



# How does marketing capability impact abnormal stock returns? The mediating role of growth



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## ABSTRACT

Building on the frameworks of the resource-based view and value relevance, this study contributes to how the firms' marketing capabilities affect firm performance. More specifically, this research examines growth as a potential mechanism to explain how marketing capabilities impact stock returns. This study estimates empirical models using a merged data set comprising firms' marketing and financial information. Results indicate that asset growth mediates the relationship between marketing capability and abnormal stock returns. Marketing capabilities in general and marketing capabilities of retail firms specifically show direct significant effects on abnormal stock returns. This study contributes to resource-based view theory in marketing by demonstrating that it is not only the intangible characteristic of marketing capabilities, but also the growth potential that marketing capabilities exhibit that help explain higher stock returns. This study points to the need to account for mechanisms and mediating variables when building theoretical frameworks of the impact of marketing capabilities on firm performance.

## 1. Introduction

The questions of how firms deploy resources to serve customers better, how to more fully understand the effect and value of firms' marketing actions and how marketing capabilities affect firms' performance in the long run are key areas of concern for marketing academics and practitioners (e.g., Dutta, Narasimhan, & Rajiv, 1999; Marketing Science Institute, 2016). This interest could be even higher for retailing firms because, as Moore and Fairhurst (2003) recognize “as retail competition in consumer markets around the world continues to intensify, marketers are seeking strategies that will capture both the interest and loyalty of consumers” (p. 386). Surprisingly, given recent managerial and academic interest in marketing accountability (Marketing Science Institute, 2014), the role of *how* marketing capabilities generate higher stock returns remains largely unanswered (e.g., Orr, Bush, & Vorhies, 2011; Vorhies, Orr, & Bush, 2011). This article examines whether growth is a significant mechanism to explain the impact of marketing capabilities on retailing and non-retailing firms' stock returns (Fama & French, 1992; Lintner, 1965; Sharpe, 1964).

A key aspect of the impact of marketing capabilities is how stock markets seize marketing capability information—that is, how future earnings integrate marketing capability information. Research

recognizes that growth prospects are critical information that stock markets value (Collins & Kothari, 1989; Rappaport, 1998). In the context of this study, business environment in the retailing industry is constantly changing, so firms must succeed in building and using capabilities that support marketing strategies that lead to growth and/or long-term survival (Moore & Fairhurst, 2003). In this line, this study argues that marketing capabilities provide firms' growth prospect information that enable firms to generate higher stock returns. This study uses financial models, in particular, the Fama–French (FF) model to estimate a measure of abnormal stock returns or stock returns adjusted by risk-free rate, market risk, stock size, and book-to-market ratios (Fama & French, 1993). This issue is important and timely for practitioners and researchers who are attempting to understand how marketing capabilities affect long-term financial performance (e.g., Agic, Činjurević, Kurtovic, & Cicic, 2016; Frösén & Tikkanen, 2016; Jaakkola et al., 2016).

In sum, the purpose of this paper is to study *how* marketing capabilities influence abnormal stock returns and we argue that growth is a potential mediator that connects marketing capabilities (independent variable) with firms' stock returns (dependent variable).

This research provides the following contributions. First, by studying the mechanisms that explain the impact of firms' marketing

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capabilities on firms' stock returns this research contributes to contemporary debates on resource-based view (RBV) theory. RBV research in marketing has added significantly to our understanding of the performance-enhancing role of marketing capabilities (e.g., Fang, Chang, Ou, & Chou, 2014; Morgan, Slotegraaf, & Vorhies, 2009; Nasution & Mavondo, 2008; Orr et al., 2011; Vorhies, Harker, & Rao, 1999) and extant research examines the *direct* effect of marketing capabilities on firm's performance arguing that the intangibility and complementarity of marketing capabilities explain the generation of sustained competitive advantage and therefore impact higher performance (Kozlenkova, Samaha, & Palmatier, 2014; Srivastava, Fahey, & Christensen, 2001). Building on extant research, this study contributes to RBV demonstrating that it is not only the intangibility of marketing capabilities, but also the growth potential marketing capabilities exhibit that help explain higher stock returns.

Second, this study recognizes the importance of integrating different resources when defining and measuring capabilities from a productivity or efficiency perspective. Using an input-output approach, Luo and Donthu (2006) study the impact of marketing capability—from a communication productivity perspective—on stock returns measured through market value of equity. Luo and Donthu (2006) employ a Malmquist productivity index to model marketing communication productivity. They use advertising expenditures and sales promotions as input measures, and sales level, sales growth, and corporate reputation as output measures. This study builds on Luo and Donthu's study and defines marketing capability from an input-output approach. However, in contrast to Luo and Donthu's (2006) research that do not include the role of competition and the industry in their modeling, this study models marketing capability using bootstrap data envelopment analysis (DEA) and build frontiers of companies competing in each two-digit standard industry classification under analysis. Modi and Mishra (2011), on the other hand, assess the relative influence of marketing capability—from an efficiency perspective—on stock returns measured by the Fama–French model. Modi and Mishra (2011) employ the ratio of sales to selling, general, and administrative expenses of a firm compared to other firms in its industry. In contrast, this study disentangles selling, general, and administrative expenses by using advertising and promotion marketing expenditures as input measures in the modeling. Rather than using only sales as an output measure in the model (Modi & Mishra, 2011), this study also includes sales growth and customer satisfaction as output measures. Therefore, this research adds to the current literature not only by integrating advertising, promotion and customer satisfaction but also by including the role of the industry and competitors when defining and measuring capabilities. Accordingly, this study is relevant for researchers and practitioners interested in answering the question of how to make an efficient use of resources to build capabilities, considering the role of industry competitors.

Finally, comparing the effect of marketing capabilities in retailing and non-retailing firms constitutes another contribution. Over the last 40 years a great deal of attention has been paid to the general concept and practice of marketing strategy. Unfortunately, as Moore and Fairhurst (2003) recognize, few researchers have focused on understanding the unique challenges that marketers face in developing and implementing strategy in dynamic retail markets.

In the next section, this study develops a conceptual framework and research hypothesis of how marketing capability affects stock returns. Next, this study elaborates models to measure stock returns and marketing capability and to capture the effect of marketing capability on performance. This study estimates empirical models using a merged data set comprising firms' marketing and financial information from *Advertising Age*, the American Customer Satisfaction Index (ACSI), COMPUSTAT, and the Center for Research in Security Prices (CRSP). This study applies the three-factor FF model to measure stock returns, DEA with bootstrap to estimate marketing capability, and panel data methods to estimate the effect of marketing capability on stock returns. This study also performs a robustness check of the findings. Finally,

authors discuss implications for managers, researchers, and marketing theory.

## 2. Conceptual framework: the impact of marketing capability on stock returns

Both resource-based view and dynamic capability theories propose that capabilities enable firms to outperform competitors over time, which in turn lead to superior firms' financial performance (Barney, 1991; Day, 1994; Teece, Pisano, & Shuen, 1997; Winter, 2000). A capability is a combination of resources and is embedded in the organization and its processes (Makadok, 2001; Teece et al., 1997; Teece, 2007). Amit and Schoemaker (1993), Helfat and Peteraf (2003), and Zollo and Winter (2002) assert that a capability reflects the organization's ability to perform a coordinated set of tasks (with its organizational resources) to achieve a particular end result. In marketing, researchers have defined marketing capability as a way to sense markets and relate with customers (Day, 1994), to exhibit “superiority in identifying customers' needs and in understanding the factors that influence consumer choice behavior” (Dutta et al., 1999, p. 550), to understand and forecast customer needs better than competitors and to effectively link offerings to customers (Krasnikov & Jayachandran, 2008), “to transform resources into valuable outputs based on the classic marketing mix” (Vorhies and Morgan, 2005, p. 82), and “the process of combining marketing resources by leveraging relational and intellectual assets to satisfy customers and attain brand equity” (Angulo-Ruiz, Donthu, Prior, & Rialp, 2014, p.383).

Considering the tenets of resource-based view and dynamic capability theories (Teece, 2007) as well as research in marketing and input-output approaches, this study defines “marketing capability” as a firm's combination of marketing resources to generate sales and satisfy customers (Day, 1994; Keller & Lehmann, 2003; Rust, Ambler, Carpenter, Kumar, & Srivastava, 2004; Srivastava et al., 2001; Vorhies & Morgan, 2005; Winter, 2000). In this study, marketing resources refer to marketing actions that require marketing expenditure so that firms can deploy, allocate, and combine expenditures (Dutta, Narasimhan, & Rajiv, 2005; Narasimhan, Rajiv, & Dutta, 2006; Rust et al., 2004). Sales generation represents the customer response to a product or service. Customer satisfaction is the “overall evaluation of [the] whole purchase and consumption experience with a good or service” (Fornell, 1992, p. 11). Our view of marketing capability is similar to the notion of accumulation of asset stocks proposed by Dierickx and Cool (1989) that is “strategic asset stocks are accumulated by choosing appropriate time paths of flows over a period of time” (p. 1506). By making appropriate choices about strategic marketing expenditures, firms can accumulate stocks of positive customer responses to products or services and firms can also accumulate stocks of customer satisfaction. Implicitly, the fact that firms need to make appropriate choices about marketing expenditures to build strategic asset stocks creates a relevant market for marketing expenditures which is in line with the notion of strategic factor markets. Barney (1986) defines a strategic factor market as “a market where the resources necessary to implement a strategy are acquired” (p. 1231). One of the marketing expenditure choices firms need to do involves advertising and promotion. Firms need to buy—from advertising and promotion markets—advertising media (TV, radio, outdoor, internet, print, etc.), product placements in movies, television shows, videos, or commercials with other products, and participation in special events among others. In this sense, different authors (Dabholkar, Thorpe, & Rentz, 1996; Moore & Fairhurst, 2003; Sharma, Levy, & Kumar, 2000; Wileman & Jary, 1997) recognize that promotional capability, defined as the degree to which retailers are effective in differentiating through advertising and promotions, has been acknowledged as important to success in retailing. By acquiring appropriate resources from the advertising and promotion markets over time, firms can build stocks of positive customer responses to products or services as well as customer

**Table 1**  
Representative studies on marketing capability.

Representative studies	Underlying theory	Marketing capability operationalization	Mediation	Moderation	Method for measuring capability	Performance	Industry sector
Aldeniz, Gonzalez-Pradon, and Calantone (2010)	Market orientation, organizational learning, resource-based view	Expenses in advertising, ME; SRO, CR that generate sales	No	No	DEA, SFE	No	American dealers of an office furniture manufacturer
Dutta et al. (1999)	Resource-based view	Expenses in advertising; ME; CR that generate sales	No	Complementarity of capabilities	SFE	Tobin's q	Manufacturing firms in semiconductors
Froésen and Tikkanen (2016)	Market orientation	Product development, supply chain and CRM	No	Business environment and type	Survey	Qualitative performance	17 industries
Jaakkola et al. (2016)	Market orientation	Product development, supply chain and CRM	No	Turbulence and competitive intensity	Survey	Qualitative performance	Manufacturing, construction, retail, information
Krasnikov and Jayachandran (2008)	Organizational capability, resource-based view	Market sensing and customer linking	No	Various	Meta-analysis	Efficiency and market performance	Manufacturing versus service business
Luo and Donthu (2006)	Resource-based view	Expenses in advertising and sales promotion that generate sales, sales growth, corporate reputation	No	R & D and competition intensity	Malmquist	ROA, Tobin's Q, Stock Returns	Not specified
Mishra and Modi (2016)	Resource-based view, Agency and Stakeholder theories	Overarching firm ability to more efficiently convert available marketing resources into outputs, relative to the competition	No	Marketing capability is the moderator	SFE	Stock returns	Not specified
Modi and Mishra (2011)	Input-approach, Resource slack	Selling, general, and administrative expenses that generate sales	No	No	Ratio	ROA, Tobin's Q, stock returns	Manufacturing firms (four digit SIC 2011-3999)
Morgan et al. (2009)	Dynamic capability, endogenous growth theory, resource-based view	Market sensing, branding, and CRM competences	No	Complementarity of capabilities	Survey	Revenue growth, profit margin growth, growth	Seven industries (one of them specialty retail)
Narasimhan et al. (2006)	Resource-based view	Expenses in advertising; ME; CR that generate sales	No	No	SFE	Operating income on assets	Semiconductors and computers (SIC 35 and 36)
Nath, Nachiappan, and Ramanathan (2010)	Resource-based view	Expenses in advertising; ME; CR that generate sales	No	Efficient/inefficient	DEA	Operating income on assets	Logistic companies in UK SIC 6024
Orr et al. (2011)	Resource-based view	Branding and CRM competences	Customer satisfaction and market effectiveness	Marketing employee capabilities	Survey	Relative ROA	12 industries
Ramaswami, Srivastava, and Bhargava (2009)	Organizational capability, resource-based view	Customer management competences	No	Complementarity of capabilities	Survey	Qualitative and quantitative financial performance	Retail firms (5.7% of sample)
Song, Droge, Hanvanich, and Calantone (2005)	Resource-based view	Technology/marketing competences	No	Complementarity of capabilities	Survey	Qualitative performance	Seven industries
Song et al. (2007)	Market orientation, resource-based view	Technology/IT/market-linking/marketing competences	No	Strategic type	Survey	Earnings before taxes/revenues	Ten industries
Song, Nason, and Di Benedetto (2008)	Resource-based view	Technology/IT/market-linking/marketing competences	No	No	Survey	No	Ten industries
Vorhies et al. (1999)	Market orientation	Six marketing competences	No	Complementarity of capabilities	Survey	Qualitative performance	Manufacturing and services
Vorhies and Morgan (2005)	Market orientation, organizational learning, resource-based view	Eight marketing competences	No	No	Survey	Qualitative performance	Twelve industries
Vorhies et al. (2011)	Resource-based view and organizational learning	Marketing exploration and exploitation capabilities	Customer focused marketing capabilities	No	Survey	ROA	Goods, consumer, business
This study	Organizational capability, resource-based view, value relevance	Ability to use advertising and promotion to generate sales, sales growth and customer satisfaction	Asset growth and profit growth	Retail industry	DEA bootstrap per industry	Abnormal stock returns	Retail versus non-retail

Notes: IT = information technology, EBIT = earnings before interests and taxes, CR = investment on customer relationship, CRM = customer relationship management, SRO = showroom occupancy, ME = marketing expenditures, and SFE = stochastic frontier estimation.

satisfaction over time. This very process of the acquisition of resources over time to build stocks of strategic assets over time refers to our notion of marketing capability.

Extant research that has focused on the contribution of marketing capability to financial performance is presented in Table 1. First, only two studies examine how marketing capabilities impact financial performance and analyze different mediating variables (e.g., Orr et al., 2011; Vorhies et al., 2011). The current research builds on these studies to examine the mediation influence of growth on the relationship between marketing capabilities and stock returns. Second, extant research has focused on relating marketing capability to qualitative and quantitative measures of financial performance. The current research builds on these studies, in particular those that stress well-known quantitative financial performance indicators (e.g., revenue growth). However, these studies are largely restricted to linking marketing capability to short-term performance, providing more limited results. Thus, the current research also takes into consideration studies on value relevance and capital asset pricing models to examine the impact of marketing capability on long-term performance (e.g., stock returns).

### 2.1. How does marketing capability impact stock returns? The mechanism of growth

Building on the value relevance perspective, this study argues that marketing capability may enable firms to generate superior stock returns, a surrogate of long-term financial performance (Srivastava, Shervani, & Fahey, 1998). Value relevance indicates that a firm's stock returns can be reflected in new information contained in accounting and non-accounting performance measures (e.g., Barth, Beaver, & Landsman, 2001; Jacobson & Mizik, 2009; Kothari, 2001; Mizik & Jacobson, 2008). The application of the value relevance perspective in marketing research suggests that non-accounting measures, such as customer satisfaction, supplement accounting data and directly affect stock returns (e.g., Jacobson & Mizik, 2009; Srinivasan & Hanssens, 2009). In the context of this study, marketing capability acts as a non-accounting measure and thus can provide capital markets with information on the firm's future expected earnings, which are not reflected in its accounting performance measures.

Information on growth potential is critical for promoting future earnings (Bahadir, Bharadwaj, & Parzen, 2009; Collins & Kothari, 1989; Rappaport, 1998), such that the growth of marketing capability can supply additional relevant information on the firm's actual and future growth and consequently improve its stock returns. For example, the growth of marketing capability may supply asset growth information of customer acquisition and customer retention. Gupta and Zeithaml (2006) elaborate on the idea that customer metrics—such as customer satisfaction—improve word of mouth and customer loyalty. Accordingly, the growth of marketing capability may generate increases in word of mouth and, at the same time, boost customer loyalty, which in turn can boost customer acquisition and customer retention. Therefore, marketing capability may affect firms' growth through the ability to acquire new customers for current offerings, the ability to encourage cross-buying from current customers, and the use of reduced marketing resources (Ambler et al., 2002). Positive word of mouth of existing customers sparks new customers to try existing offerings (Ambler et al., 2002). Customers' experience and lengthy relationships with the firm can also influence customers' willingness to engage in cross-buying (Branson, 1998; Rapp, Trainor, & Agnihotri, 2010; Verhoef, 2001). A firm's strong brands may not require as much continued investment as competitors' weaker brands to maintain their success, and current customers in strong relationships with firms may continue to purchase without the need for further marketing costs (Ambler et al., 2002). By acquiring and retaining customers, the firm may ensure growth and, consequently, higher stock returns.

**H1.** Marketing capability has a positive relationship with stock returns

through the mediation of firm growth.

### 2.2. What is the contingency role of competing in the retailing industry?

Retailing includes “all the activities involved in selling products or services directly to final consumers for their personal, non-business use” (Kotler et al., 2011, p. 422). Retailers are those businesses whose sales come primarily from retailing. Each year, retailers account for more than US\$4.5 trillion of sales to final consumers. Retailers connect brands to consumers, nearly 70% of purchase decisions are made near or in the store; thus, retailers, reach consumers at key moments of truth, ultimately influencing their actions at the point of purchase (Kotler et al., 2011). Given that retailers in general are looking more and more alike and service differentiation among retailers has also eroded (Kotler et al., 2011), retailers more than non-retailers need to rely on their marketing capabilities to build competitive advantage and ensure higher performance and stock returns. Given that margins are shrinking, retailers need to be efficient in the use of marketing resources such as expenses in advertising and promotion to minimize costs and create the right image, and they also need to be smart in achieving sales and customer satisfaction to ensure growth and higher performance.

In other words, the business environment in the retailing industry is constantly changing (Moore & Fairhurst, 2003) and customers are constantly adapting their consumption behavior (Sands & Ferraro, 2010), so for firms in this industry could be even more important than for firms in other industries build and use capabilities that support marketing strategies that will capture both the interest and loyalty of consumers and consequently lead to growth and/or long-term survival. Therefore, the current study hypothesizes the following:

**H2a.** The relationship between marketing capability and growth is higher for retailing firms than for non-retailing firms.

**H2b.** The relationship between marketing capability and stock returns is higher for retailing firms than for non-retailing firms.

The current study summarizes the conceptual framework and hypothesis in Fig. 1. The conceptual framework also includes the role of control variables, based on existing empirical evidence of these variables' relationships to firms' future prospects. Several variables can affect future earnings (e.g., stock returns). Standard variables used as control variables in marketing and finance research include financial leverage, research-and-development (R & D) expenditures, liquidity, and industry concentration (McAlister, Srinivasan, & Kim, 2007; Rao, Agarwal, & Dahlhoff, 2004; Tuli & Bharadwaj, 2009).

### 2.3. The role of control variables

#### 2.3.1. Financial leverage

Smith and Watts (1992) anticipate that firms with higher growth opportunities have lower leverage. Thus, a negative effect of leverage on stock returns is expected.

#### 2.3.2. R & D expenditures

Rao et al. (2004) argue that R & D expenditures may have a positive impact on a firm's value because they reflect better prospects for the firm to generate cash flows. Following Rao et al.'s (2004) and others' (e.g., McAlister et al., 2007) rationales, a positive effect of R & D on stock returns is expected.

#### 2.3.3. Liquidity

A positive effect of liquidity on stocks returns is expected because, according to Mayer (1990), liquidity determines investment decisions for the majority of firms, and these can be positively valued by financial markets. In this sense, a lack of liquidity could lead to a decrease in the level of investments, independently of the other opportunities firms

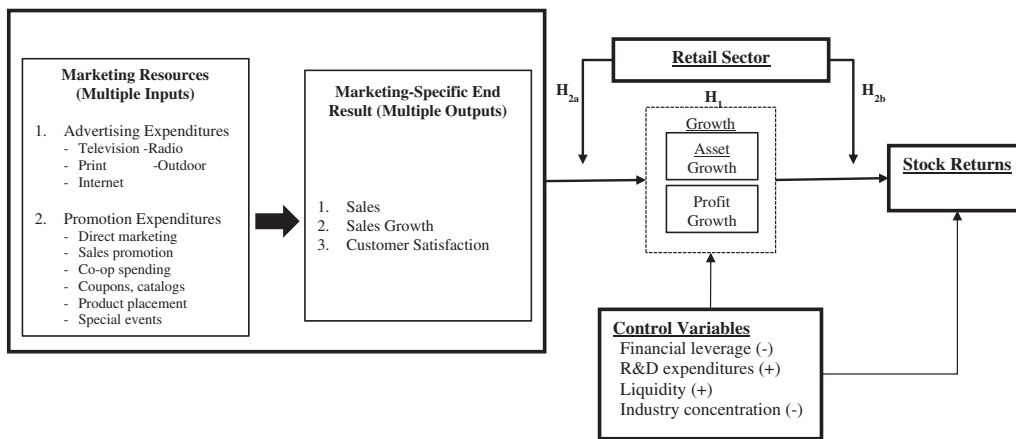


Fig. 1. Conceptual framework of how marketing capabilities generate superior stock returns.

face (Lamont, 1997). Furthermore, Kaplan and Zingales (1997) assert that firms relying primarily on cash liquidity to invest, despite the availability of additional external funds, are the most financially successful and the least constrained.

2.3.4. Industry concentration

To control for possible industry effects, industry concentration is included in the framework. According to industrial organization theory, industry concentration refers to the number of incumbents in a given industry (Scherer, 1980). Industries in which there are fewer competitors and, thus, lower rivalry among them have low levels of concentration. Finance literature suggests that firms in low concentrated industries tend to earn higher stock returns because they engage in more and riskier innovations and suffer more distress risk (Hou & Robinson, 2006). Thus, a negative effect of industry concentration on stock returns is expected.

3. Methodology

In this section, following the logic of the conceptual framework in Fig. 1, constructs related to stock returns, marketing capability, and control variables are modeled. Then the model to test the hypothesis is specified and the estimation procedure is detailed.

3.1. Modeling stock returns

Following mainstream financial literature (Damodaran, 2002; Fama & French, 1992, 1993), stock returns are employed as indicators of firms' financial performance. The three-factor FF model is used to estimate stock returns. The central idea of FF's stock returns is to capture firms' risk-adjusted stock returns. Srinivasan and Hanssens (2009) recommend using this type of performance measure because it derives from financial theory, more concretely from the original Capital Asset Pricing Model (see Lintner, 1965; Sharpe, 1964). The use of the three-factor FF model has also gained importance in the literature (e.g., Aksoy, Cooil, Groening, Keiningham, & Yalcin, 2008; Tuli & Bharadwaj, 2009). The three-factor FF model is specified as follows:

$$R_{im} - R_{rf,m} = \alpha_{im} + \beta_{mki}(R_{mkm} - R_{rf,m}) + \beta_{si}(SMB_m) + \beta_{hi}(HML_m) + \epsilon_{im}, \tag{1}$$

where:  $R_{im}$  = monthly return of stock  $i$  in month  $m$ ,  $R_{rf,m}$  = monthly risk-free return in month  $m$ ,  $R_{mkm}$  = monthly market return on month  $m$ ,  $SMB_m$  = monthly return of a value-weighted portfolio of small stocks less the return of a value-weighted portfolio of big stocks on month  $m$ , and  $HML_m$  = monthly return of a value-weighted portfolio of high book-to-market stocks less the return of a value-weighted portfolio of low book-to-market stocks on month  $m$ .

Abnormal returns for each firm  $i$  and each period  $m$  ( $AR_{im}$ ) are

obtained as the residual of Eq. (1), as follows:

$$AR_{im} = (R_{im} - R_{rf,m}) - (\hat{R}_{im} - \hat{R}_{rf,m}) \tag{2}$$

Because the current study examines the relationship between marketing capability and stock returns on a yearly basis, annual cumulative abnormal stock returns are computed as follows:

$$CAR_{it} = \sum_{m=12}^m AR_{im}, \tag{3}$$

where:  $CAR_{it}$  are annual cumulative abnormal stock returns of stock  $i$  in year  $t$ .

When modeling the dependent variable regarding annual abnormal stock returns, finance and accounting literature uses measures at one-quarter ahead of fiscal-year end. This quarter-ahead measure ensures that capital market participants have incorporated new information into their expectations. Therefore,  $CAR_{it}$  is specified as a one-quarter-ahead measure of fiscal-year end. Thus, if fiscal-year end of firm  $i$  is in December of year  $t$ ,  $CAR$  is computed for firm  $i$  from end of March of year  $t$  to end of March of year  $t + 1$ .

3.2. Modeling growth

Following previous studies (e.g., Morgan et al., 2009), we use profit growth and asset growth as two measures of a firm's growth. Profit growth captures the profitability improvement or decline, while asset growth indicates the variation of current and fixed assets the firm has accounted. These variables will be able to capture the arguments exposed in the theory section.

3.3. Modeling marketing capability

Extant literature employs survey-based, stochastic frontier, or DEA methods to model and estimate marketing capability (e.g., Dutta et al., 1999, 2005; Orr et al., 2011; Vorhies & Morgan, 2005). The inter-temporal output oriented DEA bootstrap method is used to estimate marketing capability. The DEA method is appropriate because when a firm has greater capability, it can deploy inputs more efficiently to achieve desired outputs (Dutta et al., 1999, 2005). As a mathematical method to compare firms' productivity using multiple inputs and multiple outputs, DEA is preferred to simple ratios (sales to selling, administrative, and general expenses). DEA builds an efficient frontier that consists of all efficient units, enabling a comparison with best performers; in contrast, regression analysis relies on a comparison with the mean (Donthu, Hershberger, & Osmonbekov, 2005). Compared with stochastic frontier estimation, DEA has greater flexibility because it does not require an explicit functional form imposed on the data (Coelli, Prasada-Rao, O'Donnell, & Battese, 2005). DEA has gained widespread acceptance and is usually used to examine the efficiency of price, advertising, service quality, and customer satisfaction among other areas (e.g.,

Pergelova, Prior, & Rialp, 2010).

Following Luo and Donthu (2005) and Mittal, Anderson, Sayrak, and Tadikamalla (2005), we employ an output-oriented DEA model with variable returns to scale (Banker, Charnes, & Cooper, 1984) to control for possible economies of scale. Because a capability develops over time, a time variable in the DEA estimation is included (Tulkens & Vanden Eeckaut, 1995) by using an inter-temporal rather than a contemporaneous estimation model (Mittal et al., 2005). A single inter-temporal frontier is constructed from the observations throughout the observation period, similar to a pooled regression. For consistency with existing research using frontier models (Dutta et al., 1999), frontiers of companies competing in each two-digit standard industry classification under analysis are built. By bootstrapping the inter-temporal DEA scores (Simar & Wilson, 1998), bias-corrected and stochastic estimates are obtained. Two thousand (2000) replications of inter-temporal output-oriented DEA are run in order to obtain unbiased estimation scores. Shepard's distances (Wilson, 2008) are employed, for which the inter-temporal DEA scores are less than or equal to one. Intuitively, a score equal to one means that the firm is on the frontier, is efficient, and forms part of a sub-sample of firms that optimize the transformation of marketing resources into customer satisfaction. A score of less than one indicates that the firm is not on the frontier and is less capable than efficient firms of optimally transforming resources into customer satisfaction.

Extant models that measure marketing capability employing frontier analysis (either stochastic frontier or DEA) operationalize marketing capability using sales as the output of the process. It is logic to expect that sales can capture the results of the deployment, allocation, and combination of marketing resources because sales indicate the customer response to products offered. However, the current study argues that satisfying customers is also a relevant end result of marketing and therefore should also be captured in the operationalization of marketing capability. Selling products is important for companies, but the strategic need to have a close relationship with customers is also critical (Day, 2006; Gulati, 2009). Because firms may devote efforts and resources to better understand customer needs and wants (Day, 1994; Kohli & Jaworski, 1990), marketing capability should emphasize both sales and customer satisfaction. Therefore, we operationalize marketing capability employing customer satisfaction, sales, and sales growth as marketing end results. In addition, we use advertising and promotion expenditures as marketing resources (inputs). We focus on advertising and promotion resources because they demand the largest share of marketing expenditures (Ambler, 2000) and offer relevant input flow to the marketing process (Keller & Lehmann, 2003; Rust et al., 2004).

### 3.4. Control variables

As mentioned in the conceptual framework section, the current study employs control variables supported by research in accounting and finance. The control variables are financial leverage, R & D, and liquidity. In addition, we employ the Hirschman–Herfindahl index (Hou & Robinson, 2006; Schmalensee, 1977) to control for competitive intensity in an industry. We also control for systematic effects across time, which are common to all firms, by using year dummies of the years under analysis along with a random-error term to prevent omitted effects and cross-individual correlation (Boulding, 1990; Jacobson, 1990).

### 3.5. Analytical models and estimation procedure

Since this study tests the mediation effect of growth in the relationship between marketing capability and stock returns, this research follows the procedures suggested by Hayes (2013); that is, the effect of independent variable on the mediator and then the effect of the independent variable and the mediator on the dependent variable. Given that this study includes two mediating variables, one moderator

variable and one dependent variable, this research specifies 4 analytical models. Models 1 and 2 include the effect of marketing capability, moderator and control variables on asset growth and profit growth, correspondingly. Model 3 is one of the full models and include the effect of marketing capability, moderator, asset growth and control variables on stock returns. Model 4 is similar to model 3 but includes profit growth instead of asset growth.

Because we aim to account for the effect of *marketing capability*, the current study includes the estimated DEA score in changes ( $\Delta$ ) as an explanatory variable. The current study employs changes of marketing capability to capture the growth potential information that capabilities contain and also the dynamic component of a capability (Anand, Ward, Tatikonda, & Schilling, 2009). Working with changes also allows avoiding problems of spurious regression and controlling for firm-specific information that is not modeled.

By following Anderson, Fornell, and Rust's (1997) procedure (p. 137), we specify in the model the moderating role of retail sector in the relationship between marketing capability and stock returns. The current study also specifies in the model the impact of control variables as additional explanatory variables.

The nature of analytical models demands that we control for dynamic serial correlation (Arellano, 2003; Roodman, 2006). Our study employs generalized least squares and correct estimations for contemporaneous autocorrelation. Recent marketing research has employed a similar methodology to obtain unbiased estimates (Mizik & Jacobson, 2008).

## 4. Data and operationalization of variables

### 4.1. Sample

In this research, the unit of analysis is the firm. The marketing, financial, and control data variables cover seven consecutive years, from 2000 to 2006. This period of analysis occurs before the financial crisis so that the analysis of the impact of marketing capabilities on stock returns is not biased by major external shocks. After merging data from various sources, the current study gathers 270 complete observations in levels and 206 observations in changes ( $\Delta$ ) during the period of analysis.

Table 2 shows the distribution of our sample by industry. The sample consists of firms from the following two-digit standard industry classification (SIC): food and kindred products, chemicals and allied products, industrial machinery and equipment, communications, building materials, general merchandise stores, food stores, furniture and home furnishings stores, and eating and drinking places. The industry composition matches that in extant literature (e.g., Anderson,

**Table 2**  
Sample distribution by industry.

2-digit SIC	SIC major groups (2-digit)	Examples of sampled companies	Number of observations
20	Food and kindred products	Anheuser Busch/ Coca-Cola/Kellogg	74
28	Chemicals and allied products	Colgate-Palmolive	18
35	Industrial machinery and equipment	Dell	14
37	Transportation equipment	Toyota	46
48	Communications	AT & T	19
52	Building materials	Lowe's	11
53	General merchandise stores	Kohl's	40
54	Food stores	Safeway	18
57	Furniture and home furnishings stores	Best Buy	7
58	Eating and drinking places	Burger King	23
–	Total	–	270

**Table 3**  
Variables and sources of data.

Variable	Operationalization	COMPUSTAT codes	Sources of information
Monthly stock return	$R_{im} = [(P_{im} + D_{im}) - P_{i(m-1)}] / - P_{i(m-1)}$ , where $P_{im}$ is the split adjusted price of stock $i$ at the last day of trade of month $m$ , $D_{im}$ is dividends from stock $i$ at the month $m$ , and $P_{i(m-1)}$ is the split adjusted price of stock $i$ at the last day of trade of month $m-1$	$\{[(PRCCM_{im} + DVPSPM_{im}) \times RAWPM] - PRCCM_{i(m-1)}\} / PRCCM_{i(m-1)}$	CRSP
Risk free return, market return, SMB, and HML	As obtained from website of Kenneth French	–	–
CAR	Logarithm of cumulative abnormal stock returns resulted from Eq. (3)	–	Self-estimated
Asset growth	Change of logarithm of total assets	Log (AT)	COMPUSTAT
Profit growth	Change of the ratio of income before extraordinary items to total assets	IB/AT	COMPUSTAT
Retail	Binary variable (0 = non-retail)	SIC	COMPUSTAT
MC	Logarithm of marketing capability resulted from bootstrap inter-temporal output-oriented DEA by industry.	–	Self-estimated
Advertising	Inputs: advertising, promotion. Outputs: customer satisfaction, sales, and sales growth Sum of advertising expenditures in television, radio, print, outdoor, and Internet	–	“100 Leading National Advertisers” by Advertising Age
Promotion	Sum of expenditures in direct marketing, sales promotion, co-op spending, coupons, catalogs, product placement, and special events	–	“100 Leading National Advertisers” by Advertising Age
Customer satisfaction	Firm's ACSI	–	National Quality Research Centre at the University of Michigan
Sales	Total annual sales	SALE	COMPUSTAT
Sales growth	Two-year compounded sales growth.	SALE	COMPUSTAT
Leverage	The ratio of long-term debt to the sum of long-term debt and market value of equity	DLTT/(DLTT + [prcc_f × CSHO])	COMPUSTAT
R & D	The ratio of R & D expenses to total assets	XRD/AT	COMPUSTAT
Liquidity	The current ratio of a firm	ACT/LCT	COMPUSTAT
HHI	Industry concentration based on Hirschman–Herfindahl index on two-digit Standard Industrial Classification	–	COMPUSTAT, self-estimated

Fornell, & Mazvancheryl, 2004; Tuli & Bharadwaj, 2009).

Table 3 provides the variables, their operationalization, data codes when applicable, and the sources of data. This study makes use of secondary data. Financial and control data came from COMPUSTAT and the CRSP. Marketing data came from different sources, as specified subsequently.

## 4.2. Operationalization of variables

### 4.2.1. Stock returns

The current study employs CRSP monthly data to compute stock returns. This study computes monthly stock returns ( $R_{im}$ ) as  $R_{im} = [(P_{im} + D_{im}) - P_{i(m-1)}] / P_{i(m-1)}$ , where  $P_{im}$  is the split adjusted price of stock  $i$  on the last day of trade of month  $m$ ,  $D_{im}$  is dividends from stock  $i$  at month  $m$ , and  $P_{i(m-1)}$  is the split adjusted price of stock  $i$  on the last day of trade of month  $m-1$ .

### 4.2.2. Risk free return ( $R_{rf}$ ), market return ( $R_{mk}$ ), $SMB_m$ , and $HML_m$

The current study obtains monthly data of these four variables from Kenneth French's website (see [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html)).

### 4.2.3. Cumulative abnormal stock returns

This research uses the logarithm of cumulative abnormal stock returns obtained in Eq. (3) detailed above. Cumulative abnormal stock returns are the dependent variable of this study.

### 4.2.4. Asset growth

This study uses the yearly changes ( $\Delta$ ) of the logarithm of total

assets. Asset growth is a mediator variable in this research.

### 4.2.5. Profit growth

This study employs the yearly changes ( $\Delta$ ) of return on assets (ROA) as the measure of profit growth. In particular, ROA is the ratio of earnings before extraordinary items to total assets. Profit growth is a mediator variable in the current research.

### 4.2.6. Marketing capability

Marketing capability is the main independent variable in this study. We employ the logarithm of the DEA score. In order to estimate marketing capability, we use *advertising and promotion* as inputs in the DEA estimation. We employ published data from the “100 Leading National Advertisers” 2001–2007 reports provided by Advertising Age. In particular, we employ total advertising expenditures and total promotion expenditures. We use *customer satisfaction* as an output in the DEA model. We use the ACSI data published by the University of Michigan. In this index, customer satisfaction is a latent variable that results from perceived quality, perceived value, and customer expectations (for details, see Fornell, Johnson, Anderson, Cha, & Bryant, 1996). We also use *sales and sales growth* as the other two outputs in the DEA model. We use the sales level and sales growth; to calculate sales growth, following the standard procedures of Barth, Clement, Foster, and Kasznik (1998) and Rao et al. (2004), which rely on two-year compounded sales growth.

### 4.2.7. Retail

This is a binary variable, where 0 = non-retail and 1 = retail. Firms competing in 2-digit SIC 20, 28, 35, 37, and 48 were classified as non-retail companies; while firms competing in 2-digit SIC 52, 53, 54, 57,

and 58 were classified as retail companies. Table 2 shows some examples of companies in those sectors.

4.2.8. Financial leverage, R & D and liquidity

Financial leverage is the ratio of total long-term debt to market value of equity. The current study deflates R&D by total assets. Liquidity is the ratio of total current assets to total current liabilities. In accounting terms, this ratio is also called “current ratio”.

4.2.9. Hirschman–Herfindahl index

The current study calculates the Hirschman–Herfindahl index of the industry in which the firm operates according to its two-digit Standard Industrial Classification (Schmalensee, 1977).

5. Results

After running 2000 replications of the inter-temporal output-oriented DEA, findings reveals that the average score of the marketing capability is 1.04, for all firms included in our sample across all years of analysis. This score suggests that firms still have room for improving marketing capabilities such that at the same level of advertising and promotion expenditures, firms are 4% inefficient of optimally maximizing marketing resources into sales, sales growth, and customer satisfaction. Table 4 presents descriptive statistics and the correlation matrix of the variables (in variations). As mentioned in Section 4.1, the current study uses 206 observations along the year of analysis (47 firms).

5.1. The mediating effect of asset and profit growth on the relationship between marketing capability and abnormal stock returns

Table 5 provides the estimations of analytical models presented in Section 3.5. Model 1a indicates that in general marketing capability has a significant and positive effect on asset growth (0.954,  $p < 0.05$ ). However, model 2a shows that marketing capability does not have a significant effect on profit growth (0.095,  $p > 0.10$ ). Model 3a reveals that asset growth (0.376,  $p < 0.001$ ) and marketing capability (1.517,  $p < 0.05$ ) have significant effects on abnormal stock returns. Model 4a shows that profit growth (2.435,  $p < 0.001$ ) and marketing capability (1.481,  $p < 0.05$ ) have significant and positive effects on abnormal stock returns. In other words, marketing capability has a direct effect on abnormal stock returns but also an indirect effect on abnormal stock returns through asset growth. We tested the significance of the asset growth indirect effect following Hayes (2013) by applying bootstrap bias corrected estimations for the indirect effects using 5000 random samples. We find that the indirect effect has a bias corrected confidence interval that lies between 0.001 and 1.222, at 90% confidence level. These findings indicate that only asset growth significantly mediates the relationship between marketing capability and abnormal stock returns. Findings also indicate that marketing capability has direct effects on abnormal stock returns. Taken together, these findings demonstrate that marketing capability is indirectly related to abnormal stock returns

Table 4  
Descriptive statistics and correlation matrix.

Variables	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9
1. CAR <sub>it</sub>	-0.028	0.255	-1.46	0.788	1								
2. Asset growth ( $\Delta$ Assets <sub>it</sub> )	0.09	0.201	-0.615	1.262	0.055	1							
3. Profit growth ( $\Delta$ ROA <sub>it</sub> )	0.002	0.032	-0.103	0.23	0.414	-0.379	1						
4. $\Delta$ MC <sub>it</sub>	0.002	0.025	-0.066	0.101	0.066	0.131	-0.011	1					
5. Retail	0.38	0.486	0	1	-0.02	-0.075	0.105	-0.03	1				
6. $\Delta$ Leverage <sub>it</sub>	-0.003	0.08	-0.794	0.252	-0.438	0.391	-0.524	0.09	-0.128	1			
7. $\Delta$ R & D <sub>it</sub>	-0.000	0.003	-0.024	0.011	-0.044	-0.387	0.201	-0.033	0.087	-0.095	1		
8. $\Delta$ Liquidity <sub>it</sub>	-0.008	0.245	-2.146	0.71	0.034	-0.354	0.27	-0.127	-0.062	-0.094	0.03	1	
9. $\Delta$ HHI <sub>it</sub>	0.001	0.013	-0.112	0.033	0.006	0.064	0.01	0.111	0.172	-0.061	-0.142	0.004	1

through asset growth, supporting H<sub>1</sub>.

5.2. The moderating role of the retail industry on the relationship between marketing capability and abnormal stock returns

As mentioned in Section 3.5, we follow Anderson et al.'s (1997) moderating procedure when the moderator is a binary variable. In Table 5, model 1b shows that marketing capability of non-retail firms has a significant effect on asset growth (0.702,  $p < 0.10$ ). Model 2b indicates that marketing capability of retail firms has a significant effect on profit growth (0.187,  $p \leq 0.10$ ). Models 3b and 4b indicate that the marketing capability of retail firms has a positive and significant effect on abnormal stock returns (3.206,  $p < 0.001$  and 2.636,  $p < 0.01$ , respectively). In model 3b asset growth has a significant effect on abnormal stock returns (0.395,  $p < 0.001$ ), while in model 4b profit growth has a positive effect on abnormal stock returns (2.32,  $p < 0.001$ ). In other terms, marketing capability of non-retail firms has an indirect effect on abnormal stock returns through asset growth, while marketing capability of retail firms has an indirect on abnormal stock returns via the mediation of profit growth. We tested the significance of these indirect effects following Hayes (2013). We employed bootstrap bias corrected estimations for the indirect effects using 5000 random samples. We find that the indirect effect of asset growth for non-retail firms has a bias corrected confidence interval that lies between 0.028 and 1.51, at 90% confidence level; while the indirect effect of profit growth for retail firms is not statistically significant at  $p < 0.10$ .

These results indicate that marketing capability of retail firms has only a direct effect on abnormal stock returns. Findings also indicate that marketing capability of non-retail firms has a significant indirect effect on abnormal stock returns through the mediation of asset growth. Together, these results support H2a that marketing capability of retail firms has a higher effect on profit growth than that of non-retailing firms. Results also support H2b that the relationship between marketing capability and abnormal stock returns is higher for retailing firms than for non-retailing firms (including both direct and indirect effects).

In general, the coefficients of the control variables are significant and similar to the ones found in current research. Leverage has a negative effect (-1.34,  $p < 0.01$ ) on abnormal stock returns. Liquidity does not have significant effects on abnormal stock returns. Industry concentration shows the expected sign of effect, though it is statistically insignificant. The variance inflation scores fall within the acceptable range. The abnormal stock return models have good fits on the basis of Wald  $\chi^2$ .

5.3. Robustness check

The current study assesses the robustness of findings using an additional measure of abnormal stock returns. Research suggests the need to use additional measures of abnormal stock returns to validate findings. Thus, the current study uses continuously compounded abnormal stock returns (CCARs) (see Fama & French, 1993). We measure CCAR<sub>it</sub>



**Table 5**  
Marketing capability, growth and cumulative abnormal stock returns.

	Model 1a	Model 1b	Model 2a	Model 2b	Model 3a	Model 3b	Model 4a	Model 4b
	Asset growth ( $\Delta\text{Assets}_{it}$ )	Asset growth ( $\Delta\text{Assets}_{it}$ )	Profit growth ( $\Delta\text{ROA}_{it}$ )	Profit growth ( $\Delta\text{ROA}_{it}$ )	$\text{CAR}_{it}$	$\text{CAR}_{it}$	$\text{CAR}_{it}$	$\text{CAR}_{it}$
	Estimates (p-value)	Estimates (p-value)	Estimates (p-value)	Estimates (p-value)	Estimates (p-value)	Estimates (p-value)	Estimates (p-value)	Estimates (p-value)
Profit growth ( $\Delta\text{ROA}_{it}$ )							2.435 (0.000)	2.32 (0.000)
Asset growth ( $\Delta\text{Assets}_{it}$ )					0.376 (0.000)	0.395 (0.000)		
$\Delta\text{MC}_{it}$	0.954 (0.05)		0.095 (0.228)		1.517 (0.017)		1.481 (0.019)	
$\Delta\text{MC}_{it}$ xRetail		0.702 (0.34)		0.187 (0.10)		3.206 (0.000)		2.636 (0.005)
$\Delta\text{MC}_{it}$ x(1-Retail)		1.16 (0.074)		0.006 (0.957)		0.038 (0.964)		0.525 (0.53)
$\Delta\text{Leverage}_{it}$	0.854 (0.000)	0.861 (0.000)	- 0.277 (0.000)	- 0.277 (0.000)	- 1.926 (0.000)	- 1.968 (0.000)	- 1.014 (0.000)	- 1.061 (0.000)
$\Delta\text{R} \& \text{D}_{it}$	- 22.987 (0.000)	- 22.908 (0.000)	1.465 (0.01)	1.448 (0.011)	2.04 (0.684)	1.969 (0.691)	- 9.937 (0.035)	- 10.107 (0.031)
$\Delta\text{Liquidity}_{it}$	- 0.01 (0.389)	- 0.009 (0.411)	- 0.000 (0.883)	- 0.000 (0.804)	0.083 (0.222)	0.106 (0.117)	- 0.076 (0.244)	- 0.062 (0.342)
$\Delta\text{HHI}_{it}$	0.693 (0.484)	0.705 (0.476)	0.024 (0.867)	0.021 (0.883)	- 0.695 (0.556)	- 0.762 (0.516)	- 0.571 (0.632)	- 0.602 (0.613)
Constant	0.071 (0.013)	0.07 (0.014)	- 0.006 (0.173)	- 0.006 (0.209)	- 0.086 (0.018)	- 0.08 (0.025)	- 0.047 (0.193)	- 0.043 (0.231)
Year effects ( $\lambda,t$ )	Included	Included	Included	Included	Included	Included	Included	Included
N	208	208	208	208	206	206	206	206
Wald $\chi^2$	87.55 (0.000)	87.76 (0.000)	159.30 (0.000)	159.32 (0.000)	92.67 (0.000)	100.43 (0.000)	91.65 (0.000)	95.03 (0.000)
Method of estimation	GLS	GLS	GLS	GLS	GLS	GLS	GLS	GLS

Notes: Year effects refer to the range from 2000 to 2006. GLS = generalized least squares.

as follows:

$$\text{CCAR}_{it} = \prod_{m=12}^m (1 + \text{AR}_{im}) \quad (4)$$

where  $\text{CCAR}_{it}$  are annual CCARs of stock  $i$  in year  $t$ . This study specifies CCAR as a one-quarter-ahead measure of fiscal-year end (see Eq. (3)), and  $\text{AR}_{im}$  is the result of Eq. (2), as previously specified.

Table 6 shows the results of the robustness test, which suggest that previous findings are valid; that is, marketing capability continues to have a significant effect on abnormal stock returns (0.553,  $p < 0.05$  in model 5a and 0.949,  $p < 0.001$  in model 6a). The effects of mediator variables are also significant on abnormal stock returns. Results also further verify that marketing capability of retail firms has a positive and significant effect on abnormal stock returns (1.663,  $p < 0.001$  in model 5b and 1.756,  $p < 0.001$  in model 6b). Findings of robustness tests further demonstrate previous results and support H1, H2a and H2b.

We also run additional tests on the non-linear effects of marketing capability,<sup>1</sup> and find that the effect is not non-linear. We also run models excluding controls (liquidity, leverage, R & D, HHI, and Year)<sup>2</sup> in order to test the stability of our model. Results are stable.

## 6. Discussion and conclusion

This research investigates how marketing capabilities affect long-term financial performance. Asset growth mediates the relationship between marketing capabilities and stock returns. Asset growth also mediates the relationship between marketing capabilities of non-retail firms and stock returns. Importantly, marketing capabilities in general and marketing capabilities of retail firms in particular have a direct impact on stock returns.

### 6.1. Implications for managers and retail organizations

The results have several implications for practitioners. Our study finds support for the hypothesis that marketing capability has a positive

relationship with stock returns through the mediation of firm growth. In particular, we find that asset growth is a significant mediator. We also find that marketing capability has a direct impact on stock returns. Our findings therefore suggest that marketing capabilities affect financial performance in the long run. This study demonstrates that marketing capabilities provide information on asset growth which in turn affects stock returns. These critical findings may help firms address the challenge of attracting and retaining investors (Opinion Research Corporation, 2008). If firms concentrate their marketing efforts on growing marketing capabilities and most importantly informing the market about this improvement and its significant relation with asset growth, the market will notice and thus motivate current investors to stay with the stock and future investors to purchase the stocks.

Marketing researchers and managers of organizations can employ the DEA bootstrap method to measure marketing capability. Although the basic DEA may generate biased estimations, DEA bootstrap overcomes this issue and can capture a process that is normally unobservable. Therefore, DEA allows for the measurement of deployments of different resources to serve customers better, helping open the black box of a particular capability. In other words, DEA methods indicate how well a firm is spending resources to achieve desired outcomes. DEA methods are also critical for benchmarking. Managers can compare the performance of their organizations with their competitors and find which organizations are doing better which may help them notice critical best practices.

### 6.2. Implications for marketing theory and research

Findings from this work are consistent with management literature, RBV and RBV in marketing. This study finds that marketing capabilities have a significant direct impact on firms' performance (e.g., Kozlenkova et al., 2014). Arguably, the intangible characteristic of capabilities play a crucial role in sustaining the firm's competitive advantage and creating firm value (Amit & Schoemaker, 1993; Barney, 1991; Daniel & Titman, 2006; Day, 1994; Helfat & Peteraf, 2003; Srivastava et al., 2001; Winter, 2000; Zollo & Winter, 2002). However, this study contributes to resource-based view theory in marketing by demonstrating that it is not only the intangible characteristic of marketing capabilities, but also the growth potential that marketing capabilities

<sup>1</sup> We thank an anonymous reviewer for suggesting this additional test.

<sup>2</sup> We appreciate the suggestion of another reviewer.

**Table 6**  
Marketing capability, growth and continuously compounded abnormal stock returns.

	Model 5a	Model 5b	Model 6a	Model 6b
	CCAR <sub>it</sub>	CCAR <sub>it</sub>	CCAR <sub>it</sub>	CCAR <sub>it</sub>
	Estimates (p-value)	Estimates (p-value)	Estimates (p-value)	Estimates (p-value)
Profit growth ( $\Delta ROA_{it}$ )			2.43 (0.000)	2.386 (0.000)
Asset growth ( $\Delta Assets_{it}$ )	0.502 (0.000)	0.538 (0.000)		
$\Delta MC_{it}$	0.553 (0.038)		0.949 (0.000)	
$\Delta MC_{it}$ xRetail		1.663 (0.000)		1.756 (0.000)
$\Delta MC_{it}$ x(1-Retail)		- 0.764 (0.037)		0.31 (0.418)
$\Delta Leverage_{it}$	- 2.518 (0.000)	- 2.665 (0.000)	- 1.325 (0.000)	- 1.344 (0.000)
$\Delta R$ & $D_{it}$	3.649 (0.123)	3.522 (0.089)	- 13.483 (0.000)	- 12.88 (0.000)
$\Delta Liquidity_{it}$	0.053 (0.098)	0.037 (0.267)	0.038 (0.12)	0.035 (0.161)
$\Delta HHI_{it}$	- 0.78 (0.155)	- 1.131 (0.031)	- 0.441 (0.471)	- 0.635 (0.31)
Constant	- 0.087 (0.000)	- 0.08 (0.000)	- 0.035 (0.035)	- 0.031 (0.069)
Year effects ( $\lambda t$ )	Included	Included	Included	Included
N	208	208	208	208
Wald $\chi^2$	304.9 (0.000)	349.45 (0.000)	235.40 (0.000)	335.71 (0.000)
Method of estimation	GLS	GLS	GLS	GLS

Notes: Year effects refer to the range from 2000 to 2006. GLS = generalized least squares.

exhibit that help explain higher stock returns. Additionally, given that one of our findings indicate that marketing capability has a direct impact on stock returns, future research needs to focus on unpacking other mechanisms that explain how marketing capabilities affect stock returns.

This study complements extant marketing literature that study the direct effect of marketing capabilities on firms' performance. The current study examines mediating mechanisms on the relationship between marketing capabilities and long-term financial performance, and finds that asset growth is a critical mechanism that explain how marketing capabilities affect stock returns. Therefore this study adds an important dimension to the performance implications of marketing capabilities. Clearly, we need more studies on the different mechanisms that help explain how marketing capabilities impact short and long term performance. The latest published special issue of the European Journal of Marketing (issue 12, 2016) is a great example to the study of mediating effects (e.g., Agic et al., 2016; Frösén & Tikkanen, 2016).

Our study finds support for the hypotheses that the relationship between marketing capability and asset growth is higher for retailing firms than for non-retailing firms, and that the relationship between marketing capability and stock returns is higher for retailing firms than for non-retailing firms. These findings complement and empirically validate the marketing chain approach proposed by Keller and Lehmann (2003) and Rust et al. (2004). This study also goes beyond the concept of a subjective marketing capability (e.g., Song, Di Benedetto, & Nason, 2007; Vorhies & Morgan, 2005), as well as the conceptualization of a sales capability, which conceives of sales as the immediate goal of marketing activities (e.g., Dutta et al., 1999; Narasimhan et al., 2006). The current study shows that marketing capabilities focused not only on sales but also on customer satisfaction leads to superior financial performance in terms of abnormal stock returns. This effect is more relevant for retailing firms than for non-retailing firms, so when doing research on performance of the firms in retail industry we should consider the role that marketing capabilities plays in developing and implementing strategy that help the managers of these companies to face the challenges in the dynamic retail markets.

Finally, this work empirically supports the comparative advantage theory of competition (Hunt & Morgan, 1995) and contributes to the competitive position matrix with evidence from marketing. Firms that can transform advertising and promotion into customer satisfaction more effectively than their competitors can enjoy greater long-term performance. Researchers should take advantage of this framework to confirm the content validity of the characterizations of the different resources a firm manages.

### 6.3. Limitations and opportunities for further research

This study has several limitations that provide worthwhile opportunities for further research. First, the sample firms are all large, and therefore research should examine small and medium-sized firms. Second, the present study gathered secondary data on customer satisfaction, whereas primary research (e.g., surveys) could amplify the understanding of marketing capability and its effect on financial performance. Third, the measure of marketing capability used might extend to include other marketing resources, such as product development and intermediary efforts, and other metrics of marketing-specific end results, such as channel equity and customer service (Srivastava et al., 2001). Fourth, further research should investigate how to improve marketing capability, perhaps by turning to the knowledge-based view of the firm. Marketing dynamics and organizational learning might help reveal why some firms earn more financial earnings from their marketing capability than others. Fifth, budget approaches employed by firms can challenge results. Future research can employ the allocative efficiency methodology to solve this issue; research needs to have access to very detailed data on expenses per item. Finally, our data is focused on a period before recession, future research can focus on how marketing capability varies before and after recession.

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