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The interest in the value relevance of marketing investments has given rise to numerous studies on the marketing–finance interface. This study integrates extant research findings and establishes empirical generalizations on marketing's impact on firm value. Specifically, the authors conduct a meta-analysis of prior econometric elasticity estimates of the stock market impact of marketing actions and marketing assets. Analyses based on 488 elasticities drawn from 83 studies reveal a mean elasticity of .04 for advertising expenditure variables and of .54 for marketing asset variables. Among marketing assets, customer-related assets show a higher mean elasticity of .72, compared with .33 for brand-related assets. Further analyses show that advertising elasticities are lower in more concentrated industries and that marketing asset elasticities are higher during recession times. Researchers should also be aware that characteristics of the research design (e.g., the type of firm value metric used, the omission of control variables, or not accounting for endogeneity) may affect the estimation results.

Keywords: meta-analysis, marketing firm value elasticity, empirical marketing generalizations, hierarchical linear model

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Marketing's Impact on Firm Value: Generalizations from a Meta-Analysis

Ever-increasing pressure by the capital market, growing doubts about the effectiveness of marketing programs, and the fact that marketing expenditures are directly regarded as costs on firms' income statements have forced the marketing profession to prove its value relevance (see, e.g., Marketing Science Institute's research priorities from 2014 to 2016). Numerous studies have indicated that marketing action variables such as advertising expenditures (e.g., Joshi and Hanssens 2010) and marketing asset[1] variables such as customer satisfaction (e.g., Anderson, Fornell, and Mazvancheryl 2004) or brand equity (e.g., Barth et al. 1998) indeed have a positive effect on firm value, conceptualized as a firm's stock market valuation.

Although there are several well-established empirical generalizations for sales response elasticities (e.g., Bijmolt, Van Heerde, and Pieters 2005 [price]; Sethuraman, Tellis, and Briesch 2011 [advertising]), no such elasticity generalizations exist with regard to the important performance metric of firm value. Thus, the first key contribution of this study is to integrate the findings of previous econometric studies and to identify and compare mean effect sizes for marketing action and marketing asset variables. Empirical generalizations are valuable for both scholars and practitioners. For researchers,

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[1]Throughout this article, we adopt Srivastava, Shervani, and Fahey's (1998, p. 2) definition of marketing assets as those "that arise from the commingling of the firm with entities in its external environment." This understanding includes both financial (e.g., customer equity, brand equity) and nonfinancial (e.g., customer satisfaction, brand attitude) metrics.

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they express what has been learned in the marketing–finance field over the last 35 years. Marketing managers can use the mean effect sizes as supporting arguments both within and outside the firm to increase marketing's accountability. Investors and analysts can incorporate mean effect sizes as reference values into their valuation models (e.g., Schulze, Skiera, and Wiesel 2012).

Following the standard of sales response meta-analyses, we use the marketing firm value elasticity as the effect size measure. This measure expresses the percentage change in firm market valuation in terms of a 1% increase of the marketing input variable. It is unit free and makes estimation results comparable across a wide range of studies. However, we observe an important difference between our study and prior meta-analyses on sales response elasticities. Note that firm value is a profit measure that derives from discounted expected future cash flows. Whereas the relationship between sales and marketing effort is monotonic, the relationship between firm value and marketing effort is not. Because marketing effort has both positive and negative (cost) effects on profit and cash flows, respectively, the profit curve has a maximum that is associated with the optimal level of marketing effort. This has implications for the interpretation of firm value elasticity findings, which is not as straightforward as it is for sales elasticities. For example, a null finding does not necessarily imply that marketing effort has no impact on firm value. It may rather express that marketing is operating at an optimal level, which implies a marketing firm value elasticity of zero.[2] Following this efficiency argument, a negative elasticity signals that the firm is overinvested in the marketing activity or asset, whereas a positive elasticity suggests that the firm is underinvested. Thus, unlike sales response meta-analyses, our study also allows for drawing generalizable conclusions about the optimality of firm marketing behavior.

However, differences in firm value elasticities cannot be explained by disparities in optimality alone. Assume that two marketing variables are set at approximately the same efficiency level; a gap between elasticities may still result from a different power to drive firm value. Thus, we also need to incorporate this perspective, which we call the effectiveness argument, when interpreting the empirical findings. Throughout this article, we consider both the efficiency and the effectiveness arguments to develop our hypotheses and explain the meta-analytic findings.

Comparing results from individual empirical studies is a complex task for several reasons: First, researchers can operationalize the dependent firm value variable as market capitalization, the ratio of intangibles to tangibles (Tobin's q or market-to-book ratio), or stock return (percentage change in stock prices). Autocorrelation issues should have a more severe effect on level than on change metrics. Second, model specification differs between studies. Whereas some studies incorporate only balance sheet variables (e.g., book value of assets), others also control for income statement items (e.g., earnings). This may reduce a potential omitted-variable bias. Third, industry and temporal characteristics are not the same across studies. Different conditions in services versus durable goods industries or recessionary versus nonrecessionary periods may produce different firm value effects of marketing variables.

Thus, the second contribution of this study is to identify determinants of advertising expenditure and marketing asset elasticities related to substantive influences (e.g., product type, region) and to identify design characteristics (e.g., the type of firm value variable used). These results may provide managers with guidelines to determine, for example, under which circumstances marketing investments are more or less effective. Marketing researchers can use the research design results to prevent biases in future marketing–finance studies (e.g., accounting for endogeneity) or to interpret the results from studies that apply different methodological approaches (e.g., use of different firm value variables) correctly.

We structure the remainder of this article as follows: First, we provide a brief overview of the marketing–finance research stream. We then define the scope of the study and describe the literature search procedure and the database we generated. Then, we provide the research framework for the meta-analysis. This is followed by the description of the meta-analytic model and the presentation of descriptive statistics and estimation results. We conclude with a discussion of the study's implications and limitations as well as suggestions for further research.

RESEARCH ON MARKETING AND FINANCE

Marketing Value Chain

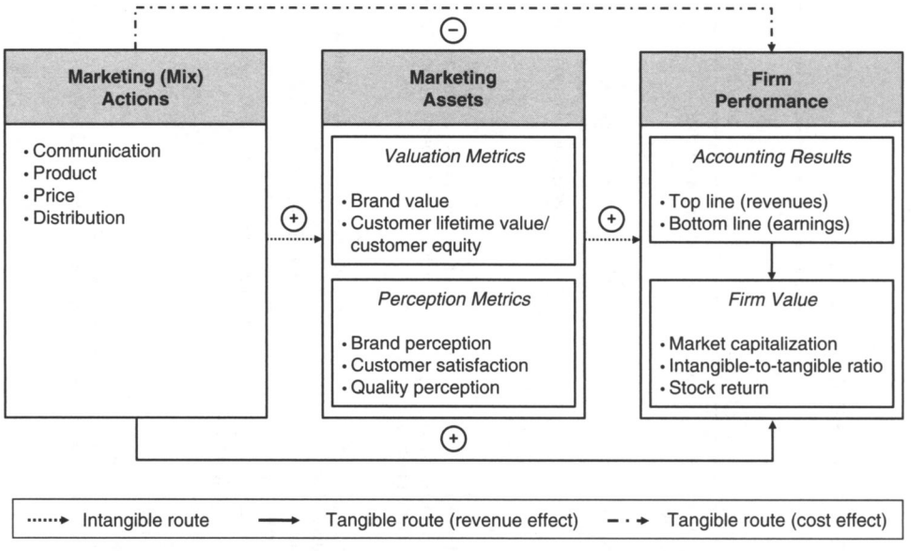
Broadly speaking, the marketing–finance research stream addresses the influence of marketing actions and marketing assets on firm value (Srinivasan and Hanssens 2009). Our underlying conceptual rationale is that marketing creates value for the firm according to the theoretical framework presented in Figure 1. We distinguish between the following three major categories of decision and performance variables:

1. Marketing actions refer to decision variables along the marketing mix. They are under direct control by marketing managers. Investors typically observe these actions and their associated cost; however, the effect on firm performance is less obvious to them.
2. Marketing assets result from the relationship between the firm and important external stakeholders such as customers and retailers. The asset enables the firm to implement and exploit strategies for improving its efficiency and effectiveness in the future (Srivastava, Shervani, and Fahey 1998). It represents an important intermediate outcome variable that is driven by marketing investments. Marketing assets are not as transparent as marketing actions to the investor community, which is largely due to the lack of generally accepted measurement standards. On the one hand, the value of brands and customers can be measured in monetary terms. On the other hand, there are perceptual measures available, such as brand image or customer satisfaction, which describe the strength of the assets in psychological terms.
3. Firm performance refers to a company's accounting (top line and bottom line) and stock market performance. Because firm value is a future-oriented and cash-based measure, it is regarded as the ultimate performance measure (Rappaport 1998).

Prior work has investigated two routes of value creation by marketing (Hanssens et al. 2014). The first route can be

[2]Let $\Pi(X)$ denote firm value that depends on marketing effort, X. Firm value elasticity is defined by $\varepsilon_{\Pi,X} = (d\Pi(X)/dX)(X/\Pi)$. At the optimum, the first-order condition $d\Pi(X)/dX = 0$ must hold. From this condition, it follows $\varepsilon_{\Pi,X} = 0$, assuming that optimal X and Π are both strictly positive.

Figure 1
THEORETICAL FRAMEWORK



described as tangible or direct. A vast stream of research has investigated the effect of marketing actions on top-line results (i.e., sales and revenues) without accounting for intermediate asset metrics (for an overview, see Hanssens, Parsons, and Schultz 2001). The effect is generally assumed to be positive—that is, investments in marketing lead to a positive sales response. At the same time, marketing actions induce costs, leading to a negative direct effect on bottom-line results. These opposing effects have motivated marketing–finance researchers to investigate the relationship between marketing action variables and firm value to demonstrate whether the revenue or cost effect dominates. Regarding the most-often studied variable, advertising expenditures, most studies have reported a positive effect on firm value (e.g., Joshi and Hanssens 2010), but some studies have found a negative effect (e.g., Lu and Beamish 2004).

The second route, the intangible or indirect route, accounts for the notion that marketing actions usually first lead to a change in customers' mindset, which in turn results in purchase decisions and thus in higher revenues, profits, and eventually firm value. Recent "mindset metric" research (e.g., Hanssens et al. 2014; Stahl et al. 2012) has overcome the limitations of previous studies that have focused on pairwise relationships between marketing actions and marketing assets (e.g., Yoo, Donthu, and Lee 2000) and marketing assets and firm performance (e.g., Anderson, Fornell, and Mazvancheryl 2004; Barth et al. 1998). Their results support the coexistence of both a tangible, direct route and an intangible, indirect route of value creation through marketing initiatives.

Prior Review Studies

Table 1 positions our meta-analytic study relative to existing review studies on the marketing–finance interface. Srinivasan and Hanssens (2009) provide a rigorous conceptual structure of the marketing–finance research and the first narrative summary of empirical findings. The handbook edited by Ganesan (2012) extends Srinivasan and Hanssens's work by providing detailed reviews of the literature in specific areas such as product innovation, advertising, and so on. These conceptual reviews improve our understanding of the marketing–finance interface. However, they do not produce empirical generalizations that can be obtained from a meta-analytic approach.

Conchar, Crask, and Zinkhan (2005) provide the first meta-analysis of empirical marketing–finance work. This analysis focuses on the effect of advertising expenditures on firm value and offers insightful generalizations about the role of advertising for generating firm value. Our study is also quantitative in nature and complements and extends prior work in important ways. First, in addition to advertising, we collect and analyze firm value effects across many more variables, including brand and customer assets, marketing capabilities, and marketing actions covering price, product, distribution, and online communication. Second, we extend Conchar, Crask, and Zinkhan's sample considerably by including 55 (compared with 15) advertising-related studies. Considering additional marketing variables further increases our sample to 100 studies in total. Finally, we use a different effect size measure, firm value elasticity, and consider new moderators such as the control for endogeneity in empirical models.

DESCRIPTION OF DATABASE

Scope of Study

We defined four criteria for including a study in our meta-analysis: First, the study must use an econometric model. This means that we exclude portfolio analyses (16 studies) in which portfolios are constructed using descriptive statistics

Table 1

OVERVIEW OF EXISTING CONCEPTUAL AND QUANTITATIVE MARKETING–FINANCE REVIEW STUDIES

Authors	*Type of Review*	*Number of Empirical Marketing–Finance Studies Included*	*Publication Dates of Included Studies*[a]	*Dependent Firm Value Variables*	*Independent Marketing Variables*	*Types of Moderator Effects Studied*
Conchar, Crask, and Zinkhan (2005)	Quantitative	15	1978–1997	• Market capitalization • Intangibles-to-tangibles ratio • Stock return	• Advertising and promotional expenditures	• Industry characteristics • Data characteristics • Model characteristics
Srinivasan and Hanssens (2009)	Narrative	42	1980–2009	• Market capitalization • Intangibles-to-tangibles ratio • Stock return • Stock return risk • Cash-flow metrics	• Marketing assets • Marketing actions	• Substantive review regarding several moderating factors (e.g., time characteristics, model characteristics), but no quantitative analysis
Ganesan (2012)	Narrative	Approximately 20 per chapter	1982–2011	• Market capitalization • Intangibles-to-tangibles ratio • Stock return • Stock return risk • Cash-flow metrics	• Brand metrics • Customer metrics • Innovation metrics • Distribution metrics	• Substantive review regarding several moderating factors (e.g., industry characteristics, time characteristics), but no quantitative analysis
The current study	Quantitative	100 (83 used in meta-analytic regression models)	1977–2013	• Market capitalization • Intangibles-to-tangibles ratio • Stock return	• Marketing actions - Advertising[b] - Price - Distribution - Product - Online communication • Marketing assets[b] - Brand-related - Customer-related • Marketing capabilities	• Industry and geographic characteristics • Time characteristics • Data characteristics • Model characteristics • Publication-related characteristics

[a]Publication date refers to the dates when included studies were published. Authors may have used a longer search period to identify relevant studies (e.g., Conchar, Crask, and Zinkhan [2005] searched for studies until 2004).

[b]Sufficient sample size allows for multivariate model analysis.

(e.g., mean brand value ratings) and then compared with regard to their average return. Second, the dependent variable must be firm value or shareholder value, respectively. Although most studies focus on shareholder value that reflects the market value of equity, others consider both the market value of equity and debt (e.g., through the use of Tobin's q). Because shareholder value is the key firm value variable in the vast majority of studies, we use firm value and shareholder value interchangeably throughout this study. We exclude studies with cash flow (8 studies) or risk variables (17 studies) as the dependent variable. Although these metrics are closely related to firm value, they are conceptually different. Third, the model must include at least interval-scaled firm-specific marketing variables (marketing mix, marketing assets, and marketing capabilities). Thus, we exclude event studies that investigate the effect of a categorical independent variable (event occurs or not) because we cannot derive an elasticity estimate from these studies. Fourth, the study must either report elasticities directly or include information that enables us to calculate elasticities (e.g., coefficient estimates and mean values of focal variables are required). Because the reporting of elasticities is much less common for marketing–finance models than for sales response models, we had to calculate elasticities in most cases (for details on these calculations, see the Web Appendix).

Database Compilation

As a starting point, we reviewed all relevant studies included in Conchar, Crask, and Zinkhan (2005) and Srinivasan and Hanssens (2009). Next, we applied a keyword search (e.g., "marketing firm value," "marketing stock return") in several online databases (e.g., EBSCO, Google Scholar). We also did a manual interdisciplinary search in leading journals from marketing, management, finance, and accounting research.[3] To diminish publication bias (Rust, Lehmann, and Farley 1990), we checked the Social Science Research Network working paper database and requested unpublished work from authors who had presented marketing–finance research at major conferences (e.g., Marketing Science Conference, Marketing Strategy Meets Wall Street Conference, Marketing Dynamics Conference). Finally, we conducted a cross-reference search to identify additional relevant studies.

Database Scope

The literature search resulted in the identification of 100 studies published or written (working papers) between 1977 and 2013 that satisfied our criteria. Notably, the proportion of unpublished studies (20%) is substantially larger than the mean proportion in marketing meta-analyses (6%) identified in a study by Eisend and Tarrahi (2014), reducing the risk of a meta-analysis selection bias. The database includes studies using data sets from a time period of 40 years (1971–2011), which stem from North and South America, Europe, and Asia. The 100 studies contribute 621 marketing firm value elasticities. Of these, only 164 (26.4%) are directly reported as elasticities or interpretable as such because of a multiplicative model specification.

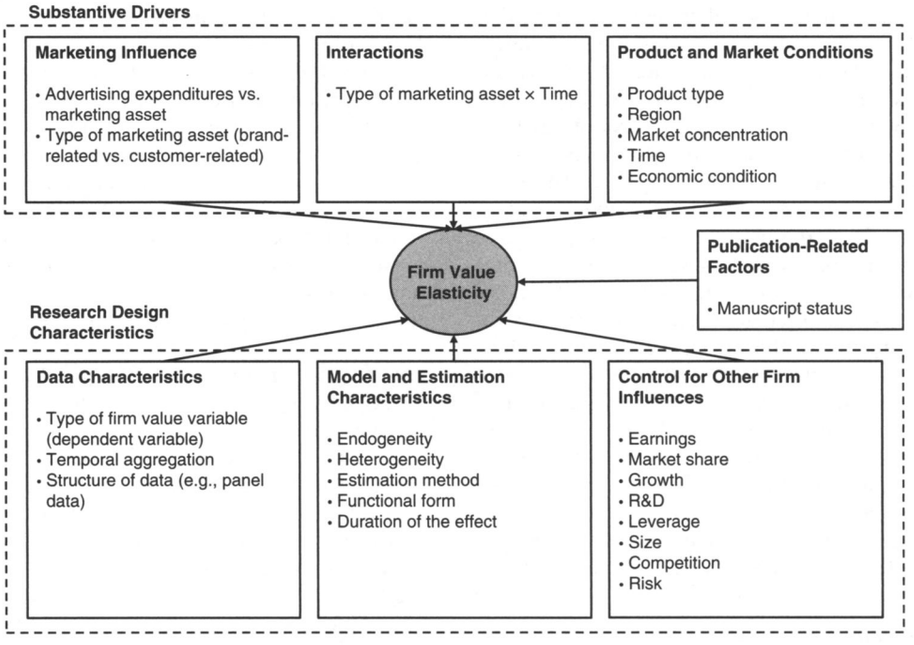
We could not include all 621 elasticities in the subsequent multivariate meta-analysis for the following reasons: First, we identified only few elasticities relating to the marketing action variables product (n = 43 [6.9% of all observations]), online communication (n = 35 [5.6%]), distribution (n = 8 [1.3%]), and price (n = 7 [1.1%]) and to marketing capability variables (n = 32 [5.2%]). Using these elasticities as dependent variables in a multivariate meta-analytic regression model would be unfeasible because of the small number of degrees of freedom. The remaining observations related to the marketing action variable advertising expenditures (n = 298 [48.0%]) and to marketing assets (n = 198 [31.8%]) allow for multivariate analyses. Because advertising expenditures are antecedents to marketing assets, we conduct two separate meta-analyses on these variables. Second, for each of the two types of independent variables, we excluded outliers outside the interval of the mean elasticity plus or minus three standard deviations (Bijmolt, Van Heerde, and Pieters 2005). This results in final sample sizes of 296 advertising expenditure elasticities from 55 studies and 192 marketing asset elasticities from 42 studies. The total sample size of 488 is similar to the sample sizes in previous meta-analyses (e.g., Albers, Mantrala, and Sridhar 2010; n = 506). In the Web Appendix, we list the studies that are included in the meta-analysis.

RESEARCH FRAMEWORK

In Figure 2, we organize the various potential drivers of firm value elasticity in two major categories: substantive drivers and research design characteristics. Substantive drivers explain the variance of elasticities by differences that arise from different marketing activities/assets and from different product and market conditions. Previous meta-analyses (e.g., Sethuraman, Tellis, and Briesch 2011) have shown that the effectiveness of marketing variables varies across product types. In addition, market conditions such as geographic region, recessionary periods, or the structure of competition could affect firm value elasticities. Research design characteristics entail factors that are related to the type of data, modeling and estimation decisions, and the control for other firm influences. A crucial data-related decision includes the choice of the dependent firm value variable—that is, whether to use market capitalization, intangibles-to-tangibles ratio (e.g., Tobin's q), or stock return as the dependent firm value variable. Important questions researchers face concerning model and estimation decisions pertain to whether to account for endogeneity or heterogeneity, which could potentially bias estimated effect sizes. Similarly, we investigate whether the inclusion or omission of important variables such as earnings, market share, or firm growth affects firm value elasticities. We also study the influence of the manuscript status (published or not) on effect estimates. Finally, we consider the interaction effect between time and the type of marketing asset.

[3]Specifically, we reviewed the following leading journals: *Journal of Marketing*, *Journal of Marketing Research*, *Marketing Science*, *Journal of the Academy of Marketing Science*, *International Journal of Research in Marketing*, *Marketing Letters*, *Management Science*, *Administrative Science Quarterly*, *Academy of Management Journal*, *Academy of Management Review*, *Strategic Management Journal*, *Journal of Finance*, *Review of Financial Studies*, *Journal of Financial Economics*, *Journal of Financial and Quantitative Analysis*, *Journal of Accounting and Economics*, *Review of Accounting Studies*, and *The Accounting Review*.

Figure 2
RESEARCH FRAMEWORK



In the following subsections, we offer detailed hypotheses about the role of variables relating to the marketing influence. Specifically, we discuss expected differences in firm value elasticity for advertising expenditures versus marketing assets and for brand-related versus customer-related marketing assets. In addition, we develop hypotheses related to recessions, industry concentration, and the type of firm value variable used. These issues are especially relevant for the marketing–finance research context and have been covered only sporadically, if at all, by previous marketing meta-analyses. Following Sethuraman, Tellis, and Briesch (2011), we summarize our expectations about the influence of all other moderator variables on firm value elasticity estimates in Table 2. Here, we also provide a detailed description of our variable operationalizations and their use in previous meta-analyses. Note that our expectations about a variable's influence on firm value elasticity can differ across the advertising expenditures model (AEM) and the marketing assets model (MAM).

Advertising Expenditures Versus Marketing Assets

Advertising expenditures and marketing assets have different roles in a firm's value-creation process (see Figure 1). Expenditures are a flow variable (i.e., flow of money during a specific period of time), whereas marketing assets are a stock variable (i.e., value of the asset at a specific moment of time) (Hanssens and Dekimpe 2008). As such, they differ considerably with respect to their contribution to the discounted future cash inflows and outflows of the firm. Advertising expenditures represent a current investment into a future uncertain sales uplift. Thus, investors need to trade off between advertising expenditure information (e.g., 10% increase in costs that are directly incurred) and the upside (potential revenue increase). As a result of these opposite effects, the advertising elasticity for firm value should be lower and closer to zero.

The situation is different for marketing assets. According to Srivastava, Shervani, and Fahey (1998), marketing assets can lead to accelerated and enhanced future cash flows that come at a lower risk. For example, firms with strong brands benefit from faster trials of new products and price premiums through a higher perceived value of the offering. Strong customer relationships provide opportunities for loyalty and cross-selling. Recent mindset metrics studies have shown that the long-term sales elasticity of a perceptual asset variable such as "brand liking" is, on average, indeed more than 16 times larger than for advertising (Srinivasan, Vanhuele, and Pauwels 2010). In terms of cash outflows, investors will evaluate investments in marketing assets as more beneficial than advertising expenditures for two reasons. First, the costs of achieving a lift in a marketing asset (e.g., 10% increase in brand equity) were incurred in the past and have no bearing for the future profitability of the firm. Second, because marketing assets are much more "sticky" than advertising expenditures (Hanssens et al. 2014), there is less need for future investments to keep them at a certain level than for advertising. Given that firms benefit more from marketing assets than from advertising expenditures in terms of future revenues and suffer less with respect to current and future costs, we expect this difference in effectiveness to translate to higher firm value elasticities for marketing assets than for advertising expenditures.

Table 2
MODERATOR VARIABLES USED IN THE META-ANALYTIC MODELS

Variable/Levels	*Operationalization*	*Expected Relationship*		*Precedence*[a]
		AEM	*MAM*	
Substantive Drivers				
Marketing Influence				
Type of marketing asset variable • Brand-related asset • Customer-related asset	Trademark-related variables, perceptual brand equity (e.g., brand attitude), and financial brand equity are coded as brand-related assets. Customer satisfaction and customer equity are coded as customer-related assets.	N.A.	See H_2 in the text	
Product and Market Conditions				
Product type • Mix of product types • Only durables • Only nondurables • Only services	Indicates whether the data set firms are from various industries and whether they are durables, nondurables, or services firms. In the MAM, the first three categories are combined to an "Other" group because of low frequency.		No prior expectations	AMS, BHP, CFH, and STB
Geographic region • United States • Other	Captures the geographic region from which stock market data were taken. The group "Other" includes the regions Europe, Asia, South America, and worldwide that are merged together because of a low number of observations.		No prior expectations	AFL, AMS, BHP, CFH, KBLW, and STB
Industry concentration • Low concentration • Medium and high concentration	If the study reports a (mean) value of industry concentration (e.g., Herfindahl–Hirschman index [HHI], four-firm concentration ratio [CR4]), we use this number to classify industries as having low, medium, or high concentration. If no measure of industry concentration is reported, we classify the concentration as medium if a mixed-industry sample is studied. If specific industries are investigated, we impute data from the U.S. census website (www.census.gov/econ/concent ration.html). The following thresholds are used: low concentration: HHI < .15, CR4 < .20; medium concentration: .15 < HHI < .25; .20 < CR4 < .80; and high concentration: HHI > .25; CR4 > .80 (Hirschey 2009; U.S. Department of Justice 2015). In the advertising expenditures data set, medium and high concentration are merged into one level. In the marketing assets data set, low occurrence of low and high concentration prevents us from using this variable.	See H_3 in the text	N.A.	
Time	Mean-centered median year of data collection	While the effect of marketing investments on customer response has been decreasing, the influence of nonfinancial information on investor decision such as advertising is steadily increasing. Given these two conflicting arguments, we are not able to predict a sign.	Because marketing assets are performance metrics, we expect the investor effect, which unfolds over time, to dominate the customer-response effect. Thus, marketing asset elasticities should increase in magnitude as the year of data collection becomes more recent.	AMS, BHP, CFH, KBWL, and STB

Table 2
CONTINUED

Variable/Levels	Operationalization	Expected Relationship: AEM	Expected Relationship: MAM	Precedence[a]
Recession	Following Sethuraman, Tellis, and Briesch (2011), recession is measured as the number of months that the economy is in a recession as a proportion of total months in the estimation period. Recession data were taken from the National Bureau of Economic Research.	See H_{4a-b} in the text		STB
Research Design Characteristics				
Data Characteristics				
Type of firm value variable • Stock return • Market capitalization • Intangibles-to-tangibles ratio	Indicates whether market capitalization, the ratio of intangibles to tangibles (Tobin's q, market-to-book ratio) or stock return is used as dependent firm value variable.	See H_{5a-b} in the text		CCZ
Temporal interval • Up to one month • Longer than one month	Captures the data measurement interval used. Because of paucity of data, daily, weekly, and monthly intervals are combined to one level and quarterly and yearly intervals are combined to another category.	If the temporal interval used in a study is longer than the market reaction time, more noise in the data will lead to an underestimated elasticity. However, if the temporal interval used in a study is shorter than the market reaction time, the estimated elasticity will not pick up the true response effect, also leading to a downward-biased elasticity estimate. Thus, it is not possible to predict a priori whether longer temporal intervals will lead to higher or lower elasticities.		AFL, AMS, BHP, and STB
Structure of data • Time series (pure and panel) • Purely cross-sectional	Indicates whether the data used are purely cross-sectional or time-series. Because of too few observations, we merge purely longitudinal and panel data into one category.	While Assmus, Farley, and Lehmann (1984) discover higher advertising elasticities for cross-sectional compared with time-series data, Albers, Mantrala, and Sridhar (2010) find an opposing effect for personal-selling elasticities. Given these conflicting findings, we do not formulate an expectation.		AFL, AMS, and KBLW
Model and Estimation Characteristics				
Endogeneity • Accounted for • Not accounted for	Indicates whether the model accounts for potential endogeneity, mostly in the form of simultaneity issues (e.g., via an instrumental variables approach).	Endogeneity in the form of simultaneity might be present in advertising models, because firms might alter their advertising expenditures in reaction to stock market signals. Such endogeneity might also occur in marketing assets models, because stock market performance may also affect investments in brands and customers. Following the econometrics literature, we expect elasticities to be overestimated if endogeneity is not accounted for.		AMS, BHP, KBWL, and STB
Heterogeneity • Accounted for • Not accounted for	Captures whether the model accounts for heterogeneity. Unobserved heterogeneity can be accounted for through fixed effects (e.g., firm, industry), random effects, or random coefficients.		No prior expectations	AMS, BHP, and STB
Estimation method • Ordinary least squares • Generalized least squares • Other	Captures the estimation method. Weighted least squares and multistage least squares are coded as generalized least squares. The "Other" group comprises HLM, generalized methods of moments, nonlinear least squares, and Kalman filtering.		No prior expectations	AFL, AMS, BHP, CFH, KBWL, and STB
Functional form • Linear-additive • Multiplicative • Other	Captures whether the response model is additive, multiplicative (log-log), or has another nonlinear form (e.g., semilog).		No prior expectations	AFL, AMS, BHP, KBWL, and STB
Duration of the effect • Short-term • Long-term	Indicates whether the elasticity is a short-term or a long-term elasticity.		No prior expectations	BHP and KBWL

Table 2
CONTINUED

Variable/Levels	*Operationalization*	*Expected Relationship*		*Precedence*[a]
		AEM	*MAM*	
Control for Other Firm Influences				
Earnings variable • Included • Omitted	Indicates whether an earnings variable (e.g., return on equity) is used as an explanatory variable in the empirical model.	On the one hand, advertising expenditures are costs that reduce current period earnings. On the other hand, they help differentiate a firm's products from competition, thus leading to an increase in sales, revenues, and profits. Therefore, we are not able to predict a relationship.	Marketing assets are likely to be positively correlated with earnings, given their beneficial effect on price premiums, customer loyalty, and marketing and service costs. Because earnings and firm value are positively correlated, we expect the omission of earnings to bias marketing asset elasticities upward.	CCZ
Market-share variable • Included • Omitted	Indicates whether a market-share variable is used as an explanatory variable in the empirical model.	Both market share and growth are likely to be correlated positively with profitability and, thus, firm value. At the same time, advertising expenditures and marketing assets should assist firms in increasing market shares and enhancing and accelerating cash flows and thus firm growth. Therefore, we expect omission of these variables to bias the firm value elasticities upwards.		CFH
Growth variable • Included • Omitted	Indicates whether a growth variable is used as an explanatory variable in the empirical model. Growth can refer to sales, assets, or number of employees.			CFH
R&D variable • Included • Omitted	Indicates whether an R&D variable is used as an explanatory variable in the empirical model.	No prior expectations		CCZ and CFH
Leverage variable • Included • Omitted	Indicates whether a leverage variable is used as an explanatory variable in the empirical model.	No prior expectations		
Size variable • Included • Omitted	Indicates whether a size variable is used as an explanatory variable in the empirical model. Size can refer to, for example, assets, equity, or sales.	No prior expectations		CFH
Competition variable • Included • Omitted	Indicates whether competition is used in the empirical model, either by the inclusion of a measure of concentration in an industry (e.g., HHI) or by the inclusion of competitor-related variables (e.g., competitive advertising).	No prior expectations		KBLW
Risk • Accounted for • Not accounted for	Indicates whether investment risk is accounted for, either through the use of the capital asset pricing model or the Fama–French three-/four-factor model in a model with stock return as dependent variable or through the integration of a firm's stock market beta as an explanatory variable in a model with a level firm value measure as the dependent variable.	No prior expectations		CCZ
Publication-Related Factors				
Manuscript Status • Published • Unpublished	Indicates whether the study has been published in an academic peer-review outlet.	Publication bias describes the tendency of scientific outlets to accept only strong or statistically significant effects for publication. Thus, elasticities from published studies should be higher than those from unpublished studies.		AFL, AMS, KBLW, and STB

[a]AFL = Assmus, Farley, and Lehmann (1984); AMS = Albers, Mantrala, and Sridhar (2010); BHP = Bijmolt, Van Heerde, and Pieters (2005); CCZ = Conchar, Crask, and Zinkhan (2005); CFH = Capon, Farley, and Hoenig (1990); KBWL = Kremer et al. (2008); STB = Sethuraman, Tellis, and Briesch (2011).

Notes: N.A. = not applicable.

In addition to the effectiveness argument, we argue that, from an efficiency perspective, advertising firm value elasticities are also lower compared with asset firm value elasticities. Note that firm value elasticity tends toward zero the closer the firm operates at the optimal level for the respective marketing variable, whereas underspending (overspending) leads to a positive (negative) elasticity. Advertising expenditures are a decision variable, and management can directly and permanently change the level of this variable. There are also no concerns about the measurement of advertising expenditures. Finally, firms have engaged in optimal advertising budgeting for more than 50 years (Hanssens, Parsons, and Schultz 2001), so they are very experienced in finding optimal advertising levels. In contrast, the value of marketing assets has only been appreciated for two decades, if at all. Asset metrics such as brand equity are intermediate outcome variables, which are not easy to measure. They are sticky—that is, management cannot quickly change the level from one period to the next but has to wait for several periods until its activities materialize. In addition to advertising, many other factors (e.g., product features, retail coverage) drive the asset value. Consequently, finding the optimal level for a marketing asset is much more complex than for advertising expenditures. The limitations in measurement, together with the notion that marketing assets are less deeply understood by non-marketing-oriented chief executive officers and chief financial officers, suggest that firms are probably still underinvested in brands and customer relationships. Thus, from an efficiency point of view, marketing asset elasticities should be further away from zero than advertising elasticities (because of a larger suboptimality) with a positive sign (because of a likely underspending). Combining this reasoning with the effectiveness argument leads to the following hypothesis:

H_1: Firm value elasticities are smaller for advertising expenditures than for marketing assets.

Brand-Related Versus Customer-Related Marketing Assets

Brand-related metrics focus on value created through (product) brands while customer-related assets focus on value created through customer relations. Researchers have conceptualized marketing value chains in which brand equity antecedes customer equity (e.g., Rust, Lemon, and Zeithaml 2004; Stahl et al. 2012). Drawing on the hierarchy-of-effects models of consumer behavior, they argue that companies need to win the hearts and minds of consumers (i.e., building brand equity) before acquiring and retaining satisfied customers (i.e., building customer equity). Indeed, Stahl et al. (2012) show strong empirical evidence that customer-based brand equity partially mediates the impact of marketing investments on customer asset metrics such as acquisition and retention rates. Because the link between customer-related assets and firm value is closer than for brand-related assets, customer-related firm value elasticities should be larger than brand-related elasticities.

We arrive at the same conclusion when taking the efficiency perspective. Although achieving an optimal level is by no means easy for either brand or customer metrics, firms have longer experience with managing and monitoring brand metrics such as image, likeability, or attitude (e.g., Bird, Channon, and Ehrenberg 1970). The value of optimizing customer metrics has been introduced only recently (e.g., Blattberg and Deighton 1996; Reinartz, Thomas, and Kumar 2005). Thus, we argue that because marketers are more experienced with managing brand-related metrics compared with customer-related metrics, they manage brand-related metrics more efficiently. In combination, the two arguments suggest the following hypothesis:

H_2: Marketing asset elasticities are higher for customer-related asset variables than for brand-related asset variables.

Industry Concentration[4]

In more strongly concentrated industries, fewer and larger firms compete with one another. In such oligopolistic markets, competitive reactivity is particularly pronounced (Gatignon 1984). An increase in advertising by one firm directly affects its competitors, which often retaliate immediately to maintain their share-of-voice levels. This questions the effectiveness of advertising actions in highly concentrated markets, leading to lower returns to advertising. Empirically, Danaher, Bonfrer, and Dhar (2008) find lower sales response to advertising in the presence of competitive interference. With the expectation that such top-level effects will translate to bottom-level earnings and, eventually, firm value, we hypothesize:

H_3: Advertising expenditure elasticities are lower for more strongly concentrated industries.

Recession

During recessions, customer demand declines. Advertising expenditures and marketing assets have been shown to balance revenue peaks and slumps and to generate less volatile cash flows (Srinivasan and Hanssens 2009). In addition, especially during periods of financial turmoil, investors' risk tolerance decreases (Hoffmann, Post, and Pennings 2013) and they look for "safe harbors," with advertising spending and marketing assets serving as investment-decision surrogates for financial information such as profits. Firms also tend to cut marketing effort during recessions, leading to a potential underinvestment (Deleersnyder et al. 2009). Thus, we expect elasticities to be higher during recessionary times.

H_4: (a) Advertising expenditure elasticities and (b) marketing asset elasticities are higher during recessions.

Type of Firm Value Variable

The choice of the dependent variable should affect elasticity estimates. Whereas market capitalization and intangibles-to-tangibles ratios are level measures, stock return by definition is a first-difference metric. "Levels models" with highly autocorrelated dependent and independent variables suffer from a spurious regression problem, which leads to downward-biased standard errors and thus to an overreporting of significant effects (Mizik and Jacobson 2009). This problem does not arise in "differences models." Thus, we expect

[4]Very low variance of the concentration variable in the marketing assets data set prevents us from studying this variable in the MAM.

elasticities from market capitalization and intangibles-to-tangibles models to be higher than elasticities from stock return models.

H_5: (a) Advertising expenditure elasticities and (b) marketing asset elasticities from models using market capitalization or intangibles-to-tangibles ratio as the dependent variable are higher than those from models using stock return as the dependent variable.

Interaction Effects

We considered interaction effects in our meta-analysis. To reduce the number of potential interactions, we focus only on interactions between substantive drivers. Interactions among study design characteristics (e.g., using stock return as dependent variable and accounting for endogeneity) are difficult to interpret from a conceptual point of view. Considering all substantive drivers, we end up with ten two-way interactions for both advertising and marketing asset elasticities. In addition, we consider the operationalization of the marketing asset (monetary vs. other) as a potential interaction variable for marketing assets. Because variables are measured in categories, the effective number of interaction variables is even larger. This aggravates the multicollinearity problem that is introduced by interaction variables and plagues many meta-analyses (e.g., Albers, Mantrala, and Sridhar 2010; Sethuraman, Tellis, and Briesch 2011). We therefore use a strict procedure to select interaction variables. First, the joined categories of two variables must show at least 5% of total observations. Second, the variance inflation factor must not exceed 10, which signals potentially severe collinearity issues. Third, the interaction effect must significantly add to the explanatory power of the model according to a likelihood-ratio test that passes the 10% level. Following this procedure, we are left with only one interaction variable for marketing asset elasticities out of 18 tested effects for advertising and 11 for marketing assets. This is the interaction between time (metric variable) and the type of customer-related asset (dummy variable). Because the type of marketing asset has two categories, the main effect of time de facto measures the effect of time for brand-related assets. The interaction effect measures the extent to which the effect of time is different for customer-related compared with brand-related assets.

RESEARCH METHOD

Data Coding

Two judges fulfilled the coding. Following Geyskens et al. (2009), the first author and a second judge who is not an author of this article coded a random sample of 30 studies. Coding agreement was greater than 90%. After resolving any remaining inconsistencies, the first author coded all other studies. To achieve a high degree of transparency regarding these coding decisions and to enable researchers and managers to conduct further analyses, we provide two databases: First, because the vast majority of elasticities had to be calculated on the basis of parameter estimates and descriptive statistics (457 of all 621 elasticities, 354 of 488 elasticities relating to advertising expenditures and marketing assets), we present the calculation procedures for each article in the Web Appendix. Second, the Web Appendix also presents the marketing firm value elasticity database, which includes the 621 elasticities and corresponding coded information concerning substantive and research design characteristics.

Meta-Analytic Model and Estimation

Following Bijmolt and Pieters (2001), we model the elasticity as a function of the selected independent variables using hierarchical linear modeling (HLM). An important assumption of ordinary least squares regression is that the errors are not correlated (Greene 2012). However, the fact that there can be multiple measurements of the elasticity in one study leads to a violation of this assumption. Determinants are observed either at the study level (e.g., publication status) or at the measurement level (e.g., inclusion of an earnings variable). Therefore, measurements of the elasticity are not independent within one study, and additional study-specific factors might exist that the included independent variables do not control for. To account for potential within-study error correlations, we use an HLM with the measurement of an elasticity as the lower level and with the study from which an elasticity is derived as the higher level.

In addition, marketing firm value elasticities are not true parameters but are estimated with error (Sethuraman, Tellis, and Briesch 2011). To account for this measurement error in the dependent variable, we weight each observation with a normed variance (i.e., the absolute value of the ratio of the estimated elasticity and its standard error; for a similar approach, see Bezawada and Pauwels [2013]). Because information on statistical significance (e.g., standard errors, t-values) is not available for all observations, this slightly reduces the sample sizes to 269 for the advertising expenditures data set and to 178 for the marketing assets data set.

RESULTS

Descriptive Analysis

Overview. Table 3 shows descriptive statistics for all marketing firm value elasticities with at least 30 observations.[5] All marketing elasticities, with the exception of product, are, on average, significantly different from zero ($p < .10$). We discuss advertising and marketing asset elasticities in more detail subsequently. Online metrics include valence and volume of online reviews as well as web traffic variables. Marketing capabilities refer to "a firm's ability to understand and forecast customer needs better than its competitors and to effectively link its offerings to customers" (Krasnikov and Jayachandran 2008, p. 1) and include variables such as marketing efficiency. The relatively large mean elasticities for these metrics (.22 for online metrics and .55 for capabilities) suggest that they indeed drive firm value. The null finding for product, however, is surprising in light of the prominent role of product innovation. This might be because it is not the volume but the quality of innovation that is eventually relevant for investors (Sorescu and Spanjol 2008), or

[5]The variables distribution (M = .33, Mdn. = –.06) and price (M = –.08, Mdn. = –.00) have too few observations (eight and seven, respectively) to obtain any inferences from their analysis.

Table 3
DESCRIPTIVE STATISTICS

		Marketing Assets					
	Advertising Expenditures	*Overall*	*Brand-Related Assets*	*Customer-Related Assets*	*Product*	*Online Metrics*	*Marketing Capabilities*
n[a]	296	192	89	103	42	35	31
M	.04	.54	.33	.72	.03	.22	.55
t-value (H_0: M = 0)	5.29***	8.23***	3.67***	7.94***	1.60	3.95**	1.78*
SD	.12	.92	.86	.93	.12	.33	1.73
Mdn	.02	.27	.09	.59	.00	.07	.11
Min	−.37	−2.74	−.43	−2.74	−.44	.01	−.06
Max	.77	4.72	4.72	4.59	.32	1.08	7.14

***$p < .01$ (two-sided tests).
[a]We excluded observations outside the interval of the mean elasticity ± 3 standard deviations.

because the market considers investments in products to be close to the optimum (on average). More research is needed to fully understand the relationship between innovativeness and firm value.

Advertising expenditure elasticities. Figure 3, Panel A, shows the frequency distribution of the advertising expenditure elasticities with n = 296. The mean elasticity is .04, with magnitudes ranging from −.37 to .77. The median is even lower, at .02. Notably, 23% of all observations are negative, suggesting that investors occasionally weight the cost dimension of advertising expenditures more strongly than the revenue dimension or that firms in these studies are overspending. Nevertheless, the mean elasticity is significantly positive at .04 ($p < .01$). Note that the recent meta-analysis by Sethuraman, Tellis, and Briesch (2011) finds a mean short-term elasticity of sales with respect to advertising of .12 (.24 long-term). Apparently, the firm value elasticity is substantially lower than the sales elasticity, which can be explained by the conceptual difference in the dependent variable. Unlike sales, firm value incorporates revenues and costs, which are both affected by advertising expenditures; thus, it is not only the positive effect of advertising that is included in firm value effects. In addition, the close-to-zero mean elasticity suggests that the average firm operates at near-optimal spend levels.

The Q test (Q = 3,668.56, d.f. = 268, $p < .01$), which tests the null hypothesis that results differ only because of sampling error, and the I^2 statistic (92.69%), which is the percentage of total variability in a set of effect sizes due to true heterogeneity, indicate that advertising expenditure elasticities are heterogeneously distributed. This finding warrants the study of moderator variables (Huedo-Medina et al. 2006).

Marketing asset elasticities. In Figure 3, Panel B, we present the frequency distribution of the marketing asset elasticities with n = 192. Mean and median elasticity are .54 ($p < .01$) and .27, respectively, and thus are significantly larger ($p < .01$) than the observed mean (median) advertising expenditure elasticity. Thus, H_1 receives support. However, the range of elasticities is also larger, with a minimum of −2.74 and a maximum of 4.72.[6] Furthermore, the means (medians) of the brand-related and customer-related elasticities are .33 (.09) and .72 (.59) and both differ significantly from zero ($p < .01$). This suggests a substantially stronger firm value impact of customer metrics compared with brand metrics, a result that we further investigate in the subsequent multivariate analysis. Marketing asset elasticities are also heterogeneously distributed (Q = 2,407.08, d.f. = 177, $p < .01$, $I^2 = 92.65$), so an investigation of moderators is warranted.

Model-free evidence. Before we turn our focus on the multivariate analysis of moderator variables, we aim to detect differences in firm value elasticities by comparing means across variable categories. To be comparable with the subsequent HLM results, we use the same samples (i.e., n = 269 for advertising elasticities and n = 178 for marketing asset elasticities). Table 4 shows the results of this univariate analysis. Overall, 11 mean-difference tests among advertising elasticities and 15 mean-difference tests among marketing asset elasticities turn out to be at least marginally significant ($p < .10$). These findings already suggest that there is systematic variation of elasticities that can be explained by moderating influences. Indeed, we find support for our expectation that advertising elasticities are smaller (1) in stock return models and (2) if endogeneity is corrected for. In addition, the tests provide extensive support for the econometric regularity that effects are biased if important variables (i.e., earnings, size, and competition) are omitted.

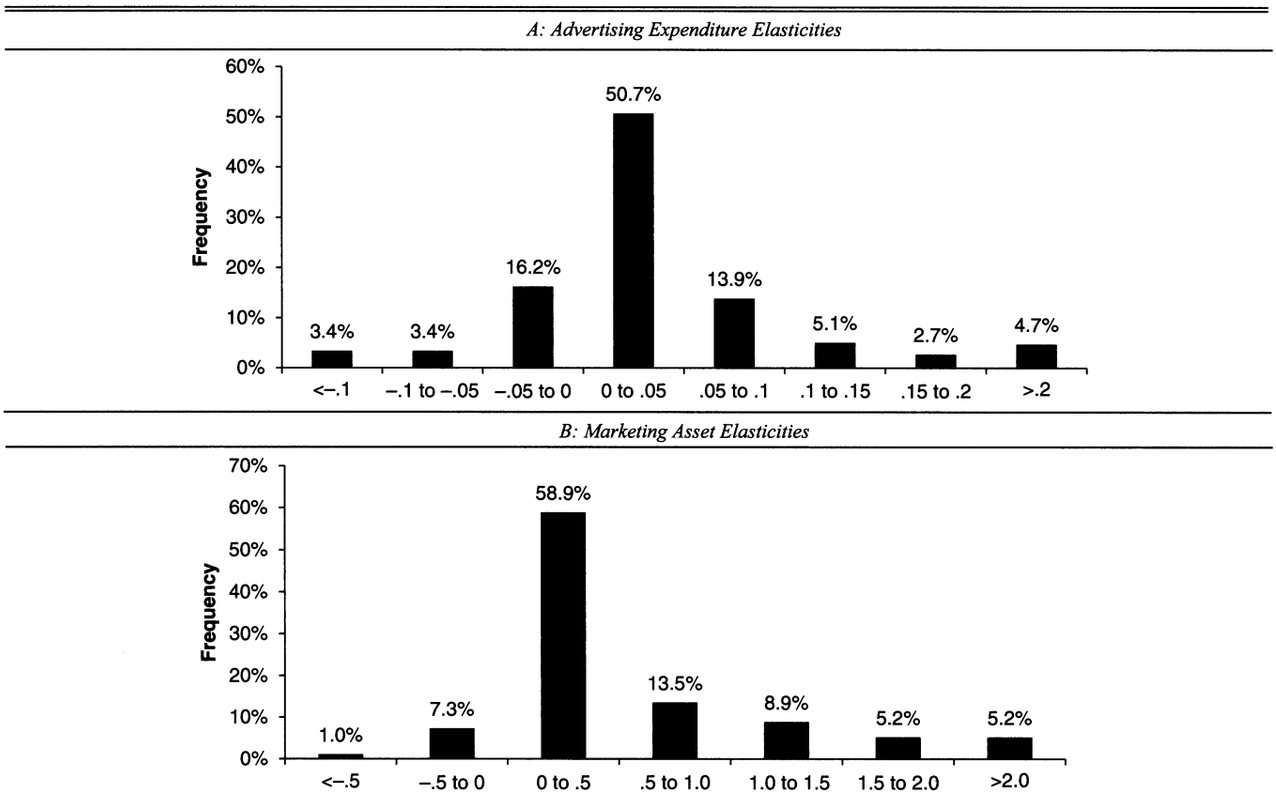
Table 4 also reveals that this omitted-variable problem also seems to drive elasticity differences for marketing assets. The omitted variables here are growth, research and development (R&D) effort, leverage, and size. The difference test also supports H_2, which predicts that elasticities for customer-related assets exceed those for brand-related assets.

Overview of Meta-Analytic Results

Table 5 presents the maximum likelihood estimation results of the HLM for advertising expenditure elasticities (columns 3–5) and marketing asset elasticities (columns 6–8). We find seven statistically significant parameters ($p < .10$, one-sided test if sign prediction is possible, two-sided test otherwise) in the AEM and nine significant effects in the MAM. The overall fit of the models is satisfactory: the pseudo R^2 (squared correlation between estimated and actual dependent

[6]Note that the magnitude of a firm value elasticity may easily exceed 1 even if the underlying sales elasticity is relatively small. In the Web Appendix, we illustrate this with a numerical example.

Figure 3
FREQUENCY DISTRIBUTION OF ELASTICITY ESTIMATES



Notes: The percentages in Panel A sum to 100.1% as a result of rounding error.

variable) amounts to .876 in the AEM and .623 in the MAM. In the following subsections, we discuss these regression results in detail.

Estimation Results of the AEM

With respect to the substantive drivers, only the industry concentration variable is significant. Consistent with H_3, advertising firm value elasticities in medium-high concentrated industries are significantly lower than those in industries with low concentration (coefficient = –.063, $p <$ .05). Note that in more strongly concentrated industries, a few large firms compete with each other. If one competitor increases the advertising effort, this usually affects its rivals in a noticeable manner. The rivals are likely to directly counter the attack by the aggressor (see, e.g., the "cola war" between Pepsi and Coke). As a result, volume gains are limited and profit decreases.

With respect to research design characteristics, we find six significant effects. In accordance with H_{5a}, we find that elasticities estimated from models that use the level variables market capitalization (coefficient = .102, $p < .10$) and intangibles-to-tangibles ratio (coefficient = .032, $p < .05$) as the dependent firm value variable are higher than elasticities from models using stock return. Obviously, a spurious-regression problem arises in levels models, leading to elasticities that are biased upward. In addition, in support of the expected relationship, elasticities from models that ignore endogeneity are significantly higher than those from models that incorporate it (coefficient = .056, $p < .05$). Endogeneity is most often conceptualized in the form of simultaneity between stock market performance and the setting of advertising budgets.

We find three other significant effects for research design–related variables for which we did not have prior expectations. Elasticities derived from cross-sectional data are significantly larger than those from purely time-series or panel data (coefficient = .044, $p < .05$). Thus, the effect found in the sales response meta-analysis by Assmus, Farley, and Lehmann (1984) is replicated when firm value is used as the performance variable. Furthermore, elasticities from models estimated with generalized least squares (coefficient = .034, $p < .10$) and with other estimation methods such as nonlinear least squares (coefficient = .038, $p < .10$) are marginally significantly larger than elasticities from models estimated with ordinary least squares. Following Capon, Farley, and Hoenig (1990), we do not draw any normative conclusions from this result, because the choice of estimation method always depends on the specific research context.

It would be worthwhile to compare our results with those of Conchar, Crask, and Zinkhan's (2005) meta-analysis on advertising effects on firm value. However, we refrain from doing so because they use unstandardized regression

Table 4
COMPARISONS OF MEANS

		Advertising Expenditure Elasticity (n = 269)				*Marketing Asset Elasticity (n = 178)*			
Variable	*Level*	*Expected Difference*[a]	*n*	*Mean*	*Difference (p-Value)*[b]	*Expected Difference*[a]	*n*	*Mean*	*Difference (p-Value)*[b]
Substantive Drivers									
Marketing Influence									
Type of marketing-asset variable	Brand-related asset	N.A.	N.A.	N.A.	N.A.		88	.396	
	Customer-related asset	N.A.	N.A.	N.A.	N.A.	+	90	.801	.003
Product and Market Conditions									
Product type	Across product types	Base	204	.036		Base	163	.679	
	Only durables	–/+	23	.024	.799	N.A.	N.A.	N.A.	
	Only nondurables	–/+	21	.089	.658	N.A.	N.A.	N.A.	
	Only services	–/+	21	.064	.965	–/+	15	–.251	.000
Geographic region	United States	Base	251	.047		Base	157	.634	
	Other	–/+	18	–.038	.000	–/+	21	.355	.232
Concentration	Low	Base	37	.031		N.A.	N.A.	N.A.	
	Medium to high	–	232	.043	.300	N.A.	N.A.	N.A.	
Time[c]	Earlier than mean	Base	92	.040		Base	72	.771	
	Later than mean	–/+	177	.042	.945	+	106	.485	.061
Recession	No recession in data period	Base	137	.050		Base	39	.838	
	Recession in data period	+	132	.032	.255	+	139	.534	.095
Research Design Characteristics									
Data Characteristics									
Type of firm value variable	Stock return	Base	53	.007		Base	96	.567	
	Market capitalization	+	71	.042	.034	+	44	.586	.993
	Intangibles to tangibles	+	145	.053	.001	+	38	.703	.407
Temporal interval	Up to one month	Base	20	.087		Base	22	.175	
	Longer than one month	–/+	249	.038	.301	–/+	156	.661	.006
Structure of data	Time series (pure and panel)	Base	157	.034		Base	146	.587	
	Purely cross-sectional	–/+	112	.051	.246	–/+	32	.663	.699
Model and Estimation Characteristics									
Endogeneity	Accounted for	Base	50	.015		Base	35	.222	
	Not accounted for	+	219	.047	.008	+	143	.693	.006
Heterogeneity	Accounted for	Base	117	.052		Base	111	.649	
	Not accounted for	–/+	152	.033	.190	–/+	67	.531	.411
Estimation method	Ordinary least squares	Base	199	.034		Base	116	.622	
	Generalized least squares	–/+	56	.030	.952	–/+	33	.980	.379
	Other	–/+	14	.188	.061	–/+	29	.083	.017
Functional form	Additive	Base	171	.043		Base	117	.478	
	Multiplicative	–/+	64	.053	.829	–/+	49	1.028	.002
	Other	–/+	34	.011	.056	–/+	12	.056	.000
Duration of the effect	Short-term	Base	244	.043		Base	167	.663	
	Long-term	–/+	25	.021	.132	–/+	11	.112	.095
Control for Other Firm Influences									
Earnings variable	Included	Base	108	.023		Base	104	.531	
	Omitted	–/+	161	.053	.049	+	74	.699	.134
Market-share variable	Included	Base	38	.165		Base	17	.800	
	Omitted	+	231	.021	.000	+	161	.580	.529
Growth variable	Included	Base	56	.035		Base	28	.236	
	Omitted	+	213	.042	.278	+	150	.669	.018
R&D variable	Included	Base	181	.043		Base	20	.176	
	Omitted	–/+	88	.036	.656	–/+	158	.655	.013
Leverage variable	Included	Base	94	.053		Base	20	–.005	
	Omitted	–/+	175	.035	.253	–/+	158	.677	.004
Size variable	Included	Base	210	.022		Base	89	.332	
	Omitted	–/+	59	.109	.001	–/+	89	.870	.000
Competition variable	Included	Base	47	.116		Base	36	.726	
	Omitted	–/+	222	.025	.002	–/+	142	.569	.402
Risk	Accounted for	Base	53	.021		Base	82	.466	
	Not accounted for	–/+	216	.046	.036	–/+	96	.716	.082
Publication-Related Factors									
Manuscript status	Published	Base	249	.044		Base	118	.586	
	Unpublished	–	20	.011	.126	–	60	.630	.372

[a]If more than two means are compared, we apply either the Tukey test (for equal variances of groups) or the Games–Howell test (for unequal variances of groups), respectively.

[b]One-sided test if there was an expected difference (+ or –), two-sided test otherwise (–/+).

[c]We dichotomized this variable through a mean split to allow for group comparisons. In the multivariate model, the variable retains its original metric scale.

coefficients as effect size and test differences in a bivariate rather than a multivariate manner. This renders comparisons meaningless.

Estimation Results of the MAM

In the MAM, we find three significant main effects and a significant interaction effect among the substantive drivers. First and foremost, H_2 is supported by the multivariate analysis, because the elasticity is significantly higher for customer-related asset variables compared with brand-related asset variables, which serve as the base category (coefficient = 1.180; $p < .01$). Thus, the stock market seems to acknowledge that customers are relational assets (Morgan 2012) that represent the realized value of marketing actions in terms of cash flow and are closer to firm value. In contrast, brands are regarded as reputational assets (Morgan 2012) representing intangible value potentially created by marketing initiatives. They are an antecedent to customer behavior and are further away from firm value in the marketing value chain. The positive interaction effect between customer-related assets and time (coefficient = .143, $p < .05$) suggests that this difference in value relevance increases over time. In our view, the finding goes hand in hand with the trend from product-centric thinking toward customer-centric thinking over the past two decades (Shah et al. 2006).

Consistent with H_{4b}, we find that marketing asset elasticities are significantly greater during recessionary compared with nonrecessionary periods (coefficient = 5.178, $p < .01$). This supports the argument that firms with strong brands and customer relationships are, to some extent, protected against the general downturn financial markets face during an economic downturn (Johansson, Dimofte, and Mazvancheryl 2012). Note that the large size of the coefficient does not imply that the firm value elasticity is in the one-digit range. To obtain the unconditional effect, we have to account for the values of all other moderator variables (for the unconditional effect sizes, see Table 4). In addition, we find significantly lower marketing asset elasticity for service firms than for other firms (coefficient = –2.569, $p < .01$). Recall that a negative elasticity implies that firms are overinvested in the marketing asset. Customer acquisition and retention are of utmost importance to service firms and determine their success in the marketplace. As a result, intense competition might have driven investments in marketing assets over their profit maximum. The finding by Anderson, Fornell, and Rust (1997) that the return-on-investment elasticity for customer satisfaction is lower for service firms than for product firms supports our argument.

We obtain five significant effects with respect to research design characteristics. Consistent with the AEM and H_{6b}, elasticities are significantly higher in level than in return models (coefficient for market capitalization: 1.453, $p < .01$; coefficient for intangibles-to-tangibles ratio: .389, $p < .10$). With respect to the inclusion of relevant firm-specific variables in the model specification, we find the expected positive omitted-variable bias for earnings (coefficient = .277, $p < .10$). This result reinforces the call by Jacobson and Mizik (2009) to always include a measure of accounting profitability in models when relating firm value to marketing assets. In addition, elasticities are significantly lower if time intervals of more than a month are used in the model (coefficient = –.642, $p < .10$). This suggests a rather fast stock market reaction to information contained in marketing asset metrics, which tends to be diluted with longer time intervals. Finally, contrary to the AEM, elasticities are significantly lower if cross-sectional (vs. longitudinal/panel) data are used (coefficient = –.995, $p < .05$). In Table 2, we mention that there is no agreement on the direction of influence. These inconsistent findings add to the mixed empirical evidence on the effect of data aggregation on marketing elasticities (Albers, Mantrala, and Sridhar 2010 [longitudinal > cross-sectional]; Assmus, Farley, and Lehmann 1984 [cross-sectional > longitudinal]; Kremer et al. 2008 [insignificant effect]).

Additional Analyses and Robustness Checks

To obtain more insights from the data and to ensure the robustness of the results, we performed further analyses that involve the analysis of negative over positive advertising elasticities, outliers, method bias–corrected elasticities, multicollinearity, exclusion of cases due to missing information on uncertainty, and short- versus long-term effects.

Analysis of positive and negative elasticities. A potentially insightful analysis would be to study the conditions under which negative versus positive advertising elasticities occur.[7] Figure 3 reveals that almost one-quarter of elasticities are negative, suggesting that firms are overinvested in advertising, whereas positive elasticities imply that firms are underinvested in advertising. We adopted a logistic regression approach to analyze the drivers of negative versus positive elasticities. The model includes all substantive drivers and the manuscript status as predictors. We do not have a theory of how research design characteristics could explain negative elasticities or advertising overspending, respectively. We also estimated a multinomial logit model with a third category of elasticity estimates that are not significantly different from zero. This class (n = 128) represents firms with optimal advertising levels. The fit of these models, in terms of McFadden's R^2 and classification rates, was not satisfactory at all. This prevents us from drawing meaningful conclusions. Separating elasticities into negative and positive values probably reduces the variance and information content so that meaningful insights in our moderators cannot be obtained.

Outlier-robust analyses. We reanalyzed both meta-analytic models using a least absolute deviation (LAD) estimator. This approach is based on a median regression and is thus less affected by outlying observations (Greene 2012; for an application of LAD in a meta-analysis, see Smith and Huang 1995). The Web Appendix presents the weighted LAD results for the two models including all observations as well as weighted least squares (WLS) results for comparison purposes. Note that neither LAD nor WLS account for the hierarchical error structure. If outliers were a severe problem, WLS results should substantially differ from LAD results. However, we find the signs of the coefficients to be generally consistent across both estimation techniques. Most importantly, we do not find reversals in signs for significant effects. Therefore, outliers do not seem to bias the estimation results. The similarity of LAD and HLM, which accounts for the correlation of error

[7]We thank a reviewer for this suggestion.

Table 5
HLM RESULTS

		AEM (n = 269)			MAM (n = 178)		
Variable	*Level*	*Expected Sign*	*Estimate (SE)*	*Expectation Supported*	*Expected Sign*	*Estimate (SE)*	*Expectation Supported*
Intercept	—		.084 (.080)			−.267 (.651)	
Substantive Drivers							
Marketing Influence							
Type of marketing asset variable	Brand-related asset	N.A.	N.A.		Base		
	Customer-related asset	N.A.	N.A.		+	1.180 (.444)***	✓
Product and market conditions							
Product type	Across product types	Base			Base		
	Only durables	−/+	−.035 (.037)		N.A.	N.A.	
	Only nondurables	−/+	−.047 (.029)		N.A.	N.A.	
	Only services	−/+	−.009 (.030)		−/+	−2.569 (.707)***	
Geographic region	United States	Base			Base		
	Other	−/+	−.130 (.092)		−/+	−.601 (.546)	
Concentration	Low	Base			N.A.	N.A.	
	Medium to high	−	−.063 (.029)**	✓	N.A.	N.A.	
Time	Mean year of data period	−/+	.002 (.002)		+	−.086 (.058)	n.s.
Recession	Months of recession	+	.009 (.059)	n.s.	+	5.178 (1.377)***	✓
Interaction Effect							
Customer-related asset × Time		N.A.	N.A.		+	.143 (.083)**	✓
Research Design Characteristics							
Data Characteristics							
Type of firm value variable	Stock return	Base			Base		
	Market capitalization	+	.102 (.062)*	✓	+	1.453 (.297)***	✓
	Intangibles to tangibles	+	.032 (.018)**	✓	+	.389 (.298)*	✓
Temporal interval	Up to one month	Base			Base		
	Longer than one month	−/+	−.013 (.038)		−/+	−.642 (.383)*	
Structure of data	Time series (pure and panel)	Base			Base		
	Purely cross-sectional	−/+	.044 (.023)*		−/+	−.995 (.464)**	
Model and Estimation Characteristics							
Endogeneity	Accounted for	Base			Base		
	Not accounted for	+	.056 (.026)**	✓	+	.029 (.136)	n.s.
Heterogeneity	Accounted for	Base			Base		
	Not accounted for	−/+	.004 (.017)		−/+	.013 (.206)	
Estimation method	Ordinary least squares	Base			Base		
	Generalized least squares	−/+	.034 (.018)*		−/+	.013 (.143)	
	Other	−/+	.038 (.022)*		−/+	.076 (.294)	
Functional form	Additive	Base			Base		
	Multiplicative	−/+	−.026 (.042)		−/+	.116 (.248)	
	Other	−/+	−.009 (.041)		−/+	−.059 (.268)	
Duration of the effect	Short-term	Base			Base		
	Long-term	−/+	.028 (.017)		−/+	.644 (.430)	
Control for Other Firm Influences							
Earnings variable	Included	Base			Base		
	Omitted	−/+	.016 (.033)		+	.277 (.194)*	✓
Market-share variable	Included	Base			Base		
	Omitted	+	−.038 (.027)	n.s.	+	.219 (.324)	n.s.
Growth variable	Included	Base			Base		
	Omitted	+	−.002 (.025)	n.s.	+	.100 (.142)	n.s.
R&D variable	Included	Base			Base		
	Omitted	−/+	−.029 (.047)		−/+	−.069 (.265)	
Leverage variable	Included	Base			Base		
	Omitted	−/+	−.004 (.024)		−/+	.162 (.545)	
Size variable	Included	Base			Base		
	Omitted	−/+	.000 (.016)		−/+	−.079 (.267)	
Competition variable	Included	Base			Base		
	Omitted	−/+	−.015 (.020)		−/+	.047 (.265)	
Risk	Accounted for	Base			Base		
	Not accounted for	−/+	.009 (.047)		−/+	.227 (.239)	
Publication-Related Factors							
Manuscript status	Published	Base			Base		
	Unpublished	−	.046 (.074)	n.s.	−	−.122 (.484)	n.s.

*$p < .10$.
**$p < .05$.
***$p < .01$.

Notes: n.s. = not significant ($p > .10$); N.A. = not applicable. Observations were weighted by the absolute value of the ratio of elasticity and standard error. We used a one-sided t-test if sign prediction was possible (+ or −) and a two-sided t-test otherwise (−/+). Expected sign: + = positive relationship (compared with base level); − = negative relationship; −/+ = ambiguous relationship.

terms within studies, further supports the robustness of our main-model results (see Table 5).

Method-corrected effect sizes. Following Albers, Mantrala, and Sridhar (2010), we "correct" each elasticity measurement for the statistically significant method biases (not accounting for endogeneity in advertising models and omitting an earnings variable in marketing asset models). We obtain a mean method bias–corrected elasticity of –.01 for advertising expenditures, which is not significantly different from zero ($p > .10$), and of .42 ($p < .01$) for marketing assets.

Further robustness and collinearity checks. We performed several additional robustness checks. First, we checked for multicollinearity. Maximum variance inflation factors of 8.513 in the AEM and 6.716 in the MAM indicate only moderate levels of multicollinearity. However, because several combinations of variables exist with a bivariate correlation greater than |.50| in both models, we deleted each of the affected variables one at a time to assess the robustness of the results and found no substantial differences (details of these results are available on request).

Second, we lose a considerable number of observations because they are missing information about statistical significance, so we imputed the mean- and median-normed variance from the reduced sample as weights for all cases for which this information is missing. The results, which are available from the authors, correspond very closely to the main-model results.

Third, we pool short- and long-term elasticities in our meta-analysis, which, according to Albers, Mantrala, and Sridhar (2010, p. 841), is "not meaningful when carryover effects . . . are heterogeneous across study settings." Therefore, we performed an additional analysis using only short-term elasticities (AEM: n = 244; MAM: n = 167). The results, which can be obtained from the authors on request, are similar to the results from the models that include long-term elasticities and account for the long-term character with the use of a dummy variable.

DISCUSSION

Substantive Implications for Managers and Researchers

Marketing value chain. Marketing scholars have suggested various chain-of-effects models of how marketing actions contribute to firms' financial performance (e.g., Lehmann 2004; Rust et al. 2004; Srivastava, Shervani, and Fahey 1998). Our meta-analysis enables us to generalize the productivity chain on empirical grounds. We find support for the hierarchy of effects as proposed in the literature and our theoretical framework (see Figure 1). Marketing-mix decisions such as advertising spending do translate into financial results for firms that are appreciated by the stock market. However, not every single advertising dollar improves financial performance. Advertising expenditures need to be successfully converted into intermediate performance metrics before they can influence other financial outcome variables such as sales, profits, and firm value. There is also an optimal investment level that maximizes firm value, and firms need to manage this level.

An understanding of the role of marketing assets in the value chain helps in managing marketing activities. Brand and customer assets are important intermediate outcome variables that directly move firm value. Because of their strong mediating position in the value chain, management is well advised to focus on optimizing these assets when setting advertising budgets, for example. Notably, this is not limited to advertising but embraces the entire marketing mix. Marketing assets are also built from investments into the distribution network, product quality, and so on.

Our analysis reveals a higher firm value elasticity of customer-related assets compared with brand-related assets. Moreover, the gap seems to increase over time. Theoretically, this finding supports the existence of a hierarchical effect structure among assets, which has been suggested in previous research (e.g., Stahl et al. 2012). Here, the brand is considered a means to win new customers and transform them into satisfied and loyal customers. The brand signals future growth opportunities for the firm, but these also come with higher risk. In contrast, a loyal customer base promises less volatile cash flows for the future. Investors seem to value the better predictability of financial performance from customer metrics (Himme and Fischer 2014).

Managing marketing assets. Marketing departments are under ever-increasing pressure to show the value relevance of their marketing investments to maintain their influence within the firm (Verhoef and Leeflang 2009). The large average elasticity of .54 for marketing assets implies that brand and customer assets are generally not yet at their optimal levels. This is good news for marketing managers for at least three reasons. First, it emphasizes the value relevance of marketing. Second, it suggests that there is still room for further marketing investments to drive firm value. Finally, it offers a direct link to daily marketing practice because managing marketing assets is well known to marketers and more actionable than managing shareholder returns. The emerging mindset metrics literature supports these findings (e.g., Hanssens et al. 2014).

Managing advertising expenditures. At first glance, the average advertising expenditure elasticity of .04 might suggest that advertising does not contribute much to firm value. The wide dispersion of elasticities below and above zero, however, implies the opposite. Advertising is a valuable activity. Some firms seem to overinvest, others to underinvest, but there are also many firms that manage their advertising expenditures very well with respect to financial objectives. Marketers may learn from these firms and their management tools (see, e.g., Bayer's budget allocation approach in Fischer et al. 2011).

Competition and economic recession. The structure of competition and the state of the economy are important conditions that alter the effectiveness of marketing decision making. In more concentrated markets, the effectiveness of advertising to drive firm value seems to be lower. Competitive reactivity usually increases when there are fewer competitors. The sales response literature offers opposing results on the impact of competitive advertising reactivity on sales elasticities. Whereas Gatignon (1984) finds increasing elasticities, Danaher, Bonfrer, and Dhar (2008) show that elasticities actually decrease. Irrespective of the true sales effect, the net effect on the bottom line seems to be lower in more concentrated markets. Managers should consider this in their decision making to avoid a potential overinvestment.

Our analysis also adds to the understanding of the effect of recessionary periods on the marketing–performance

relationship. There is an ongoing debate about whether firms should increase, decrease, or maintain their level of advertising during tough economic conditions. Srinivasan, Lilien, and Sridhar (2011) show that some firms benefit from increasing advertising during recessions in terms of profits and stock returns, whereas others do not. Similarly, Van Heerde et al. (2013) and Steenkamp and Fang (2011) identify opposing effects of economic contractions on the advertising sales effectiveness in the United Kingdom and the United States, respectively. The nonsignificant effect in the AEM reflects these mixed findings. Nevertheless, firms are advised to invest in marketing assets in economically prosperous periods. Shareholder returns to marketing assets are greater during an economic downturn when consumer confidence is low. Ou et al. (2014) show that in such conditions, consumers regard a value-for-money advantage (value equity) and the high credibility of strong brands (brand equity) as important drivers of their loyalty intentions. Thus, stronger assets help firms retain customers and thus attenuate the negative financial consequences of recessions. An alternative view suggests that firms tend to be underinvested in marketing assets during a recession. The managerial implication, however, is the same. Increasing the asset in better times, when more financial resources are available, is advisable given that marketing assets are quite sticky.

Implications for structural modelers. Our analysis also carries an important message for structural modelers. A key assumption of many structural models is that firms behave optimally (i.e., they maximize cash profit or the net present value of cash flows, respectively; e.g., Chintagunta et al. 2006). With regard to advertising, this assumption is well in line for the average firm under average market conditions across industries over the past 40 years. The mean method bias–corrected advertising elasticity does not differ significantly from zero. The distribution of advertising elasticities in Figure 3, however, demonstrates that many elasticities deviate substantially from zero. Thus, firms do not set optimal advertising budgets in these cases, assuming they want to maximize shareholder value. The situation is even more severe with respect to brand and customer assets. Here, even the average elasticity, which is significantly different from zero, implies that firms do not behave optimally.

Given that a structural model usually focuses on a specific market, these findings cast serious doubts on one of the key assumptions of these models. We suggest that structural modelers be more open to considering alternative assumptions about firm decision making that better reflect actual firm behavior, even though this behavior may not be consistent with profit maximization.

Methodological Implications

The insights from our meta-analysis hold important implications for further research in the field of marketing–finance. The subsequent discussion can be interpreted as a roadmap for researchers. We conclude that the following decisions on research design are critical: (1) the temporal aggregation level of data, (2) the type of dependent variable used, (3) the inclusion of control variables, (4) and whether to account for endogeneity.

Temporal aggregation. According to the efficient markets hypothesis (Fama 1970), the stock market reacts completely and instantly to all publicly available information. Marketing asset elasticities are significantly lower if temporal intervals longer than a month are used, probably because the stock market reacts within a shorter period of time. We recommend using more disaggregated data, if available, such as daily or weekly data, that more closely capture investors' reaction time, as some previous studies investigating marketing assets have done (Luo, Raithel, and Wiles 2013; Tirunillai and Tellis 2012).

Type of dependent variable. The finding that both advertising expenditure and marketing asset elasticities tend to be higher if firm value is measured in levels (e.g., market capitalization, Tobin's q) instead of changes such as stock returns provides support for Mizik and Jacobson (2009). They argue that working in levels, and in particular with Tobin's q, is not advisable. Models with market capitalization as the dependent variable may suffer from severe autocorrelation problems. The measurement of the denominator in Tobin's q (asset replacement value) is prone to measurement errors. We follow their suggestion to use stock return as the dependent firm value variable. Note that although we could not include event studies in our analysis, the dependent variable here also reflects changes in shareholder value.

Inclusion of control variables. We find only one significant omitted-variable bias with respect to the earnings variable in the MAM. However, we suggest including an earnings-related variable in all marketing firm value models because the detection of value relevance implies a significant effect that is not reflected in contemporaneous accounting performance (Jacobson and Mizik 2009).

Accounting for endogeneity. If simultaneity between firm value and advertising expenditures is not accounted for in model specification, elasticities are biased upward. Therefore, researchers should control for such potential reverse-causality effects in advertising firm value models (e.g., by applying instrumental variables estimation techniques, by specifying structural models that may need to account for nonoptimal firm behavior; see previous discussion).

Finally, we note that our study is consistent with several other meta-analyses in marketing in finding that the majority of potential determinants are insignificant. We agree with Farley, Lehmann, and Sawyer (1995) that this is a reassuring pattern of robustness rather than something to worry about. We also concur with Sethuraman, Tellis, and Briesch's (2011) opinion that nonsignificant effects in a meta-analysis do not imply that subsequent studies should ignore these factors. For example, unobserved heterogeneity remains an important issue in marketing–finance studies, and a growing number of studies account for it (e.g., Anderson, Fornell, and Mazvancheryl 2004). The same logic applies to the inclusion of risk factors in marketing firm value models. We advise researchers to test as many model specifications and estimators as possible to show the robustness of econometric results.

LIMITATIONS AND DIRECTIONS FOR FURTHER RESEARCH

This study has some limitations offering fruitful avenues for further research. First, we were not able to include elasticities from all available marketing–finance interface studies because some of them did not provide the necessary information to calculate elasticities. The exclusion of these elasticities may attenuate the generalizability of our results to some extent. We follow Albers (2012) in recommending

that authors report dimensionless elasticities in addition to unstandardized regression coefficients.

Second, like any other meta-analysis, our study relies on partially subjective data coding. The provision of the meta-analytic database makes our coding decisions transparent.

Third, it might be worthwhile to study additional moderators. However, we are limited by the actual occurrence or measurability of study characteristics (Farley, Lehmann, and Sawyer 1995). For example, the question of whether advertising expenditures and marketing assets are more value relevant for young versus mature companies cannot be answered, because an average firm/brand age is given in only a very small number of studies. Future studies should put more focus on the heterogeneity in firm value effects between different industries and firms.

Finally, we included only elasticities pertaining to the marketing-mix variable advertising in our meta-analytic model. The meta-analyses on price (mean elasticity of –2.62 in Bijmolt, Van Heerde, and Pieters [2005]) and personal selling (mean elasticity of .34 in Albers, Mantrala, and Sridhar [2010]) imply a much higher sales response effect of these instruments. Given that recent studies (e.g., Srinivasan, Vanhuele, and Pauwels 2010) have shown that the effects of price and distribution on brand equity metrics are also significantly higher than the effect of advertising, it is especially surprising that these variables have received so little attention in marketing–finance studies. For instance, future studies could assess the shareholder value effect of skimming versus penetration strategies or whether the breadth of a distribution channel (exclusive vs. intensive distribution) has a stock market impact.

REFERENCES

Albers, Sönke (2012), "Optimizable and Implementable Aggregate Response Modeling for Marketing Decision Support," *International Journal of Research in Marketing*, 29 (2), 111–22.

———, Murali K. Mantrala, and Shrihari Sridhar (2010), "Personal Selling Elasticities: A Meta-Analysis," *Journal of Marketing Research*, 47 (October), 840–53.

Anderson, Eugene W., Claes Fornell, and Sanal K. Mazvancheryl (2004), "Customer Satisfaction and Shareholder Value," *Journal of Marketing*, 68 (October), 172–85.

———, ———, and Roland T. Rust (1997), "Customer Satisfaction, Productivity, and Profitability: Differences Between Goods and Services," *Marketing Science*, 16 (2), 129–45.

Assmus, Gert, John U. Farley, and Donald R. Lehmann (1984), "How Advertising Affects Sales: Meta-Analysis of Econometric Results," *Journal of Marketing Research*, 21 (February), 65–74.

Barth, Mary E., Michael B. Clement, George Foster, and Ron Kasznik (1998), "Brand Values and Capital Market Valuation," *Review of Accounting Studies*, 3 (1/2), 41–68.

Bezawada, Ram and Koen Pauwels (2013), "What Is Special About Marketing Organic Products? How Organic Assortment, Price, and Promotions Drive Retailer Performance," *Journal of Marketing*, 77 (January), 31–51.

Bijmolt, Tammo H.A. and Rik Pieters (2001), "Meta-Analysis in Marketing when Studies Contain Multiple Measurements," *Marketing Letters*, 12 (2), 157–69.

———, Harald J. Van Heerde, and Rik G.M. Pieters (2005), "New Empirical Generalizations on the Determinants of Price Elasticity," *Journal of Marketing Research*, 42 (May), 141–56.

Bird, M., C. Channon, and A.S.C. Ehrenberg (1970), "Brand Image and Brand Usage," *Journal of Marketing Research*, 7 (August), 307–14.

Blattberg, Robert C. and John Deighton (1996), "Manage Marketing by the Customer Equity Test," *Harvard Business Review*, 74 (July/August), 136–44.

Capon, Noel, John U. Farley, and Scott Hoenig (1990), "Determinants of Financial Performance: A Meta-Analysis," *Management Science*, 36 (10), 1143–59.

Chintagunta, Pradeep, Tülin Erdem, Peter E. Rossi, and Michel Wedel (2006), "Structural Modeling in Marketing: Review and Assessment," *Marketing Science*, 25 (6), 604–16.

Conchar, Margy P., Melvin R. Crask, and George M. Zinkhan (2005), "Market Valuation Models of the Effect of Advertising and Promotional Spending: A Review and Meta-Analysis," *Journal of the Academy of Marketing Science*, 33 (4), 445–60.

Danaher, Peter J., André Bonfrer, and Sanjay Dhar (2008), "The Effect of Competitive Advertising Interference on Sales for Packaged Goods," *Journal of Marketing Research*, 45 (April), 211–25.

Deleersnyder, Barbara, Marnik G. Dekimpe, Jan-Benedict E.M. Steenkamp, and Peter S.H. Leeflang (2009), "The Role of National Culture in Advertising's Sensitivity to Business Cycles," *Journal of Marketing*, 46 (October), 623–36.

Eisend, Martin and Farid Tarrahi (2014), "Meta-Analysis Selection Bias in Marketing Research," *International Journal of Research in Marketing*, 31 (3), 317–26.

Fama, Eugene F. (1970), "Efficient Capital Markets: A Review of Theory and Empirical Work," *Journal of Finance*, 25 (2), 383–417.

Farley, John U., Donald R. Lehmann, and Alan Sawyer (1995), "Empirical Marketing Generalization Using Meta-Analysis," *Marketing Science*, 14 (3), G36–46.

Fischer, Marc, Sönke Albers, Nils Wagner, and Monika Frie (2011), "Dynamic Marketing Budget Allocation Across Countries, Products, and Marketing Activities," *Marketing Science*, 30 (4), 568–85.

Ganesan, Shankar, ed. (2012), *Handbook of Marketing and Finance*. Cheltenham, UK: Edward Elgar.

Gatignon, Hubert (1984), "Competition as a Moderator of the Effect of Advertising on Sales," *Journal of Marketing Research*, 21 (November), 387–98.

Geyskens, Inge, Rekha Krishnan, Jan-Benedict E.M. Steenkamp, and Paulo V. Cunha (2009), "A Review and Evaluation of Meta-Analysis Practices in Management Research," *Journal of Management*, 35 (2), 393–419.

Greene, William H. (2012), *Econometric Analysis*, 7th ed. New York: Prentice Hall.

Hanssens, Dominique M. and Marnik G. Dekimpe (2008), "Models for the Financial-Performance Effects of Marketing," in *Handbook of Marketing Decision Models*, Berend Wieringa, ed. New York: Springer, 501–23.

———, Leonard J. Parsons, and Randall L. Schultz (2001), *Market Response Models: Econometric and Time Series Analysis*, 2nd ed. Boston: Kluwer Academic Publishers.

———, Koen H. Pauwels, Shuba Srinivasan, Marc Vanhuele, and Gokhan Yildirim (2014), "Consumer Attitude Metrics for Guiding Marketing Mix Decisions," *Marketing Science*, 33 (4), 534–50.

Hoffmann, Arvid O.I., Thomas Post, and Joost M.E. Pennings (2013), "Individual Investor Perceptions and Behavior During the Financial Crisis," *Journal of Banking and Finance*, 37 (1), 60–74.

Himme, Alexander and Marc Fischer (2014), "Drivers of the Cost of Capital: The Joint Role of Non-Financial Metrics," *International Journal of Research in Marketing*, 31 (2), 224–38.

Hirschey, Mark (2009), *Managerial Economics*, 12th ed. Mason, OH: Cengage Learning.

Huedo-Medina, Tania B., Julio Sánchez-Meca, Fulgencio Marín-Martínez, and Juan Botella (2006), "Assessing Heterogeneity in Meta-Analysis: Q Statistic or I^2 Index?" *Psychological Methods*, 11 (2), 193–206.

Jacobson, Robert and Natalie Mizik (2009), "Customer Satisfaction-Based Mispricing: Issues and Misconceptions," *Marketing Science*, 28 (5), 836–45.

Johansson, Johny K., Claudiu V. Dimofte, and Sanal K. Mazvancheryl (2012), "The Performance of Global Brands in the 2008 Financial Crisis: A Test of Two Brand Value Measures," *International Journal of Research in Marketing*, 29 (3), 235–45.

Joshi, Amit and Dominique M. Hanssens (2010), "The Direct and Indirect Effects of Advertising Spending on Firm Value," *Journal of Marketing*, 74 (January), 20–33.

Krasnikov, Alexander and Satish Jayachandran (2008), "The Relative Impact of Marketing, Research-and-Development, and Operations Capabilities on Firm Performance," *Journal of Marketing*, 72 (July), 1–11.

Kremer, Sara T.M., Tammo H.A. Bijmolt, Peter S.H. Leeflang, and Jaap E. Wieringa (2008), "Generalizations on the Effectiveness of Pharmaceutical Promotional Expenditures," *International Journal of Research in Marketing*, 25 (4), 234–46.

Lehmann, Donald R. (2004), "Metrics for Marketing Matter," *Journal of Marketing*, 68 (October), 73–75.

Lu, Jane W. and Paul W. Beamish (2004), "International Diversification and Firm Performance: The S-Curve Hypothesis," *The Academy of Management Journal*, 47 (4), 598–609.

Luo, Xueming, Sascha Raithel, and Michael A. Wiles (2013), "The Impact of Brand Rating Dispersion on Firm Value," *Journal of Marketing Research*, 50 (June), 399–415.

Mizik, Natalie and Robert Jacobson (2009), "Financial Markets Research in Marketing," in "Commentaries and Rejoinder to 'Marketing and Firm Value: Metrics, Methods, Findings and Future Directions,'" *Journal of Marketing Research*, 46 (June), 320–24.

Morgan, Neil (2012), "Marketing and Business Performance," *Journal of the Academy of Marketing Science*, 40 (1), 102–19.

Ou, Yi-Chun, Lisette de Vries, Thorsten Wiesel, and Peter C. Verhoef (2014), "The Role of Consumer Confidence in Creating Customer Loyalty," *Journal of Service Research*, 17 (3), 339–54.

Rappaport, Alfred (1998), *Creating Shareholder Value: A Guide for Managers and Investors*, 2nd ed. New York: The Free Press.

Reinartz, Werner, Jacquelyn S. Thomas, and V. Kumar (2005), "Balancing Acquisition and Retention Resources to Maximize Customer Profitability," *Journal of Marketing*, 69 (January), 63–79.

Rust, Roland T., Tim Ambler, Gregory S. Carpenter, V. Kumar, and Rajendra Srivastava (2004), "Measuring Marketing Productivity: Current Knowledge and Future Directions," *Journal of Marketing*, 68 (October), 76–89.

———, Donald R. Lehmann, and John U. Farley (1990), "Estimating Publication Bias in Meta-Analysis," *Journal of Marketing Research*, 27 (May), 220–26.

———, Katherine N. Lemon, and Valarie A. Zeithaml (2004), "Return on Marketing: Using Customer Equity to Focus Marketing Strategy," *Journal of Marketing*, 68 (January), 109–27.

Schulze, Christian, Bernd Skiera, and Thorsten Wiesel (2012), "Linking Customer and Financial Metrics to Shareholder Value: The Leverage Effect in Customer Based Valuation," *Journal of Marketing*, 76 (March), 17–32.

Sethuraman, Raj, Gerard J. Tellis, and Richard A. Briesch (2011), "How Well Does Advertising Work? Generalizations from Meta-Analysis of Brand Advertising Elasticities," *Journal of Marketing Research*, 48 (June), 457–71.

Shah, Denish, Roland T. Rust, A. Parasuraman, Richard Staelin, and George S. Day (2006), "The Path to Customer Centricity," *Journal of Service Research*, 9 (2), 113–24.

Smith, V. Kerry and Ju-Chin Huang (1995), "Can Markets Value Air Quality? A Meta-Analysis of Hedonic Property Value Models," *Journal of Political Economy*, 103 (1), 209–27.

Sorescu, Alina B. and Jelena Spanjol (2008), "Innovation's Effect on Firm Value and Risk: Insights from Consumer Packaged Goods," *Journal of Marketing*, 72 (March), 114–32.

Srinivasan, Raji, Gary L. Lilien, and Shrihari Sridhar (2011), "Should Firms Spend More on Research and Development and Advertising During Recessions?" *Journal of Marketing*, 75 (May), 49–65.

Srinivasan, Shuba and Dominique M. Hanssens (2009), "Marketing and Firm Value: Metrics, Methods, Findings, and Future Directions," *Journal of Marketing Research*, 46 (June), 293–312.

———, Marc Vanhuele, and Koen Pauwels (2010), "Mind-Set Metrics in Market Response Models: An Integrative Approach," *Journal of Marketing Research*, 47 (August), 672–84.

Srivastava, Rajenda K., Tasadduq A. Shervani, and Liam Fahey (1998), "Market-Based Assets and Shareholder Value: A Framework for Analysis," *Journal of Marketing*, 62 (January), 2–18.

Stahl, Florian, Mark Heitmann, Donald R. Lehmann, and Scott A. Neslin (2012), "The Impact of Brand Equity on Customer Acquisition, Retention, and Profit Margin," *Journal of Marketing*, 76 (July), 44–63.

Steenkamp, Jan-Benedict E.M. and Eric (Er) Fang (2011), "The Impact of Economic Contractions on the Effectiveness of R&D and Advertising: Evidence from U.S. Companies Spanning Three Decades," *Marketing Science*, 30 (4), 628–45.

Tirunillai, Seshadri and Gerard J. Tellis (2012), "Does Chatter Really Matter? Dynamics of User-Generated Content and Stock Performance," *Marketing Science*, 31 (2), 198–215.

U.S. Department of Justice (2015), "Herfindahl-Hirschman Index," (accessed February 14, 2015), [available at http://www.justice.gov/atr/public/guidelines/hhi.html].

Van Heerde, Harald J., Maarten J. Gijsenberg, Marnik G. Dekimpe, and Jan-Benedict E.M. Steenkamp (2013), "Price and Advertising Effectiveness over the Business Cycle," *Journal of Marketing Research*, 50 (April), 177–93.

Verhoef, Peter C. and Peter S.H. Leeflang (2009), "Understanding the Marketing Department's Influence Within the Firm," *Journal of Marketing*, 73 (March), 14–37.

Yoo, Boonghee, Naveen Donthu, and Sungho Lee (2000), "An Examination of Selected Marketing Mix Elements and Brand Equity," *Journal of the Academy of Marketing Science*, 28 (2), 195–211.