_{kt}$  (category size),  $GRW_{kt}$  (category growth rate),  $CONC_{kt}$  (category concentration), and  $\xi_{it}$  is the error term. Additionally, they control for quarterly seasonal and holiday dummy variables.

The equation is specified both in levels of accounting and finance variables, and in first-differences in the marketing variables. The former factors reflect the *past* operations of the firm, measuring the long-term association with baseline market valuation, while the latter reflect the prospects for *future* cash flows and assess whether there is timely reaction to news (see Fornell et al. 2006 for a similar conceptualization of the level and change effects). As an additional benefit, first differencing assures stationarity of the variables, thus avoiding spurious regression results if the variables are evolving (Granger and Newbold 1986). They conduct a cointegration test for the existence of a long-run equilibrium among the evolving variables. Overall, their results delineate the conditions under which product innovations have a beneficial impact on market valuation.

### 3.6 Vector autoregressive modeling (VARX)

In all but the stock-return response studies, stock prices are tracked around a time window surrounding the concerned event(s). As such, none of these studies address the long-run impact of the change on stock prices. Recent work in finance and strategy, however, suggests that the EMH hypothesis may not always hold (Merton 1987), due to incomplete information or incorrect investor interpretation. In particular, researchers have questioned the appropriateness of the assumptions of *immediate* dissemination of all available information. Recent research in finance has relaxed investors' structural knowledge assumption of EMH while maintaining the rationality assumption in decision-making (e.g., Brav and Heaton 2002, Brennan and Zia 2001). This literature suggests that with rational learning, stock prices move not only when new information becomes available, but also when investors improve their understanding of the various economic relationships that shape the market equilibrium. Hence, the short-term investor reaction may be adjusted over time until it stabilizes in the long run and becomes so predictable that it loses its ability to further adjust stock prices. If the EMH hypothesis holds, there would be no long-run effects since the impact of marketing actions would be fully contained in the next period's stock price. The fact that some studies suggest otherwise indicates there can be an effect build-up beyond the short run. This finding motivates the use of long-run or persistence models instead of event windows to study the impact of intangible assets on firm value.

Four criteria are essential in considering modeling the dynamic interactions among marketing and performance variables (Pauwels et al. 2004). First, the model should provide a flexible treatment of both short-term and long-term effects (Dekimpe and Hanssens 1995). Second, the model should be robust to deviations from stationarity,<sup>vi</sup> in particular the presence of random walks in stock prices, which can lead to spurious regression problems (Granger and Newbold 1986). Third, the model should provide a forecasted, expected baseline for each performance variable so that we may capture the impact of unexpected events as deviations from this baseline. Both econometric models and survey methods have been shown to perform well in generating these expectations (Fried and Givoly 1982). Finally, the model should allow for various dynamic feedback

loops among marketing and business performance variables. Consequently, the study of the longitudinal impact of new-product introductions and promotional incentives requires a carefully designed system of equations that accounts for the time-series properties of performance and marketing variables and for their dynamic interactions.

### 3.6.1 Illustrative example of VARX modeling

In the finance literature, VAR models have been used to study the dynamic effects of financial performance and markets (e.g., Eun and Shim 1989, Thorbecke 1997). Vector-autoregressive (VAR) models are well suited to measure the dynamic performance response and interactions among financial performance and marketing variables (Dekimpe and Hanssens 1999, Srinivasan et al. 2004). Both the financial performance variables and marketing actions are endogenous; i.e., they are explained by their own past and the past of the other endogenous variables. Specifically, VAR models not only measure direct (immediate and lagged) response to marketing actions, but also capture the performance implications of complex feedback loops. For instance, a successful introduction will generate higher revenue, which may prompt the manufacturer to reduce sales promotions in subsequent periods. The combination of increased sales and higher margins may improve earnings and stock price and thereby further enhance the over-time effectiveness of the initial product introduction. Because of such chains of events, the full performance implications of the initial product introduction may extend well beyond the immediate effects. VAR models are specified in levels or changes, depending on the order of integration of the data. Pauwels et al. (2004) specify the VAR model for each brand  $j$ , in category  $k$  from firm  $i$ , is specified as:

$$\begin{bmatrix} \Delta VBR_{i,t} \\ \Delta INC_{i,t} \\ \Delta REV_{i,t} \\ NPI_{ijk,t} \\ SPR_{ijk,t} \end{bmatrix} = C + \sum_{n=1}^N B_n \times \begin{bmatrix} \Delta VBR_{i,t-n} \\ \Delta INC_{i,t-n} \\ \Delta REV_{i,t-n} \\ NPI_{ijk,t-n} \\ SPR_{ijk,t-n} \end{bmatrix} + \Gamma \times \begin{bmatrix} \Delta S \& P500_t \\ \Delta Construct_t \\ \Delta Exchange_t \\ \Delta EPS_{i,t} \end{bmatrix} + \begin{bmatrix} u_{VBR_{i,t}} \\ u_{INC_{i,t}} \\ u_{REV_{i,t}} \\ u_{NPI_{ijk,t}} \\ u_{SPR_{ijk,t}} \end{bmatrix} \quad [7]$$

with  $B_n$ ,  $\Gamma$  vectors of coefficients,  $[u_{VBR_{i,t}}, u_{INC_{i,t}}, u_{REV_{i,t}}, u_{NPI_{ijk,t}}, u_{SPR_{ijk,t}}]' \sim N(0, \Sigma_u)$ ,  $N$  the order of the VAR system based on Schwartz' Bayes Information Criterion (SBIC), and all variables expressed in logarithms or their changes ( $\Delta$ ). In this system, the first equation explains changes to firm value,<sup>vii</sup> operationalized as the ratio of the firm's

market value to book value (*VBR*) (Miller and Modigliani 1961). This variable reflects a firm's potential growth opportunities and is used frequently for assessing a firm's ability to achieve abnormal returns relative to its investment base (David et al. 2002). The second and third equations explain the changes in, respectively, bottom-line (*INC*) and top-line financial performance (*REV*) of firm *i*. The fourth and fifth equations represent firm *i*'s marketing actions, i.e., new-product introductions (*NPI*) and sales promotions (*SPR*) for brand *j* in product category *k*. The exogenous variables in this dynamic system include controls for seasonal demand variations, for fluctuations in the overall economic and investment climate, and for the impact of stock-market analyst earnings expectations (Ittner and Larcker 1998).

Note that the VAR-forecasted baseline of market-to-book ratio includes changes to the S&P500 index. Such indices are the sole predictor of a firm's stock price in the 'market model' used by event studies to calculate excess returns (Eddy and Saunders 1980, Chaney et al 1991). By contrast, the VARX model develops a more refined forecasted baseline, which also includes changes to the Construction Index and to the firm-specific earning forecasts and financial performance. The VAR model estimates the *baseline* of each endogenous variable and forecasts its future values based on the dynamic interactions of all jointly endogenous variables.

Based on the VAR coefficients, impulse-response functions track the over-time impact of unexpected changes (shocks) to the marketing variables on forecast deviations from baseline for the other endogenous variables. This conceptualization closely reflects previous studies on stock prices (e.g., Erickson and Jacobson 1992). As argued recently by Mizik and Jacobson (2003), "when an unanticipated change in strategy occurs, the markets react and the new stock price reflects the long-run implications such change is expected to have on future cash flows." While impulse-response functions trace the effects of a marketing change on performance, forecast-error variance decomposition (FEVD) determines the extent to which these performance effects are due to changes in each of the VAR variables (Hamilton 1994). Thus, the variance decomposition of firm value provides information about the relative importance of past firm value, bottom-line and top-line performance, new product introductions and promotions in determining deviations of firm value from baseline expectations.

## 4. EMPIRICAL GENERALIZATIONS

The models reviewed above have been used in a number of studies on the marketing-finance interface that allow us to formulate some empirical generalizations. We discuss, in turn, generalizations on brand equity, customer equity, customer satisfaction, R&D and product quality, and specific marketing-mix actions.

### *4.1 Brand equity effects*

Over the past decade, there has been significant interest among academics and practitioners in understanding the importance of brand equity. Brands have been acknowledged as having a financial value because they are able to generate future cash flows (Aaker and Jacobson 1994, Rao et al. 2004). In recognition of the long-term financial contributions of brand equity, financial markets seem to consider brands in their stock evaluation (Barth et al. 1998, Simon and Sullivan 1993). One of the earliest attempts to assess the financial value of brands (Simon and Sullivan 1993) derived a measure of brand equity by starting with total firm value and then subtracting tangible assets such as plant, equipment and net receivables. The results suggest that a substantial fraction of the financial value of consumer goods and even some high tech firms were based on brand equity. The link between consumer measures and brand equity has also been established (Keller and Lehmann 2006).

Research has also established that the impact of marketing variables on brand-related intangible assets may be moderated by the type of branding strategy adopted by a firm: corporate branding, house-of-brands, or mixed branding (Rao, Agarwal and Dahlhoff 2004, Joshi and Hanssens 2005). The results suggest that corporate branding strategy is associated with a 58% higher Tobin's q value relative to a house-of-brands strategy, and 73% higher than a mixed branding strategy, after controlling for the effects of several critical factors. In addition, most of the firms would have been able to improve their Tobin's q had they adopted a branding strategy different from the one their brand portfolios revealed. While there is intense discussion about the admission of brands into financial accounts in the accounting community (Barth et al. 1998, Lev and Sougannis

1996), there is no debate, however, that brands are intangible assets of the firm. Marketing papers that deal with the link between brand-related intangible assets and firm value have assessed stock-market reaction to the changing of a company's name (Horsky and Swyngedouw 1987), new-product announcements (Chaney, Devinney and Winer 1991), perceived quality (Aaker and Jacobson 1994), brand extensions (Lane and Jacobson 1995) and brand attitude (Aaker and Jacobson 2001). Furthermore, the links between advertising and brand-related intangible assets, including perceived quality (Moorthy and Zhao 2000) and brand attitude (Berger and Mitchell 1989), have been established as well. In summary:

EG1: Improvements in brand equity/investments in brand have a significant and positive impact on firm valuation.

#### *4.2 Customer satisfaction effects*

Several recent studies have shown a strong link between customer satisfaction and firm profitability and market value (see Gupta and Zeithaml 2006 for a review). Research has established that a 1-point increase in ACSI (as measured by the American Customer Satisfaction Index on a 0-100 scale) leads to a \$240 million increase in the market value of a firm (Ittner and Larcker 1998). In a study of 200 of the Fortune 500 firms across 40 industries, research has shown that while market share has no impact on shareholder value, a 1% change in ACSI (as measured by the American Customer Satisfaction Index on a 0-100 scale) is associated with 1.016% change in shareholder value, as measured by Tobin's q (Anderson, Fornell and Mazvancheryl 2004). This implies that 1% improvement in satisfaction for these firms will lead to an increase in the firms' value of approximately \$275 million. Using similar data but linking satisfaction with two characteristics of future cash flows, growth and variability, recent research has found that a 1-point increase in ACSI results in an increase of \$55 million in a firm's net operational cash flow the next year and a decrease of 4% in cash flow variability (Gruca and Rego 2005). Furthermore, if the variability in cash flows is reduced, the cost of capital goes down as well, thus producing yet another source for stock price growth.

Recently, a remarkable study by Fornell et al. (2006) concludes that firms with highly satisfied customers usually generate positive returns, while news about changes in customer satisfaction does not have an immediate effect on stock prices. Specifically, this study points to imperfections with respect to the time it takes for stock markets to reward firms that do well and to punish firms that do not. Clearly, the implications of this are two-fold: first, it would be in the interest of securities research to pay closer attention to customer satisfaction and the strength of customer relationships. Second, for marketing managers, the evidence is decidedly clear that cost of managing customer relationships and cash flows that they produce is fundamental to value creation. In summary:

EG2: Levels of customer satisfaction are significantly related to levels of market value of equity while news about changes in customer satisfaction does not result in an immediate change in firm valuation.

#### *4.3 Customer equity effects*

The topic of relating metrics such as customer equity and customer lifetime value (CLV) to market valuation is a relatively new one, but a number of important studies point to results in a similar direction. At a conceptual level, a relationship between observed customer metrics, such as customer lifetime value (CLV), a metric that is focused on long-term profit, and market value of the firm, a metric that represents the present value of the future discounted cash flow streams, is guaranteed, by definition. This has become important for two reasons: first, it helps to make marketing more relevant and accountable. Second, it provides a methodology for firm valuation when traditional financial models may not work. As an illustration, in a recent noteworthy study of five companies, Gupta, Lehmann and Stuart (2004) merge the traditional financial valuation methods based on discounted earnings with the key marketing concept of the value of the customer to the firm. In doing so, they demonstrate how valuing customers makes it feasible to value firms since customer equity moves in parallel with market value for three of the five companies. Interestingly, they find that some companies are potentially mispriced, whereas others are not. Moreover, retention is more important than margin or acquisition cost. Specifically, they found that a 1% improvement in retention can improve

profitability by about 5% while a similar improvement in margin and acquisition cost improves profits by 1.1% and 0.1%, respectively. However, CE (~ long-run profit) maximization often implies narrowing the customer base, which leads to increased risk in the long run. In summary:

EG3: Valuing customers makes it feasible to value firms since customer equity-based metrics move in parallel with firm value.

#### *4.4 R&D and product quality effects*

While research has linked firm value to R&D expenditures (Doukas and Switzer 1992, Chan, Lakonishok and Sougiannis 2001), discretionary expenditures such as R&D and advertising (Erickson and Jacobson 1992, Griliches 1981, Pakes 1985, Jaffe 1986) and innovation (Bayus et al 2003), the topic of relating metrics of product quality to market valuation is a relatively new one, but it has received growing attention in recent years. This topic has been under-researched for several reasons: First, quality is difficult to define and measures unambiguously. Second, there are varying definitions for quality, as well as differences between objective quality and perceived quality (Mittra and Golder 2006). Some recent notable papers suggest that changes in perceived quality are associated with changes in stock returns, and hence, investors view the quality information as providing useful information about the future-term prospects of the firm (Aaker and Jacobson 1994, Mizik and Jacobson 2004). In a similar vein, value creation (e.g., through investments in R&D) in conjunction with value appropriation (e.g., through investments in advertising) enhances firm value (Mizik and Jacobson 2003).

In the context of product quality, two recent studies suggest that merely introducing new products is no guarantee of improvement in stock market performance. First, in the automobile context, new-product introductions that enjoy more positive consumer perceptions of quality and product appeal lead to systematically higher stock returns (Srinivasan et al. 2006). Second, ratings of quality in published reviews (e.g., reviews of electronics and software products by Walter Mossberg in the Wall Street Journal) influence the market's evaluation of the quality of products (Tellis and Johnson

2006). Specifically, these researchers find that while firms with good quality reviews enjoy a gain of 10% over the same period, firms with poor quality reviews suffer a drop of returns of about 5%. In summary:

EG4: Merely introducing new products is no guarantee of improvement in stock performance; instead, improvements in consumer appraisal in terms of perceived quality, particularly for new products, translate into better investor appraisal of firm performance.

It is important to note that while brand equity, customer satisfaction, customer equity, R&D and product quality are all linked to firm value, they are slowly moving performance metrics, and hence, they are not visible immediately. In contrast, marketing initiatives are typically immediately visible but also are less readily interpretable due to noise, at least in the short run.

#### *4.5 Marketing mix effects*

##### *4.5.1 Advertising and investor response*

Several recent studies suggest that a firm's advertising (Freider and Subrahmanyam 2005, Grullon et al. 2004, Joshi and Hanssens 2005) directly affects metrics related to stock, and therefore its intangible value, over and above the indirect effect of advertising through its effects on sales revenues and profits. Specifically, a firm's advertising affects its visibility with the investors, resulting in a direct investor response effect of advertising on a firm's market capitalization (Joshi and Hanssens 2005). These authors hypothesize that advertising will have a direct effect on firm value through two main mechanisms: spillover and signaling. The intangible equity that advertising seeks to create, ostensibly for marketing purposes, can spill over into investment behavior and increase its salience with individual investors who might prefer holding individual stocks with high recognition, consistent with higher advertising (Frieder and Subrahmanyam 2005). Investors, cognizant of the benefits of increased advertising through enhanced brand equity (Barth et al. 1998, Rao et al. 2004), may look beyond a firm's current cash flows

to the long-term effects of advertising, translating into firm valuation impact. This may help explain seemingly excessive spending on advertising by firms, i.e., at levels beyond those justified by sales response alone. Furthermore, recent research finds that a firm's advertising lowers its systematic risk.

In addition, advertising can act as a signal of the firm's financial well being or competitive viability (Mathur and Mathur 2000, Mathur et al. 1997, Gifford 1997). Recently, Srinivasan et al. (2006) find that *communicating* the differentiated added value to consumers yields higher firm-value effects of innovations, especially for pioneering innovations. In summary:

EG 5a: Advertising affects intangible firm value, over and above the indirect effect of advertising on sales revenues and profits.

EG5b: Advertising lowers the volatility of cash flows, and hence, the systematic risk of the firm.

EG5c: Advertising support enhances innovation effectiveness, and investors reward the signal of product support that the brand provides by advertising.

#### *4.5.2 New product introductions and investor response*

In terms of investor impact, we know that new-product announcements generate small excess stock-market returns for a few days (Eddy and Saunders 1980, Chaney, Devinney and Winer 1991) and that additional excess returns can be created when the new product is launched in the market (Kelm et al. 1995). While these studies have focused on the short-term effect, recent evidence indicates that the financial returns from preannouncements are significantly positive in the long term, with the returns being about 13% for one year or up to product introduction (Sorescu, Shankar and Kushwaha 2006).

Focusing on new-product introductions, Pauwels, Silva-Risso, Srinivasan and Hanssens (2004) investigate the short-term and long-term impact of such marketing actions on financial metrics, including top-line, bottom-line and stock market performance. The authors apply multivariate time series models to the automobile industry, where both new-product introductions and promotional incentives are considered important performance drivers. Interestingly, new-product introductions

increase long-term financial performance and firm value, but promotions do not. Moreover, investor reaction to new-product introduction grows over time, indicating that useful information unfolds in the first two months after product launch. Finally, the stock market performance impact shows a similar U-shaped relation with innovation level, but with a preference for new-market entries over minor updates (Pauwels et al. 2004). In conclusion:

EG 6: Firm innovativeness is positively related to firm value and potentially grows over time.

However, this positive impact is not without flaws, as recent empirical evidence suggests that investor reaction is a poor predictor of the eventual commercial success of new-product introductions (Markovitch and Steckel 2006).

#### *4.5.3 Price promotions and investor response*

While many studies have examined the impact of price promotions on revenues and firms, their impact on firm valuation is relatively under-researched. An exception is Pauwels et al.(2004), who find that investor reaction mirrors consumer reaction to incentive programs, which is strong, immediate and positive (Blattberg et al. 1995). However, these beneficial effects are short-lived for all but firm top-line performance, as both long-term bottom-line and firm value elasticities are *negative*. A plausible explanation for the sign switch in income and investor reaction between the short-run and long-run is *price inertia* or habit formation in sales promotions: the short-run success of promotions makes it attractive for managers to continue using them (Nijs, Srinivasan and Pauwels 2006). In addition, since promotions are known to stimulate consumer demand only temporarily, they will have to be repeated lest the company is willing to sacrifice top-line performance. While such repetitive use of incentives is indeed able to maintain, even grow, their initial revenue effects—whence the positive long-run revenue elasticity—profit margins are being eroded, and bottom-line performance and firm value suffer in the long run. In summary:

EG 7: Price promotions are negatively related to firm value, more so in the long run.

#### *4.5.4 Channels of distribution and investor response*

The topic of relating channels to market valuation has also been under-researched. Exceptions are Geyskens, Gielens and Dekimpe (2002) and Srinivasan et al. (2006). The first study assesses the net impact of setting up an additional Internet channel on a firm's stock market return, a measure of the change in expected future cash flows. The authors show that, on average, stock market investors perceive that the expected gains of adding an Internet channel outweigh the present and expected costs. As such, managers and shareholders cannot take for granted that the stock market will always react positively, either; the market recognizes not only the potential gains but also the possible deleterious effects of an additional Internet channel, as reflected by more than 30% of the cases resulting in negative stock returns. In a similar vein, Srinivasan et al. (2006) confirms that dual distribution increases intangible value for some firms but decreases intangible value for others. Increases in tangible value are observed with increases in advertising stocks but with decreases in financial leverage. In conclusion:

EG 8: Investors react positively to changes in distribution, consistent with profit perceptions.

However, in contrast to the above stream that has collectively demonstrated the impact of firms' marketing assets, initiatives and actions on stock prices, recent research has been concerned with how stock prices impact marketing actions.

#### *4.6 How does stock price influence marketing actions?*

The previous generalizations have established that investors interpret many marketing actions. Thus, it is reasonable to assume that marketers may incorporate investor behavior in their marketing actions, i.e., that there is "reverse causality" between marketing and investor response. Rappaport (1987) noted that "sophisticated managers have found that they can learn a lot if they analyze what the stock price tells about the market's expectations about their company's performance... managers who ignore important

signals from stock price do so at their peril.” The central premise in this line of research is that managers look to stock market returns for information, actively respond to that information, and respond differently depending on whether the information is “good news” or “bad news.” Specifically, managers of firms with under-performing stocks react more aggressively with changes to product portfolio and distribution than managers of firms with high-performing stocks (Markovitch, Steckel and Yeung 2005).

Recent evidence suggest that in a myopic effort to inflate current-term earnings to give the appearance of improved long-term business prospects (and thereby enhance stock price), managers tend to reduce marketing expenditures at the time of seasoned equity offerings (Mizik and Jacobson 2006). While the financial markets are aware that earnings inflation is practiced, they do not fully distinguish between firms engaging in myopic marketing management and those that do not, due to the inherent noise in marketing signals. Interestingly, while myopic firms are able to temporarily inflate their stock market valuation, as the consequences of cutting marketing spending become manifest in the long run, they have inferior stock market performance. Furthermore, an unexpected shock to a firm’s stock price may influence a firm’s decision on marketing and R&D spending (Shin and Hanssens 2006). In summary:

EG 9: Preliminary evidence indicates reverse causality; that is, changes in firm value may drive some marketing actions.

## **5. FUTURE RESEARCH DIRECTIONS**

Our review has emphasized the importance of the investor community in the design and execution of marketing plans. Investors do react to changes in important marketing *assets* and *actions* that are perceived to change the outlook on the firms’ cash flows. Several econometric models have been developed to parameterize these relationships, and several empirical generalizations have been generated to date. These lead to the formulation of an important agenda for future research in the following areas:

1. Identifying the conditions under which investor reaction is accurate. Given the mixed evidence on the quality of investor reaction, we need to understand when biases occur and how they may be corrected.
2. Understanding the potential biases introduced by persuasive communication by analysts and by company representatives. Can analyst reports be influenced by corporate lobbying efforts? In turn, how do these reports influence subsequent movements in firm value? Is there a difference in the behavior of stock prices of firms that are tracked by analysts versus those that are not?
3. Comparing the different measures of brand equity. We know that investors react to movements in brand value, but are these brand metrics reliable and consistent with each other? In general, what is the best approach to quantifying the value of intangibles (brands, IP) and assessing their impact on cash flows, growth and risk?
4. Understanding the stock-market impact of various metrics on return on marketing investment (ROMI). Given that the benefits of sound marketing and branding strategy are typically materialized over multiple periods, are these ROMI measures shortsighted?
5. Understanding the stock-market impact of known marketing phenomena such as diffusion of innovation.
6. Understanding the stock-market impact of corporate social responsibility (CSR) initiatives. In particular, do higher levels of social responsibility investments hurt or benefit firms, from a firm valuation perspective?
7. Prescribing the critical marketing information elements that should be made available to investors. In particular, how should the value of market-based assets (such as customer lifetime value, brand equity and channel equity) and firms' marketing strategies be communicated? What is the role of intermediate performance metrics, such as customer satisfaction, and how do they impact valuation?

8. Understanding the volatility component of firm value. In particular, do higher levels of brand equity and customer equity reduce the vulnerability of companies to competitive inroads, thereby reducing risk and volatility of cash flows? Does this result in favorable risk profiles (lower betas)?

9. Dealing with short-term revenue pressures. The empirical evidence to date supports the notion that the stock market is not myopic. Thus, companies that engage in effective strategic marketing spending should feel justified in their actions. However, many corporate executives are concerned about their quarterly performance metrics, which motivates some of their actions. How can these two seemingly contradictory behaviors be reconciled?

Overall, given the increasing pressures on marketing executives to demonstrate the financial accountability of their firms' marketing initiatives, the studies we have reviewed clearly point to the link between marketing actions and investor response. Recently, Lev (2004) notes that marketing managers need to generate better information about their intangibles (e.g., investments in brand building, product and service innovations, R&D) and the benefits that flow from them, and then disclose them to the capital markets to give investors a sharper picture of the company's performance, which would eventually lead to accurate firm valuations. Indeed, as a step in that direction, the collective findings in this paper may generate needed discussion among senior management, finance and marketing executives on the crucial role played by marketing actions in influencing firm valuation.

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**Table 1: Overview of Research Approaches**

<i>Approach</i>	<i>Representative studies</i>	<i>Substantive issue</i>	<i>Advantages</i>	<i>Disadvantages</i>
<b>1. Cross-sectional approaches</b>				
Regression-based models	Rao et al. 2004 Barth et al. 1998 Markovitch et al. 2005 McAlister et al. 2006	Branding strategy and intangible value Brand valuation and intangible value Marketing response to stock price variation. Advertising and systematic risk	Straightforward to estimate.  Can assess cross-sectional variation in investor response.	Assumes that investors immediately incorporate all publicly known information about future earnings. Is correlational in nature.
<b>2. Time-series approaches</b>				
Event-study approach	Horsky and Swyngedouw 1987 Chaney et al. 1991 Lane and Jacobson 1995 Geyskens et al. 2002	Name changes and stock market reactions New product announcements and stock returns  Brand extension announcements and stock returns Internet channel additions	Relies on efficient market hypothesis. Easy to implement since key data are event dates and stock prices around the events. Analysis is causal in nature, although non-causal interpretations are possible.	Inappropriate for measuring long-term abnormal returns to events that are clustered in time.
Calendar Portfolio Theory	Sorescu et al. 2006	New product announcements and abnormal stock returns	Accounts for cross-sectional correlation of returns.  Statistical inferences are likely more accurate than those obtained with event studies.	It does not produce separate measures of abnormal returns for each event.

**Table 1: Overview of Research Approaches (continued)**

<i>Approach</i>	<i>Representative studies</i>	<i>Substantive issue</i>	<i>Advantages</i>	<i>Disadvantages</i>
<b>2. Time-series approaches (continued)</b>				
Stock-return response modeling	Aaker and Jacobson 1994  Aaker and Jacobson 2001  Mizik and Jacobson 2003  Srinivasan et al. 2006	Perceived quality and stock returns  Brand attitude and stock returns  Financial implications of shifts in strategic emphasis  Marketing mix (new products, advertising and promotions) and stock returns.	Based on the Fama and French (1996) three-factor model of expected returns. Provides insights into the market's expectations of the <i>long-term</i> value prospects associated with changes in marketing strategy. Takes into account the dynamic properties of stock returns.	Requires detailed marketing data at the brand or SBU level. Marketing measures have to reflect information that is available to market participants, since the stock market reacts to public information.
Vector autoregressive modeling	Pauwels et al. 2004  Joshi and Hanssens 2005	New product introductions, sales promotions and firm valuation  Advertising and firm valuation	Provides a flexible treatment of both short-term and long-term effects. Robust to deviations from stationarity. Provides a forecasted, expected baseline for each performance variable. Allows for various dynamic feedback loops among marketing and stock performance variables.	Requires detailed marketing data at the brand or SBU level.  Requires time-series over a long horizon.

**Table 2 Financial Metrics for Assessing Investor Response**

<i>Financial metric</i>	<i>Illustrative Papers</i>	<i>Advantages</i>	<i>Disadvantages</i>
<p>Return on assets (Net income divided by average assets per period)</p> <p>Return on sales (Net income divided by sales)</p> <p>Return on equity (Net income divided by shareholder equity)</p>	<p>Bayus, Erickson and Jacobson 2003</p>	<p>Readily obtained.</p> <p>Marketing strategies having only short-term effects will likely be captured in the short-term accounting profits.</p>	<p>Focus on short term, limited in their ability to reflect growth opportunities facing the firm.</p> <p>Level of temporal aggregation is coarse, e.g., quarterly.</p> <p>May reflect the aberrations that tax law and accounting conventions have on them.</p> <p>Cannot be easily compared across industries.</p> <p>Not risk-adjusted.</p>
<p>Tobin's q (ratio of market value of the firm to the replacements cost of the firm's asset)</p> <p>Firm valuation (stock price x number of shares outstanding)</p> <p>Market-to-book ratio (ratio of market value to book value)</p> <p>Stock returns (Market value at time t- Market value at time t-1)/ (Market value at time t-1)</p>	<p>Simon and Sullivan 1993</p> <p>Rao et al. 2004</p> <p>Fornell et al. 2006 Pauwels et al. 2004</p> <p>Srinivasan et al. 2006</p>	<p>Forward-looking measure, providing market-based views of investor expectations of the firm's future profit potential.</p> <p>Data on stock prices is abundant and precise.</p> <p>Accepted paradigms of research (e.g. event study, VAR modeling, stock return response models) can be use to assess firm value effects.</p> <p>Directly comparable across industries, whereas accounting measures may not be easily compared (Mittal et al. 2005).</p> <p>Tobin's q outperforms metrics such as accounting rates of return in econometric models since estimates of Tobin's q have smaller average errors and greater correlation with true measures (McFarland 1988).</p>	<p>Replacement value of tangible assets is complex and difficult to compute (Hall et al. 1998).</p> <p>Estimated model should be robust to deviations from stationarity, in particular the presence of random walks in stock prices, which can lead to spurious regression problems (Granger and Newbold 1986).</p>

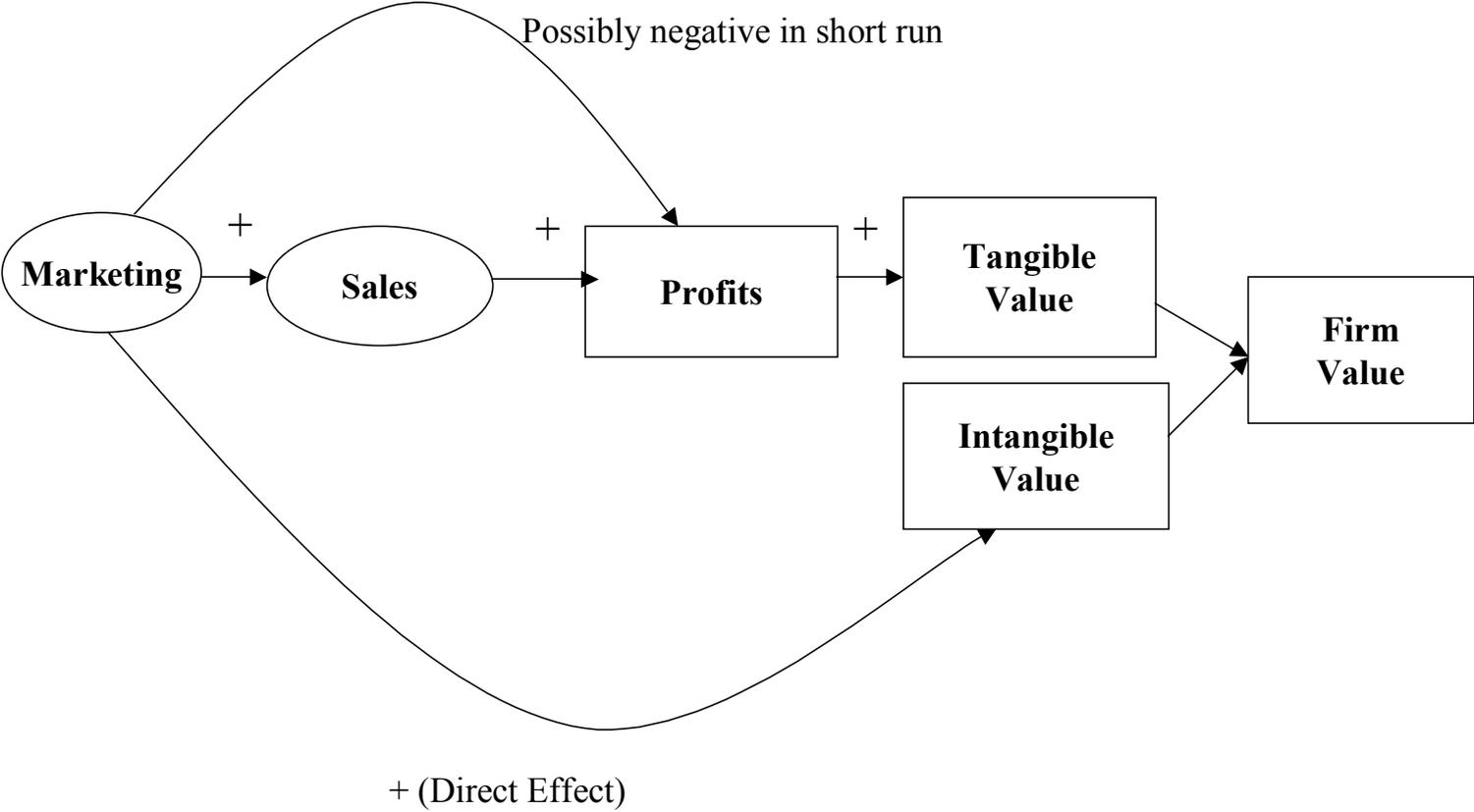
**Table 3: Marketing Asset Metrics in Measuring Investor Response**

<b>Marketing metric</b>	<b>Illustrative metrics</b>	<b>Illustrative Papers</b>	<b>Advantages</b>	<b>Disadvantages</b>
1. Brand Equity	Financial World's measure of brand equity  Young and Rubicam Brand Asset Valuator	Barth et al. 1998  Mizik and Jacobson 2006	Brand's strength is determined by five components (Fernandez 2002). Publicly available through Financial World.  Based on consumer self-reports on five-brand asset pillars--Relevance, Vitality, Esteem, Knowledge and Differentiation.	The multiplier used by Financial World includes "non-standard" brand dimensions (i.e., dimensions not generally accepted as being components of brand equity; e.g., nature, volatility, and size of the market a firm operates in). Only available for large firms. Not publicly available to investors.
2. Customer Satisfaction	American Customer Satisfaction Index	Anderson et al. 2004 Ittner and Larcker 1998 Gruca and Rego 2005 Fornell et al. 2006	Publicly available	ASCI scores are updated only annually
3. Customer Metrics	Customer Lifetime Value (CLV)  Customer Equity	Gupta et al. 2004	Publicly available.	Time-consuming data collection.
4. Product Quality	Equitrend Perceived Quality  JDPA Perceived Appeal and Quality  Product Review (Lexis-Nexis)	Aaker and Jacobson 1994  Srinivasan et al. 2006  Tellis and Johnson 2006	Customer-driven measures. Amenable to event-study analysis.	Time-consuming data collection.

**Table 4: Marketing Action Metrics in Measuring Investor Response**

<i>Marketing metric</i>	<i>Illustrative metrics</i>	<i>Illustrative Papers</i>	<i>Advantages</i>	<i>Disadvantages</i>
1. Advertising	Advertising dollars (COMPUSTAT)  Advertising dollars (TNS Media)	Joshi and Hanssens 2005  McAlister et al. 2006  Srinivasan et al. 2006	TNS Media is typically available at the disaggregate brand/category level and data interval is monthly.	COMPUSTAT advertising data aggregate firm-level data & data interval is quarterly.
2. Promotions	Promotional expenditures (J.D. Power and Associates)	Pauwels et al. 2004	J.D. Power data are disaggregate, weekly brand/category level. Weekly data account for the differentiation between the anticipated and the unanticipated components of the marketing metric series. Account for short- as well as long-term dynamics.	J.D. Power data are proprietary.
3. Distribution channels	Channel additions (Newspaper search of Internet channel additions)	Geyskens et al. 2002  Srinivasan et al. 2006	Amenable to event-study analysis.	Painstaking data collection.
4. New products	Product pre-announcements (Lexis-Nexis)  New product introductions (JD Power and Associates)	Chaney et al. 1991 Sorescu et al. 2006  Pauwels et al. 2004 Srinivasan et al. 2006	Amenable to event-study analysis  See point 2 above	Can be considerable delay in preannouncement date and introduction

**Figure 1**  
**Marketing and Firm Valuation**



## ENDNOTES

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- i A good example of these inter-temporal effects in the car industry is what are typically called “lease pull ahead” programs. Analysts at car manufacturers keep track of the patterns of lease expirations. When they spot a month in the future with an unusually large volume of lease returns, they offer some of those lessees the option to return the car ahead of time, coinciding with a period of lower expected lease returns, or offer a promotional extension of the lease term. Furthermore, it is a common practice to target lease programs to terms coinciding with an expected “valley” in lease returns. By seeking a stable flow of lease returns, manufacturers aim to generate a stable flow of new leases.
- ii The finance literature makes the distinction between weak, semi-strong and strong efficiency (Fama 1991). In a marketing context, the semi-strong definition is the most appropriate as marketing actions are publicly observable, by definition.
- iii Exceptions include investments in retail warehouses, retail outlets etc. that are marketing investments but accounted for in the book value of the firm.
- iv As we used Friday closing prices to obtain weekly measures of *RET*, our data for this dependent variable encompass 299 weekly observations, identical to those for the independent variables.
- v Indeed, all event studies are joint tests of the hypothesis under consideration as well as the efficiency of capital markets (Fama et al. 1969).
- vi Stationary variables fluctuate as temporary deviations around a fixed mean or trend. Evolving variables such as random walks have a unit root, i.e., they fluctuate without reversion to a fixed mean or trend. For technical definitions and applications in marketing, see e.g., Dekimpe and Hanssens (1995).
- vii Other measures of firm value include return on assets, return on sales and return on equity. However, these measures focus on the short term, they are not risk-adjusted, and their typical level of temporal aggregation makes it harder to make the link to specific new-product introductions. Furthermore, since accounting measures are based on historical data, they do not adequately reflect future expected revenue streams (Kalyanaram, Robinson and Urban 1995).