

# Tarred with the Same Brush? Advertising Share of Voice and Stock Price Synchronicity

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## Abstract

Using the informative view of advertising as their theoretical lens, the authors propose that advertising provides information to investors in financial markets, analogous to its role for customers in product markets. The authors extend previous marketing–finance research, which has focused on how advertising affects firms’ risk and returns, and investigate a novel outcome variable, stock price synchronicity. Consistent with their proposed theory, the authors find that firms that advertise more relative to competitors have lower stock price synchronicity, implying that these firms’ stock price movements are driven more by information that is specific to the firm rather than general industry- and market-wide trends. The effect of advertising investments on stock price synchronicity is moderated by the information demand versus supply about firms in financial markets given firms’ product characteristics and ownership structure, and the likelihood of spillover effects between product and financial markets given firms’ marketing strategies. The authors illustrate the relevance of their findings for marketing managers through an event study in which they demonstrate that firms with high stock price synchronicity are “tarred with the same brush” and experience negative abnormal returns when competitors have a product recall, whereas firms with low stock price synchronicity are not affected.

## Keywords

advertising investments, information asymmetry, marketing–finance interface, search costs, stock price synchronicity

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Shallow drillers and deep water firms were tarred with the same brush. . . . There couldn’t be a better illustration of the degree to which the stock markets are not at all efficient.

—Lappin (2010)

According to the informative view, advertising “is an important source of information” (Telser 1964, p. 558) that can effectively reduce search costs by conveying firm-specific news (Stigler 1961). Specifically, in product markets with incomplete information, advertising can help customers learn about the existence, price, function, and quality of a firm’s products (Nelson 1970, 1974). Adopting this informative view of advertising (Bagwell 2007), we propose that advertising can also help investors in financial markets learn about firms under conditions of imperfect information and search costs. That is, although advertising is typically intended to increase awareness of and provide information about a firm’s products rather than its shares—and might thus primarily be directed at customers—it is also accessible to investors (Chemmanur and Yan 2009). Indeed, investors must know of a firm before they can consider it as an investment option or acquire more information about it (Merton 1987), and advertising can increase the firm’s

visibility and familiarity among investors (Singh, Faircloth, and Nejadmalayeri 2005). Specifically, prior research has shown that product-market advertising attracts investor attention (Fehle, Tsyplakov, and Zdorovtsov 2005; Lou 2014; Xiong and Bharadwaj 2013), constitutes an important source of information for investors (Boyd and Schonfeld 1977; Chauvin and Hirschey 1993), and is eventually internalized by investors as it affects their trading behavior (Grullon, Kanatas, and Weston 2004; Madsen and Niessner 2019).

Building on this perspective of the informativeness of advertising to the investor community, we posit that advertising has an important role in helping incorporate firm-specific information into a firm’s stock price. As the opening quote illustrates, the financial market sometimes does not recognize

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differences between firms due to high search costs, resulting in informational inefficiency (Grossman and Stiglitz 1980). In such a situation, the amount of firm-specific information impounded into a firm's stock price will be low, and its movements will be explained to a greater extent by industry- and overall-market trends rather than by news and events specific to the firm (Roll 1988). That is, stock price synchronicity is high, and stock price informativeness is therefore low (Durnev et al. 2003). However, if a firm manages to attract investor attention and provide information about its unique circumstances to the financial market via advertising (e.g., Grullon, Kanatas, and Weston 2004; Lou 2014), its stock price movements could start reflecting more of the firm-specific information it is releasing, thus becoming less synchronized with the general movements of its industry or the market as a whole.

There are various firm benefits associated with having low stock price synchronicity. For instance, stocks of firms with lower synchronicity are less likely to crash (Hutton, Marcus, and Tehranian 2009). Moreover, their price movements convey more meaningful signals for managers to learn from (Frésard 2012), increasing the economic efficiency of corporate investment (Durnev, Morck, and Yeung 2004) and firm productivity (Bennett, Stulz, and Wang 2020). Ultimately, when stock prices are more informative, investors experience less information asymmetry and are more willing to provide capital to a firm, allowing it to invest in profitable projects (Stiglitz and Weiss 1981).

Against this backdrop, we examine how marketing actions can assist in impounding firm-specific information into a firm's stock price and reduce stock price synchronicity by mitigating the search costs and information asymmetry that investors face. In doing so, we complement existing work on the marketing–finance interface, which has focused on how advertising can decrease the risk of a firm's stock and increase its returns (e.g., Joshi and Hanssens 2010; Luo and Bhattacharya 2009; McAlister et al. 2007; Osinga et al. 2011; Wies et al. 2019). While risk and returns are relevant outcome variables given marketing's need to be accountable and prove its value relevance (e.g., Rust et al. 2004), the literature has so far overlooked the question of whether advertising can also impact other important properties of a firm's stock price, in particular its information content (Morck, Yeung, and Yu 2000). Figure 1 systematically outlines the differences between stock price synchronicity and previously used risk and return measures.

Prior studies usually explain a firm's expected returns by its level of systematic risk ( $\beta$ ), which measures whether its stock price tends to move up and down more or less than the overall market. Returns that cannot be explained by such market-wide movements are considered unique to the firm and reflect its idiosyncratic risk. While systematic risk captures the direction and strength of the expected comovement of the firm's returns with overall market returns, it does not tell us *how much* of its actual stock price movements are explained by these overall market trends. Stock price synchronicity, however, does so by measuring the *extent* to which a firm's stock price movements

are explained by common industry- and market-wide information relative to unique, firm-specific information.

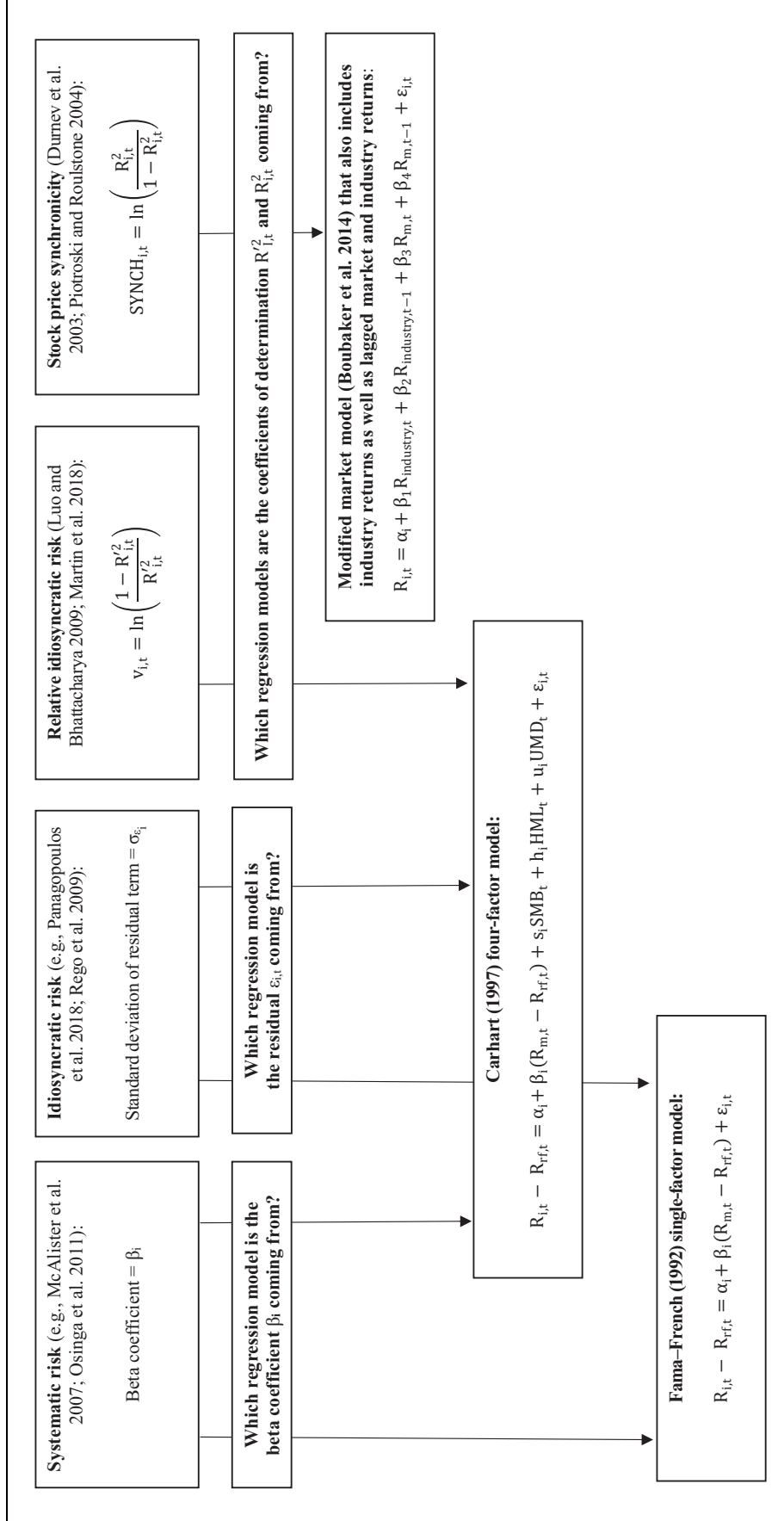
Stock price synchronicity also differs from a firm's (relative) idiosyncratic risk in that these measures are derived from different regression models aiming to explain a firm's returns, are based on the standard deviation of residuals versus the coefficient of determination, and may or may not take into account industry returns. In particular, synchronicity shows how much the firm's stock price follows the overall stock market and its industry's movement, whereas relative idiosyncratic risk explains only the divergences of the firm's stock price movement from that of the overall stock market and not that of the firm's industry. We explain these differences in detail in the “Method” section.<sup>1</sup>

The lack of attention in the marketing literature to the concept of stock price synchronicity is surprising, given that marketers seem to have an intuitive understanding that advertising can help distinguish a firm in financial markets and consider this an important objective. For example, the publicly listed collaboration hub Slack recently aggressively increased its advertising spending to differentiate itself from competitor Microsoft Teams (Faull 2019). In particular, Slack wanted “to be clearer in how it communicates the differences to the financial market.” There is, in fact, anecdotal evidence that stock price synchronicity is a practically relevant concept for investors and firm managers, as illustrated by a Morningstar (Wall 2018) article, which argued that “financial services companies within Europe have been out of favor in recent years. They have rather all been tarred with the same brush as some of the ones that have had negative press.”

In this article, we propose a conceptual framework and design an empirical strategy to address three research questions. First, we ask whether having a larger advertising share of voice reduces a firm's stock price synchronicity. In this regard, we expect that the more a firm advertises relative to its competitors, the more visible it will be among investors, making it more likely that they incorporate in their pricing the firm-specific information conveyed in or by the firm's advertising. Second, we study whether the effect of advertising is more pronounced if there is more demand for information about the firm in the financial market. In this regard, firms with complex products are associated with greater information asymmetry (Solberg 2008), making advertising more valuable and informative. Third, we examine whether the effect of advertising is less pronounced if there is more supply of information about the firm in the financial market. In this regard, institutional investors are associated with an increased availability of firm-specific information (Ke and Petroni 2004).

To address our research questions, we assemble a comprehensive and large-scale data set based on all U.S. publicly listed firms in the Center for Research in Security Prices

<sup>1</sup> For a detailed comparison of our study to previous studies linking advertising and idiosyncratic risk, see Web Appendix A.



**Figure 1.** Flow chart comparing systematic risk, (relative) idiosyncratic risk, and stock price synchronicity.

Notes:  $R_{i,t}$  is the return of firm  $i$  in period  $t$ ,  $R_{rf,t}$  is the risk-free rate of return in period  $t$ ,  $R_{m,t}$  is the market return in period  $t$ ,  $SMB_t$  is the market return in period  $t$ ,  $HML_t$  is the return difference between a portfolio of high versus low book-to-market equity firms in period  $t$ ,  $UMD_t$  is the return difference between a portfolio of firms with high versus low prior returns in period  $t$ ,  $R_{industry,t}$  is the return of the firm's two-digit SIC industry in period  $t$ .

(CRSP) database from 1994 to 2018. We supplement this quantitative data with qualitative data obtained from in-depth interviews with executives of publicly listed firms. Consistent with our conceptual framework, we find a negative relationship between advertising share of voice and stock price synchronicity, which is more (less) pronounced in aforementioned situations of high information demand (supply). We replicate our main results using Kantar Media advertising data as an alternative to COMPUSTAT and show that they are robust to endogeneity concerns by using Shi, Grewal, and Sridhar's (2021) "peer-of-peer" instrumental variable (IV) approach.

Our article contributes to the literature in several ways. Theoretically, we introduce the notion that advertising assists the functioning of financial markets by facilitating the dissemination of firm-specific information. While anecdotal evidence suggests that marketers use stock price synchronicity in conveying the value they bring to the firm, academic evidence is missing. We address this gap in the literature and propose a conceptual framework in which we introduce synchronicity as a relevant concept to the marketing literature. We also contribute to the debate in the finance literature about whether synchronicity decreases by news or noise (Li, Rajgopal, and Venkatachalam 2014), given that firm-specific stock price movements could also reflect "occasional frenzy unrelated to concrete information" (Roll 1988, p. 566). We help resolve this debate by providing empirical evidence in marketing consistent with lower synchronicity being a sign of more information, not noise. In additional analyses, we show that firms that are more in the news have lower synchronicity, while advertising has an effect above and beyond the effect of news, reinforcing its informative role for the investor community. In fact, the relative impact of advertising in reducing synchronicity is 2.5 times that of news coverage.

Practically, we support managers in understanding how advertising influences investors and can transmit firm-specific information to the financial market. Sensitivity analyses show that the effect of advertising is more pronounced when there is congruence between a firm's corporate name and its ticker symbol, and when a firm has a corporate branding strategy, providing actionable insights for marketers. We further illustrate the practical importance of our results through an event study analyzing product recalls (Chen, Ganesan, and Liu 2009). We show that firms with high synchronicity are "tarred with the same brush" in terms of experiencing negative abnormal returns when competitors have a recall, while firms with low synchronicity are not affected. Combined with our result that advertising can reduce synchronicity, these insights help marketers reaffirm their function's legitimacy, alleviating the threat of marketing responsibilities being marginalized (Rust et al. 2004).

Table 1 positions our study relative to related studies on either advertising or synchronicity, highlighting its contribution over previous work in marketing and finance. This table shows that prior literature on the financial market implications

of advertising has not studied stock price synchronicity as a dependent variable, whereas prior literature on the drivers of stock price synchronicity has not studied advertising investments as an independent variable. Our study thus brings together two previously disconnected streams of literature. Furthermore, neither of these streams of literature has simultaneously examined the moderating role of a firm's product complexity and institutional ownership as measures of the information demand versus supply about the firm in the financial market. Finally, previous literature has not considered the moderating role of a firm's ticker symbol and branding strategy as variables under the influence of the marketing function affecting the likelihood of spillover effects between product and financial markets.

## Conceptual Framework and Hypotheses

### *Advertising Investments and Stock Price Synchronicity: The Informative View of Advertising*

In specifying our hypotheses, we rely on theoretical arguments from the extant literature, augmented by insights from interviews with domain experts (i.e., executives of publicly listed firms).<sup>2</sup> At the heart of our theoretical development lies the organizing framework of Bagwell (2007), who distinguishes three views on advertising: the persuasive, informative, and complementary views. We adopt the informative view of advertising as our primary theoretical lens, given that information asymmetry between a firm and its investors is an essential force driving stock price synchronicity (Haggard, Martin, and Pereira 2008). According to the informative view, advertising can help markets learn about firms and their products in the presence of imperfect information and search costs (Bagwell 2007).

In particular, product markets are often characterized by incomplete information because search costs may deter customers from learning about every product's existence, price, function, and quality (Nelson 1974). However, when a firm advertises, it reduces customers' search costs and decreases information asymmetry by providing at low-cost additional direct information on aforementioned aspects of its offerings and/or indirect information signaling it is a high-quality firm (Kirmani and Rao 2000). Investors in financial markets face a similar challenge as customers in product markets, in that stock prices do not always perfectly reflect all relevant information because the acquisition of information is costly (Grossman and Stiglitz 1980). Indeed, when firm-specific information is not readily available, investors have to rely on common information signals such as general industry- and market-wide trends to infer a firm's stock price (Veldkamp 2006). The reliance on such common information signals, in turn, is associated with

<sup>2</sup> For detailed information about this exploratory qualitative study of semistructured interviews, see Web Appendix B.

**Table 1.** Our Study Relative to Related Studies on Either Advertising or Stock Price Synchronicity.

Authors	Literature Domain	Independent Variable(s)	Dependent Variable(s)	Moderator Variable(s) Not Under Influence of Marketing Function		Moderator Variable(s) Under Influence of Marketing Function	
				Product Complexity	Institutional Ownership	Ticker Symbol	Branding Strategy
<b>Previous Studies with Advertising as Independent Variable<sup>a</sup></b>							
Aaker and Jacobson (1994)	Marketing	Advertising investments	Stock returns (-, n.s.)	No	No	No	No
Grullon, Kanatas, and Weston (2004)	Finance	Advertising investments	Breadth of ownership (+), stock market liquidity (+)	No	No	No	No
Fehle, Tsyplakov, and Zdorovtsov (2005)	Finance	Advertising investments	Stock returns (+)	No	No	No	No
Singh, Faircloth, and Nejadmalayeri (2005)	Marketing	Advertising investments	Cost of capital (-)	No	No	No	No
McAlister et al. (2007)	Marketing	Advertising investments	Systematic risk (-)	No	No	No	No
Luo and Bhattacharya (2009)	Marketing	Advertising investments <sup>c</sup>	Relative idiosyncratic risk (-)	No	No	No	No
Joshi and Hanssens (2009)	Marketing	Advertising investments	Stock returns (+)	No	No	No	No
Srinivasan et al. (2009)	Marketing	Advertising investments	Stock returns (+)	No	No	No	No
Wang, Zhang, and Ouyang (2009)	Marketing	Advertising investments	Tobin's q (+)	No	No	No	No
Joshi and Hanssens (2010)	Marketing	Advertising investments	Market capitalization (+)	No	No	No	No
Peterson and Jeong (2010)	Marketing	Advertising investments	Brand value (+), market capacity (+), market-to-book ratio (+), market asset value (+)	No	No	No	Partially (+) <sup>d</sup>
Kim and McAlister (2011)	Marketing	Advertising investments	Stock returns (+/-) <sup>e</sup>	No	No	No	No
Osinga et al. (2011)	Marketing	Advertising investments	Stock returns (+), systematic risk (-), idiosyncratic risk (+)	No	No	No	No
Srinivasan, Lilien, and Sridhar (2011)	Marketing	Advertising investments	Profit (+, n.s.), stock returns (+, n.s.) <sup>f</sup>	No	No	No	No
Luo and De Jong (2012)	Marketing	Advertising investments	Stock returns (+)	No	No	No	No
Xiong and Bharadwaj (2013)	Marketing	Advertising investments	Stock returns (+)	No	No	No	No
Lou (2014)	Finance	Advertising investments	Stock returns (+/-) <sup>g</sup>	No	Yes	No	Partially (-) <sup>h</sup>
Sridhar, Narayanan, and Srinivasan (2014)	Marketing	Advertising investments	Sales (+), Tobin's q (+)	No	No	No	No
Jindal and McAlister (2015)	Marketing	Advertising investments	Bankruptcy risk (-, n.s.)	No	No	No	No
McAlister et al. (2016)	Marketing	Advertising investments	Sales (+), Tobin's q (+, n.s.)	No	No	No	No
Sridhar et al. (2016)	Marketing	Advertising investments	Tobin's q (+)	No	No	No	No
Martin et al. (2018)	Marketing	Advertising investments <sup>i</sup>	Tobin's q (+, n.s.), systematic risk (-), relative idiosyncratic risk (+)	No	No	No	No
Frennea, Han, and Mittal (2019)	Marketing	Advertising investments	Stock returns (+, n.s.), idiosyncratic risk (-)	No	No	No	No
Focke, Ruenzi, and Ungeheuer (2020)	Finance	Advertising investments <sup>j</sup>	Page views of firm's Wikipedia page (+), Google Search Volume (+), downloads from SEC EDGAR platform (+), Bloomberg searches (+), stock turnover (+), stock liquidity (+, n.s.), stock returns (+, n.s.)	No	No	No	No
Jindal (2020)	Marketing	Advertising investments	Bankruptcy survival rate (-)	No	No	No	No

(continued)

Table 1. (continued)

Authors	Literature Domain	Independent Variable(s)	Dependent Variable(s)	Moderator Variable(s) Under Influence of Marketing Function			Moderator Variable(s) Under Influence of Marketing Function		
				Product Complexity	Institutional Ownership	Ticker Symbol	Branding Strategy	Product Complexity	Institutional Ownership
<b>Previous Studies with Synchronicity as Dependent Variable<sup>b</sup></b>									
Morck, Yeung, and Yu (2000)	Finance	Gross domestic product (-), property rights (-)	Stock price synchronicity	No	No	No	No	No	No
Piotroski and Roulstone (2004)	Finance	Analyst coverage (+), insider trading (-), institutional trading (-)	Stock price synchronicity	No	No	No	No	No	No
Chan and Hameed (2006)	Finance	Analyst coverage (+)	Stock price synchronicity	No	No	No	No	No	No
Haggard, Martin, and Pereira (2008)	Finance	Voluntary disclosure (-)	Stock price synchronicity	No	No	No	No	No	No
Brockman and Yan (2009)	Finance	Blockholder ownership (-)	Stock price synchronicity	No	No	No	No	No	No
Fernandes and Ferreira (2009)	Finance	Insider trading laws (-)	Stock price synchronicity	No	No	No	No	No	No
Dasgupta, Gan, and Gao (2010)	Finance	Transparency of firm's information environment (+)	Stock price synchronicity	No	No	No	No	No	No
Gul, Kim, and Qiu (2010)	Finance	Shareholder ownership concentration (+), foreign ownership (-), audit quality (-)	Stock price synchronicity	No	No	No	No	No	No
Ye (2012)	Finance	Active share of institutional ownership (-)	Stock price synchronicity	No	No	No	No	No	No
Xu et al. (2013)	Finance	Analyst coverage (star vs. nonstar analyst coverage) (-)	Stock price synchronicity	No	No	No	No	No	No
Boubaker, Mansali, and Rijba (2014)	Finance	Separation of voting and cash flow rights (excess control) (+), ultimate cash flow rights ownership (-)	Stock price synchronicity	No	No	No	No	No	No
Kim et al. (2014)	Finance	Press freedom (-)	Stock price synchronicity	No	No	No	No	No	No
Eun, Wang, and Xiao (2015)	Finance	Collectivistic culture (+)	Stock price synchronicity	No	No	No	No	No	No
Francis et al. (2015)	Finance	Stricter bank regulation and supervision (-)	Stock price synchronicity	No	No	No	No	No	No
Dong et al. (2016)	Finance	Adoption of XBRL (-)	Stock price synchronicity	No	No	No	No	No	No
Jiang et al. (2018)	Finance	Analyst mutual-fund affiliation (-)	Stock price synchronicity	No	No	No	No	No	No
Bai, Dong, and Hu (2019)	Finance	Financial report readability (-)	Stock price synchronicity	No	Yes	No	No	No	No
Chue, Gul, and Mujtaba Mian (2019)	Finance	High investor sentiment (+)	Stock price synchronicity	No	No	No	No	No	No
Gao and Huang (2019)	Finance		Stock price synchronicity	No	No	No	No	No	No

(continued)

Table 1. (continued)

Authors	Literature Domain	Independent Variable(s)	Dependent Variable(s)	Moderator Variable(s) Not Under Influence of Marketing Function			Moderator Variable(s) Under Influence of Marketing Function		
				Product Complexity	Institutional Ownership	Ticker Symbol	Branding Strategy		
Dang et al. (2020)	Finance	Implementation of EDGAR system (-)	Stock price synchronicity	No	Partially (+) <sup>k</sup>	No	No	No	
Ding, Zhou, and Li (2020)	Finance	Media coverage (-)	Stock price synchronicity	No	No	No	No	No	
Grewal, Hauptmann, and Serafeim (2020)	Finance	Social media coverage (-)	Stock price synchronicity	No	Yes	No	No	No	
		Voluntary disclosure of sustainability information (-)							
<b>This Study<sup>a</sup></b>									
Cheong, Hoffmann, and Zurbruegg (2021)	Marketing	Advertising investments	Stock price synchronicity (-)	Yes (-)	Yes (+)	Yes (-)	Yes (-)	Yes (-)	

<sup>a</sup>Sign(s) of the effect on the dependent variable(s) in parentheses.

<sup>b</sup>Sign(s) of the effect of the independent variable(s) in parentheses.

<sup>c</sup>This study examined corporate social performance as main independent variable of interest and advertising investments as moderator but also reported direct effect of advertising investments.

<sup>d</sup>This study examined moderating role of brand type (consumer vs. nonconsumer).

<sup>e</sup>This study finds that effect of advertising is contingent on spending level (i.e., above vs. below advertising response threshold).

<sup>f</sup>This study focused on effect of advertising investments during recessions and contingent on firms' market share, financial leverage, and product-market profile; n.s. refers to the main effect of advertising investments as control variable.

<sup>g</sup>This study finds a positive effect of advertising investments on contemporaneous abnormal stock returns and a negative effect of advertising investments on future abnormal returns.

<sup>h</sup>This study examined the moderating role of number of brands.

<sup>i</sup>This study examined political management capital as main independent variable of interest and advertising investments as moderator but also reported direct effect of advertising investments.

<sup>j</sup>Madsen and Niessner (2019) perform a similar study as Focke, Ruenzi, and Ungeheuer (2020) but examine the effect of actual advertisements instead of advertising investments.

<sup>k</sup>This study examined the moderating role of blockholder ownership, which is related to, but different from, institutional ownership.

Notes: + (-) = positive (negative) sign of the main or moderating effect; when no such effect is tested, we omit this labeling; n.s. = not significant; SEC = Securities and Exchange Commission; XBRL = extensible business reporting language.

higher stock price synchronicity (Haggard, Martin, and Pereira 2008).

However, analogous to its role for customers in product markets, firms can reduce investors' search costs and decrease information asymmetry in financial markets through advertising. That is, similar to the role of other forms of voluntary disclosure (e.g., Grewal, Hauptmann, and Serafeim 2020; Haggard, Martin, and Pereira 2008), our argument of a negative relationship between advertising and stock price synchronicity rests on the notion of advertising transmitting firm-specific information to financial markets (see Bagwell 2007).

Indeed, prior finance literature claims that advertising can be a source of information about a firm that was previously unavailable or poorly disseminated among investors (Boyd and Schonfeld 1977). Search costs and other financial market imperfections can make it rational for investors to use a firm's advertising as an information source (Boyd and Schonfeld 1977, p. 43). In fact, according to Fehle, Tsyplakov, and Zdorovtsov (2005), firms frequently use advertising not only to promote their products to customers but also as a communication channel to investors. This account was echoed by an interviewed chief marketing officer (CMO) who remarked, "I think it is really important to take investors into account in your advertising strategy . . . and we could do that while still aligning with our traditional core audience [of customers] because there would be crossover." Indeed, Luo and De Jong (2012) describe how some firms' advertising explicitly targets investors instead of customers. Furthermore, Grullon, Kanatas, and Weston (2004, p. 458) argue that the "information that is conveyed by product-market advertisements appears to be very important in investor decisions," while Chemmanur and Yan (2009) propose that a firm's advertising provides information to the financial market by signaling the value of its products and projects.

Thus, apart from any other information that investors might have about a firm, we propose that advertising is a source of firm-specific information that subsequently is impounded into the firm's stock price. Accordingly, a firm's stock price will not merely reflect general industry- and market-wide trends but will incorporate more firm-specific information, resulting in lower stock price synchronicity. The more a firm advertises, the more visible it is among investors, increasing the likelihood that investors are confronted with, and incorporate into the stock price, any firm-specific information conveyed in or by this advertising. Firms compete for attention, and are more likely to be successful in doing so if their share of voice is greater (Clark, Doraszelski, and Draganska 2009). Advertising share of voice captures the relative importance of advertising as a communication channel for a firm in a particular industry, and controls for differences in advertising expenditures across industries (e.g., McAlister et al. 2016). We therefore hypothesize:

**H<sub>1</sub>:** Advertising share of voice is negatively associated with a firm's stock price synchronicity.

### *Boundary Conditions of the Effect of Advertising: Information Demand Versus Supply*

According to our conceptual framework, advertising can decrease stock price synchronicity by reducing investors' search costs and the information asymmetry in financial markets. Against this backdrop, our investigation of the boundary conditions of the effect of advertising is organized around ideas of information demand versus supply. We expect that when there is more information demand (supply) in the financial market, investors will rely more (less) on advertising for obtaining firm-specific information, and the association between advertising share of voice and stock price synchronicity will therefore be stronger (weaker).

In terms of information demand, prior marketing and management literature finds that product complexity is associated with more information asymmetry (e.g., Dimoka, Hong, and Pavlou 2012; Solberg 2008). Consistent with this finding, the accounting and finance literature shows that having more complex products is associated with an increased desire for firm-specific information by the financial market and heightened search costs (Collins, Maydew, and Weiss 1997). Indeed, for firms with more technologically advanced products, the information included in a firm's financial statements has been argued to be only of limited value to investors (Amir and Lev 1996). This is because such firms typically invest heavily in intangibles such as research and development (R&D), customer-base creation, franchise, or brand development, yet in their financial statements, such investments are immediately expensed or arbitrarily amortized (Aboody and Lev 2000). Given the increased search costs and heightened information asymmetry, advertising could thus be more valuable and informative for firms with complex products.

In line with this expectation, an interviewed head of marketing stated, "I would expect it to matter more if products are complex, as information asymmetry is higher for such firms, making it more important to increase that awareness and understanding through advertising." This line of reasoning is also consistent with prior finance studies that argue that for firms with complex products, there is more demand for alternative information sources to infer a firm's stock price, including nonfinancial indicators (Amir and Lev 1996). Furthermore, this reasoning is supported by extant marketing research discussing advertising investments as a way to communicate information to investors, which argues that "in the face of intensified information asymmetry, investors have a stronger incentive to use firm-initiated activities . . . as signals of internal information" (Gao et al. 2015, p. 84). In summary, for firms with more complex products, investors have to rely more on the firm-specific information that advertising can provide to price a firm's stock, and we therefore expect the association between advertising share of voice and stock price synchronicity to be stronger. We thus hypothesize:



**H<sub>2</sub>:** The association between advertising share of voice and stock price synchronicity is stronger for firms with more complex products.

In terms of information supply, the finance literature makes a fundamental distinction between “informed” and “uninformed” investors—with the former usually referring to institutional investors and the latter to individual investors. Importantly, individual investors are generally more attention and resource constrained than institutional investors and thus more affected by product-market advertising (e.g., Fehle, Tsyplakov, and Zdorovtsov 2005; Grullon, Kanatas, and Weston 2004; Lou 2014). Indeed, Easley and O’Hara (2004, p. 1577) argue that “some investors, perhaps insiders and institutions, are always more informed than the typical retail trader, who could not become informed at any reasonable cost.” Accordingly, the reduction in investors’ search costs and information asymmetry associated with an increase in a firm’s advertising likely plays a less important role when institutional ownership of a firm is higher.

In fact, institutional ownership is associated with an increased availability of firm-specific information in the financial market (Bai, Dong, and Hu 2019). As professional investors, institutions enjoy superior access to firm-specific information, discussing directly with management (Ke and Petroni 2004). Apart from being less dependent on a firm’s advertising as an information source themselves, institutional investors also reveal their private information to the financial market through their trading (Degeorge, Derrien, and Womack 2010). Accordingly, when institutional ownership is higher, we expect the association between advertising share of voice and stock price synchronicity to be weaker. The interviewed managers expressed a similar view. In the words of a CMO, “Institutional investors get regular updates from the board and management, so the impact of advertising is less obvious in that instance, because they would have been more aware of what the organization is doing.” Consistent with this perspective, a head of marketing noted, “Individual investors, on the other hand, are more reliant on advertising and marketing to be aware of what is happening.” We thus hypothesize:

**H<sub>3</sub>:** The association between advertising share of voice and stock price synchronicity is weaker for firms with higher institutional ownership.

## Method

### Data Sources and Sample

We start our data collection by considering all firms listed on the New York Stock Exchange, the American Stock Exchange, and the Nasdaq Stock Exchange between 1994 and 2018, excluding firms from regulated utilities as well as the finance and banking industries. This leads to an initial sample of 10,391 unique firms across 63 different two-digit Standard Industrial Classification (SIC) industries. Excluding firms from aforementioned industries is standard practice in both finance (e.g., Kayhan and Titman 2007) and accounting (e.g., Desai,

Rajgopal, and Venkatachalam 2004) research. Research at the marketing–finance interface has also adopted the convention of excluding these firms (e.g., Bendig et al. 2018; McAlister et al. 2016) to avoid that observed corporate policies are driven by regulatory requirements instead of firm strategy.<sup>3</sup>

The next step in our data collection is to obtain accounting, financial, and advertising data from Compustat, stock price synchronicity data from CRSP, analyst coverage data from I/B/E/S, and institutional ownership data from Thomson Reuters’ Institutional (13f) Holdings. Doing so yields a final sample of 4,226 unique firms across 58 different two-digit SIC industries that have complete data for all measures included in our analyses, as described next. Web Appendix C compares the final sample of 4,226 firms with the initial sample of 10,391 firms and confirms that the final sample is not disproportionately weighted toward a particular industry or firm size.

## Measures

**Stock price synchronicity.** The dependent variable in our regressions is the synchronicity measure SYNCH, calculated according to the standard procedure in the literature. In particular, we follow Piotroski and Roulstone (2004) and first estimate the following linear regression:

$$R_{i,j} = \alpha_i + \beta_1 R_{\text{industry},j} + \beta_2 R_{\text{industry},j-1} + \beta_3 R_{m,j} + \beta_4 R_{m,j-1} + \epsilon_{i,j}, \quad (1)$$

where  $R_{i,j}$  is the return of stock  $i$  at week  $j$ ,  $R_{m,j}$  is the value-weighted market return at week  $j$ , and  $R_{\text{industry},j}$  is the value-weighted industry return at week  $j$ . The industry return  $R_{\text{industry},j}$  for week  $j$  is created by using all firms with the same two-digit SIC code (Piotroski and Roulstone 2004), with the focal firm’s weekly return omitted in line with Gul, Kim, and Qiu’s (2010) procedure.<sup>4</sup> Following Piotroski and Roulstone (2004) and Durnev et al. (2003), we include a one-period lag into the model and estimate this regression for each firm-year using weekly observations, requiring a minimum of 40 weeks of positive trading volume to ensure sufficient liquidity to reliably calculate synchronicity. We define stock price synchronicity as follows (see Durnev et al. 2003; Piotroski and Roulstone 2004):

$$\text{SYNCH}_{i,t} = \ln \left( \frac{R_{i,t}^2}{1 - R_{i,t}^2} \right), \quad (2)$$

where  $R_{i,t}^2$  is the coefficient of determination from the estimation of Equation 1 for firm  $i$  in fiscal year  $t$ . Following standard

<sup>3</sup> Prior finance research on stock price synchronicity (e.g., Durnev et al. 2003) also excludes firms in these industries, arguing that accounting figures for firms in finance and banking industries are not comparable with those in other industries, while firms in the regulated utilities industry are subject to different investment constraints than firms in unregulated industries.

<sup>4</sup> We use weekly returns because the CRSP daily returns data report a zero return when a stock is not traded on a particular day. Weekly returns are less likely to be affected by thin trading problems (see Durnev et al. 2003, p. 800).

practice, we run a regression for each fiscal year that includes all weeks of the fiscal year. A high value for the SYNCH measure indicates that the firm's stock price movements are explained mostly by industry- and market-wide trends, whereas a low value indicates more firm-specific stock price movements. In other words, low stock price synchronicity indicates that more firm-specific information is being impounded into a firm's stock price (see Durnev, Morck, and Yeung 2004).

Figure 1 presents a diagram comparing the seemingly related concepts of systematic risk, (relative) idiosyncratic risk, and stock price synchronicity and identifies their differences. Prior studies in marketing typically operationalize systematic risk as the sensitivity of the firm's stock returns to changes in overall market returns as captured by the beta coefficient ( $\beta$ ) in the Fama and French (1992) single-factor model (e.g., as in McAlister et al. [2007]) or the Carhart (1997) four-factor model (e.g., as in Osinga et al. [2011]). Idiosyncratic risk is operationalized as the standard deviation ( $\sigma$ ) of the residual term of either the Fama and French (1992) single-factor model (e.g., as in Rego, Billett, and Morgan [2009]) or the Carhart (1997) four-factor model (e.g., as in Panagopoulos, Mullins, and Avramidis [2018]). Other prior studies in marketing use a measure of *relative* idiosyncratic risk, operationalized as a logarithmic transformation of the unexplained variance of the Carhart (1997) four-factor model ( $1 - R^2$ ) relative to its explained variance ( $R^2$ ) (e.g., as in Luo and Bhattacharya [2009] and Martin et al. [2018]).

At first, stock price synchronicity might seem like an inverse measure of relative idiosyncratic risk. However, Figure 1 shows that this interpretation is not correct. Mathematically, while relative idiosyncratic risk and stock price synchronicity both rely on a logarithmic transformation of the coefficient of determination ( $R^2$ ), the  $R^2$  values are obtained from two different regression models. In particular, whereas relative idiosyncratic risk utilizes the Carhart (1997) four-factor model, stock price synchronicity employs a modified market model that, in addition to overall market returns, also includes industry returns, as well as lagged market and industry returns (see Boubaker, Mansali, and Rjiba 2014).

Statistically, while relative idiosyncratic risk and stock price synchronicity are indeed negatively correlated on average, this correlation is far from unity, and there is substantial variation across the individual firms in our sample. The average correlation between relative idiosyncratic risk and stock price synchronicity during the sample period is  $r = -.5507$  ( $p < .01$ ), well below the cutoff value for discriminant validity of .85 (Brown 2015). For individual firms, the correlation between the measures ranges between  $r = -.9828$  ( $p < .01$ ) and  $r = +.9340$  ( $p < .01$ ).

Conceptually, the main difference between relative idiosyncratic risk and stock price synchronicity is that the inverse of relative idiosyncratic risk highlights the synchronicity of the firm's stock with the market at each  $t$ , while synchronicity highlights the synchronicity of the firms' stock with the market *and* its industry for not only each  $t$  but also the *previous* one. Synchronicity is thus a more comprehensive measure, which is

important as synchronicity of a firm's stock with its own industry might be more relevant for investors than synchronicity with the entire market. Consider the 2000 dot-com bubble. It would have been much more important and informative if a firm in the dot-com industry were less synchronous with its own industry than the market as a whole.<sup>5</sup>

**Advertising.** The main independent variable in our regressions is the advertising share of voice measure ADV\_SHARE.<sup>6</sup> We follow prior research and measure share of voice as the firm's advertising expenditure divided by the sum of all advertising expenditure in the firm's industry defined at the two-digit SIC level (Clark, Doraszelski, and Draganska 2009; McAlister et al. 2016). Advertising expenditure data come from Compustat DATA45. However, in Web Appendix D, we replicate our main result using advertising expenditure data from Kantar Media. Doing so also allows us to overcome a potential concern that the publicly listed firms included in our sample might be targeting investors in the U.S. financial market while conducting (some of) their marketing activities outside the United States. Because Kantar Media tracks spending on U.S. advertising only, using their data overcomes this potential concern.<sup>7</sup>

**Complex products.** The first moderator variable in our regressions is the measure COMPLEX\_PRODUCTS, which is a dummy variable that is equal to one if a firm's product complexity is equal to or above the median product complexity in the sample, and zero otherwise. We obtain data from Massachusetts Institute of Technology's Observatory of Economic Complexity (<https://oec.world/en>) on firms' product complexity index,<sup>8</sup> which is a validated measure of a product's relative knowledge intensity (Hausmann et al. 2014).

**Institutional ownership.** The second moderator variable in our regressions is the proportion of institutional ownership (INST\_INVESTOR) of a firm, which is measured as the number of shares that are held by institutional investors as per Thomson Reuters' Institutional (13f) Holdings divided by the total number of outstanding shares of a firm as reported in Compustat.

**Control variables.** We include a set of control variables to reduce the possibility of observing a spurious relationship between advertising and stock price synchronicity and ensure that we identify the effect of advertising above and beyond that of

<sup>5</sup> We thank an anonymous reviewer for this suggestion about the conceptual comprehensiveness of synchronicity.

<sup>6</sup> Note that our main result is robust to using alternative advertising measures such as advertising level or intensity.

<sup>7</sup> Note that the correlation coefficient between advertising spending as recorded by Kantar Media versus Compustat for firms that are included in both data sources ( $N = 3,466$ ) is positive and significant ( $r = .7536$ ,  $p < .01$ ). The respective correlation coefficient for advertising share of voice is also positive and significant ( $r = .7442$ ,  $p < .01$ ).

<sup>8</sup> For SIC divisions missing in the OEC database, we obtain data using the approach of Stojkoski, Utkovski, and Kocarev (2016).

**Table 2.** Variable Definitions and Data Sources.

Variable Name	Variable Definition	Data Source
SYNCH	The stock price synchronicity measure as specified in Equation 2	CRSP
ADV_SHARE	The advertising expenditure of a firm divided by the sum of all advertising expenditure in its two-digit SIC industry	Compustat
COMPLEX_PRODUCTS	Dummy variable equal to 1 if a firm's product complexity is equal to or above the sample median and 0 otherwise	OEC
INST_INVESTOR	The number of shares held by institutional investors divided by total number of outstanding shares of a firm	Thomson Reuters Institutional (13f) Holdings
SIZE	The natural logarithm of a firm's total assets	Compustat
VOLUME	The natural logarithm of a firm's trading volume	CRSP
IDIOSYNC_RISK	The standard deviation of the errors (residuals) in a regression of firm returns on market returns	CRSP
DEBT	The total debt of a firm divided by its total assets	Compustat
CAPEX	The capital expenditures of a firm divided by its total assets	Compustat
INTANGIBLE	The intangible assets of a firm divided by its total assets	Compustat
R&D_INTENSITY	The research and development expenditure of a firm divided by its total assets	Compustat
ANALYST_COV	The natural logarithm of 1 plus the number of analysts following the firm	I/B/E/S

known drivers of synchronicity as identified by the accounting and finance literature. First, we control for firm size measured by the natural logarithm of total assets (SIZE). Next, we control for the fact that stocks of actively traded and/or more liquid firms are more likely to react to new information more rapidly and in a more synchronous manner (Alford and Berger 1999; Gul, Kim, and Qiu 2010). We therefore include the natural logarithm of trading volume (VOLUME) as a control variable (Lo and Wang 2000; Pástor and Stambaugh 2003).

Next, finance literature finds that firm-specific information becomes more valuable for riskier firms (Chan and Hameed 2006), while marketing literature suggests a negative relationship between advertising investments and firm risk (Luo and Bhattacharya 2009). To ensure that our findings are not confounded by the risk-reducing route of advertising, we control for firm-specific risk (IDIOSYNC\_RISK), computed as the standard deviation of the residuals in a regression of firm returns on market returns (Rego, Billett, and Morgan 2009).<sup>9</sup> Prior work shows that financial leverage is important in explaining stock price synchronicity, as it impacts the sensitivity of returns to macroeconomic conditions (Hutton, Marcus, and Tehranian 2009). We control for leverage by including total debt divided by total assets (DEBT). We control for firms' capital intensity (CAPEX) using capital expenditure divided by total assets. Capital intensive firms can have higher future growth as capital expenditure programs provide growth options (Myers 1977). Growth stocks are more difficult to value (Malkiel 1963), which could affect their synchronicity.

We include the proportion of intangible assets (INTANGIBLE) as intangible investments allow firms to differentiate themselves from their competitors, potentially affecting

synchronicity (Brown and Kimbrough 2011). Because institutional investors have better access to firm-specific information than individuals (Ke and Petroni 2004), we include the proportion of institutional investors (INST\_INVESTOR). We control for firms' R&D\_INTENSITY, defined as R&D expenditure divided by total assets, as it increases the effort required to price a firm (Aboody and Lev 2000). Finally, we include analyst coverage (ANALYST\_COV), given that analysts play an intermediary role between firms and the financial market (Frankel and Li 2004; Luo and De Jong 2012). This final control variable is defined as the natural logarithm of 1 plus the number of analysts following the firm as per the I/B/E/S database.

Table 2 defines all variables included in our analyses, Table 3 provides descriptive statistics regarding these variables, and Table 4 describes the correlations between these variables.<sup>10</sup> In Web Appendix E, we show the amount of variation in stock price synchronicity over time and within firms.

### Modeling and Estimation Approach

Our framework specifies the link between advertising share of voice and stock price synchronicity and outlines relevant boundary conditions. Accordingly, we estimate two-panel least squares regression models. First, we estimate a panel regression model to examine the association between a

<sup>9</sup> Calculating idiosyncratic risk using the FF4 approach as in Luo and Bhattacharya (2009) or including the standard deviation of a firm's weekly stock returns as a measure of total equity risk does not change our results.

<sup>10</sup> Note that, in contrast to the multivariate regression results in Table 5, in the bivariate correlation results in Table 4, ADV\_SHARE is positively correlated with SYNCH. However, also note that ADV\_SHARE is positively correlated with SIZE. Because SIZE itself is positively correlated with SYNCH—consistent with the fact that larger firms are more proportionally weighted to the market (Chan and Hameed 2006)—this explains the positive correlation of ADV\_SHARE with SYNCH. McAlister et al. (2007, p. 40) report a similar “disconnect” between bivariate correlation and multiple regression results, stressing the need for utilizing multivariate regressions including the complete set of control variables and fixed effects.

**Table 3.** Descriptive Statistics.

Variable Name	Mean	Min	25th Percentile	Median	75th Percentile	Max	SD
SYNCH	-1.3297	-3.6622	-2.0213	-1.2740	-.5967	.9060	1.0320
ADV_SHARE	.0245	.0000	.0002	.0015	.0148	.2551	.0567
SIZE (\$MM) <sup>a</sup>	5,141.9234	.0420	89.3100	369.5490	1,761.5000	531,864.0000	21,818.7004
VOLUME (\$MM) <sup>a</sup>	271.5535	.0347	9.9046	45.5000	164.0000	23,800.0000	968.9370
IDIOSYNCH_RISK	.0677	.0127	.0396	.0575	.0849	.1789	.0386
DEBT	.2088	.0000	.0078	.1627	.3357	.7774	.2088
CAPEX	.0493	.0000	.0168	.0339	.0644	.2276	.0477
INTANGIBLE	.1632	.0000	.0056	.0871	.2699	.6142	.1858
INST_INVESTOR	.4411	.0000	.0700	.4339	.7702	1.0000	.3506
R&D_INTENSITY	.0463	.0000	.0000	.0063	.0677	.3490	.0750
ANALYST_COV (#) <sup>a</sup>	6.7704	.0000	.0000	4.0000	10.0000	56.0000	8.1704

<sup>a</sup>Variable is reported in its original units, before the log transformation, as described in Table 2.

Notes: N = 4,226.

firm's advertising share of voice and its stock price synchronicity ( $H_1$ ):

$$\begin{aligned}
 \text{SYNCH}_{i,t} = & \beta_0 + \beta_1 \text{ADV\_SHARE}_{i,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{VOLUME}_{i,t} \\
 & + \beta_4 \text{IDIOSYNCH\_RISK}_{i,t} + \beta_5 \text{DEBT}_{i,t} + \beta_6 \text{CAPEX}_{i,t} \\
 & + \beta_7 \text{INTANGIBLE}_{i,t} + \beta_8 \text{INST\_INVESTOR}_{i,t} \\
 & + \beta_9 \text{R\&D\_INTENSITY}_{i,t} + \beta_{10} \text{ANALYST\_COV}_{i,t} \\
 & + \sum_j \alpha_j \text{FIRM\_FE}_i + \sum_k \gamma_k \text{YEAR\_FE}_t + \epsilon_{i,t},
 \end{aligned} \quad (3)$$

Second, we estimate a panel regression model to examine the moderating effects of the demand for information in the financial market as captured by whether a firm has complex products ( $H_2$ ) and the supply of information in the financial market as captured by its institutional ownership proportion ( $H_3$ ):

$$\begin{aligned}
 \text{SYNCH}_{i,t} = & \beta_0 + \beta_1 \text{ADV\_SHARE}_{i,t} + \beta_2 \text{ADV\_SHARE}_{i,t} \\
 & \times \text{COMPLEX\_PRODUCTS}_{i,t} + \beta_3 \text{COMPLEX\_PRODUCTS}_{i,t} \\
 & + \beta_4 \text{ADV\_SHARE}_{i,t} \times \text{INST\_INVESTOR}_{i,t} \\
 & + \beta_5 \text{INST\_INVESTOR}_{i,t} + \beta_6 \text{SIZE}_{i,t} + \beta_7 \text{VOLUME}_{i,t} \\
 & + \beta_8 \text{IDIOSYNCH\_RISK}_{i,t} + \beta_9 \text{DEBT}_{i,t} + \beta_{10} \text{CAPEX}_{i,t} \\
 & + \beta_{11} \text{INTANGIBLE}_{i,t} + \beta_{12} \text{R\&D\_INTENSITY}_{i,t} \\
 & + \beta_{13} \text{ANALYST\_COV}_{i,t} + \sum_j \alpha_j \text{FIRM\_FE}_i \\
 & + \sum_k \gamma_k \text{YEAR\_FE}_t + \epsilon_{i,t},
 \end{aligned} \quad (4)$$

where  $i$  indicates firms and  $t$  indicates years. To control for unobserved firm-specific heterogeneity, we include time-invariant firm fixed effects (FIRM\_FE). For robustness, we also show results for when we exclude firm fixed effects and replace them with industry fixed effects. Given that the sample period spans over two decades, we include unobserved time-variant fixed effects (YEAR\_FE) but also show robustness to excluding them. In all model specifications, we use robust panel clustered standard errors to adjust for heteroscedasticity and serial dependence (Arellano 1987).

## Results

### Advertising Investments and Stock Price Synchronicity

$H_1$  predicts a negative relationship between advertising share of voice and stock price synchronicity. We present regression results from Equation 3 in Columns 1–4 of Table 5. We proceed in a sequential fashion in which we alternate between including in our model no fixed effects, year fixed effects only, year and industry fixed effects, and year and firm fixed effects, respectively. The proposed models are all statistically significant, and the variance inflation factors (VIFs) do not exceed 5, indicating that multicollinearity is not a concern. Across the alternative model specifications, the effect of ADV\_SHARE on SYNCH is consistently negative and significant, in support of  $H_1$ . Being the norm in the marketing–finance literature (Kurt and Hulland 2013; Luo 2010; Wies and Moorman 2015), our default model specification in the remainder of the article combines year and firm fixed effects.

Apart from the unstandardized coefficients, we present standardized coefficients for each variable. Standardized coefficients allow for an easy comparison of the relative impact that each variable has on our dependent variable SYNCH. In this regard, it is worth noting that the relative impact of advertising is similar to or greater than a number of the control variables that the finance literature considers to be important in determining stock price synchronicity, such as analyst coverage, leverage, capital intensity, and intangible assets. Finally, as one would expect, firm size and trading volume are the most prominent factors in influencing stock price synchronicity.

To further assess the relative importance of including advertising investments in a regression explaining stock price synchronicity, Table 5 shows  $t$ -statistic and log-likelihood ratio results from variable exclusion tests. For each of the four regressions, the inclusion of the advertising variable significantly improves the joint significance of the explanatory variables (all  $p$ -values < .01).

### Addressing Potential Sample Selection Concerns

We follow the extant literature in marketing (McAlister et al. 2007) and finance (Grullon, Kanatas, and Weston 2004) and

**Table 4.** Correlation Coefficients.

Variable Name	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. SYNCH	1.0000										
2. ADV_SHARE	.2274	1.0000									
3. SIZE	.4558	.6386	1.0000								
4. VOLUME	.4676	.3757	.6977	1.0000							
5. IDIOSYNC_RISK	-.2603	-.3787	-.5839	-.2468	1.0000						
6. DEBT	.0148 <sup>a</sup>	.2792	.3145	.0748	-.0858	1.0000					
7. CAPEX	.0381	.2207	.1220	.0576	-.0555	.0764	1.0000				
8. INTANGIBLE	.1547	.0581	.2962	.2580	-.2342	.2025	-.2338	1.0000			
9. INST_INVESTOR	.3435	.2469	.4386	.4608	-.3831	.0288	.0169	.2052	1.0000		
10. R&D_INTENSITY	.0085 <sup>a</sup>	-.4010	-.1739	.1019	.1471	-.3320	-.1938	.0176	-.0305	1.0000	
11. ANALYST_COV	.3753	.3649	.6071	.6775	-.3807	.0526	.1178	.1947	.7237	.0275	1.0000

Notes: All correlations without a superscript “a” are significant at  $p < .01$  or better.  $N = 4,226$ .

focus on those firms that report advertising expenditure in their financial statements. In this regard, one could argue that our results could be influenced by the confounding effect of firms that report advertising expenditure having a specific set of firm characteristics that is different from that of the general population of firms, which also includes firms that do not report advertising expenditure. To address this concern, we rely on accounting regulation FRR44, according to which only firms for which advertising is “material” are required to disclose their expenditure on this item (McAlister et al. 2016). As a robustness check, it thus seems reasonable to assume that in the case of missing data for advertising expenditure, the value is zero, and we include these firms in our sample ( $N = 10,391$ ). Using this approach, our results hold (see Web Appendix F).

Furthermore, although the only firms with zero advertising in our sample actually report this value themselves and zero incidence thus does not imply missing data, we also examine whether our results are sensitive to zero incidence of advertising by estimating a model with nonzero advertising only ( $N = 4,204$ ). In Web Appendix G, we show that when doing so our results continue to hold.

Finally, the typical half-life of a U.S. publicly listed firm is about a decade (Daepf et al. 2015). Given this observation, and aiming to strike a balance between showing that our results are not sensitive to the presence of some short time-series and maintaining a sufficiently large sample size, we also estimate a model which only includes firms with a minimum of ten years of observations as a robustness check ( $N = 1,144$ ). Our results hold (see Web Appendix H).

### Boundary Conditions: Information Demand Versus Supply

Having established that our baseline results are robust, we move our attention to examining the boundary conditions of the effect of advertising share of voice on stock price synchronicity. We present regression results of Equation 4 in Column 1 of Table 6. The proposed model is statistically significant and the VIFs are below 5.  $H_2$  predicts that the association between advertising share of voice and stock price synchronicity will be

more pronounced for firms with complex products. In support of  $H_2$ , the coefficient of the interaction term  $ADV\_SHARE \times COMPLEX\_PRODUCTS$  is both negative and significant. This negative coefficient indicates that the negative baseline effect of advertising on synchronicity is more pronounced when information demand is higher (i.e., when firms have complex products).  $H_3$  predicts that the association between advertising share of voice and stock price synchronicity will be less pronounced for firms with higher institutional ownership. In support of  $H_3$ , the coefficient of the interaction term  $ADV\_SHARE \times INST\_INVESTOR$  is both positive and significant, showing that the effect of advertising in reducing synchronicity is less pronounced when information supply is higher (i.e., when firms have greater institutional ownership).

### Addressing Potential Endogeneity Concerns

We implement an IV approach as a robustness check, as there could be endogeneity concerns related to omitted variable bias (Greene 2003).<sup>11</sup> IV models “partition the variation [in stock price synchronicity] into that which can be regarded as clean or as though generated via experimental methods, and that which is contaminated and could result in endogeneity bias” (Rossi 2014, p. 655). Given the potential concerns associated with using standard peer-based instruments that rely on perfectly overlapping peer groups (see Angrist 2014), we follow Shi, Grewal, and Sridhar’s (2021) “peer-of-peer” approach. For each firm in our sample, we identify its first- and second-degree peers and use the average advertising intensity (i.e., advertising expenditure divided by total assets) of its second-degree peers as our instrument. Second-degree peers include all firms that are not the focal firm’s peers but are peers of the focal firm’s peers. In particular, firms that have any

<sup>11</sup> We also examine strong increases and/or decreases in advertising using a transition analysis (Web Appendix I). In that analysis, we employ subsampling to only consider firms that have not advertised for two years and then start to advertise, and firms that have advertised for at least two years and then stop advertising. Doing so creates a break in any potential feedback effect that might influence our results.

**Table 5.** Advertising Share of Voice and Stock Price Synchronicity (H<sub>1</sub>).

Dependent Variable	SYNCH (1)		SYNCH (2)		SYNCH (3)		SYNCH (4)	
	Unstandardized Coefficients	Standardized Coefficients	Unstandardized Coefficients	Standardized Coefficients	Unstandardized Coefficients	Standardized Coefficients	Unstandardized Coefficients	Standardized Coefficients
<b>ADV_SHARE</b>	<b>-0.7832</b> <b>(-5.1179)***</b>	<b>-0.0431</b>	<b>-0.5407</b> <b>(-3.7403)***</b>	<b>-0.0297</b>	<b>-0.7597</b> <b>(-5.1488)***</b>	<b>-0.0418</b>	<b>-0.6200</b> <b>(-2.6427)***</b>	<b>-0.0341</b>
SIZE	.1221 <b>(19.3703)**</b>	.2575	.0802 <b>(13.2180)**</b>	.1691	.0810 <b>(13.3766)**</b>	.1708	.1215 <b>(10.3730)**</b>	.2562
VOLUME	.1334 <b>(22.7698)**</b>	.2646	.1421 <b>(25.3079)**</b>	.2819	.1429 <b>(25.9043)**</b>	.2834	.1768 <b>(25.2018)**</b>	.3507
IDIOSYNC_RISK	<b>-0.0168</b> <b>(-0.0789)</b>	<b>-0.0006</b>	<b>-3.1274</b> <b>(-14.1270)**</b>	<b>-1.170</b>	<b>-3.2341</b> <b>(-14.6997)**</b>	<b>-1.210</b>	<b>-3.9438</b> <b>(-18.1607)**</b>	<b>-1.476</b>
DEBT	<b>-0.3341</b> <b>(-8.9928)**</b>	<b>-0.0676</b>	<b>-1.1619</b> <b>(-4.6663)**</b>	<b>-0.328</b>	<b>-1.963</b> <b>(-5.7006)**</b>	<b>-0.397</b>	<b>-1.105</b> <b>(-2.6546)**</b>	<b>-0.0224</b>
CAPEX	.1960 <b>(1.3674)</b>	.0091	.4499 <b>(3.3275)**</b>	.0208	.5618 <b>(4.0794)**</b>	.0260	.9799 <b>(6.7953)**</b>	.0453
INTANGIBLE	<b>-0.0736</b> <b>(-1.7109)*</b>	<b>-0.0133</b>	<b>-1.108</b> <b>(-2.7472)**</b>	<b>-0.200</b>	<b>-0.710</b> <b>(-1.7550)*</b>	<b>-0.128</b>	<b>-1.480</b> <b>(-2.9745)**</b>	<b>-0.0267</b>
INST_INVESTOR	.5892 <b>(18.7978)**</b>	.2002	.4692 <b>(15.6651)**</b>	.1594	.4625 <b>(15.6415)**</b>	.1571	.2111 <b>(5.9371)**</b>	.0717
R&D_INTENSITY	.1191 <b>(1.1529)</b>	.0087	.2105 <b>(2.1880)**</b>	.0153	.2879 <b>(2.9162)**</b>	.0209	<b>-0.011</b> <b>(-0.0668)</b>	<b>-0.0001</b>
ANALYST_COV	<b>-0.0801</b> <b>(-7.4991)**</b>	<b>-0.0878</b>	<b>-0.0521</b> <b>(-5.2119)**</b>	<b>-0.0571</b>	<b>-0.0518</b> <b>(-5.2466)**</b>	<b>-0.0568</b>	<b>-0.0341</b> <b>(-3.2413)**</b>	<b>-0.0374</b>
Constant	<b>-2.6190</b> <b>(-68.1633)**</b>		<b>-2.2283</b> <b>(-58.4135)**</b>		<b>-2.1690</b> <b>(-23.3323)**</b>		<b>-2.4833</b> <b>(-36.1479)**</b>	
Study period	1994–2018		1994–2018		1994–2018		1994–2018	
Year FEs	No		Yes		Yes		Yes	
Industry FEs	No		No		Yes		No	
Firm FEs	No		No		No		Yes	
Number of firms	4,226		4,226		4,226		4,226	
Number of firm-year observations	29,911		29,911		29,911		29,911	
Adj. R-squared	.2629		.3958		.4015		.5117	
F-statistic	1,067.8762		577.2678		478.7209		8.3579	
p-value (F-statistic)	.0000		.0000		.0000		.0000	

**Omitted Variable Test for Advertising Share of Voice Variable (ADV\_SHARE)**

	Value of Test Statistic	Value of Test Statistic	Value of Test Statistic
t-statistic	-5.12***	-5.15***	-2.64***
Log-likelihood ratio (Chi-square)	26.19***	26.51***	6.98***

\*p < .10.  
\*\*p < .05.  
\*\*\*p < .01.

Notes: t-statistics are in parentheses. Variable of interest is highlighted in boldface. FEs = fixed effects.

**Table 6.** Boundary Conditions: Information Demand Versus Supply (H<sub>2</sub>–H<sub>3</sub>).

Dependent Variable	SYNCH
ADV_SHARE	–.9349 (–3.1131) <sup>***</sup>
COMPLEX_PRODUCTS	–.0065 (–.2271)
<b>ADV_SHARE × COMPLEX_PRODUCTS</b>	<b>–1.2240</b> <b>(–2.2884)<sup>**</sup></b>
INST_INVESTOR	.1935 (5.3027) <sup>***</sup>
<b>ADV_SHARE × INST_INVESTOR</b>	<b>.7243</b> <b>(1.9861)<sup>**</sup></b>
SIZE	.1227 (10.4484) <sup>***</sup>
VOLUME	.1770 (25.2390) <sup>***</sup>
IDIOSYNC_RISK	–3.9704 (–18.2704) <sup>***</sup>
DEBT	–.1126 (–2.7055) <sup>***</sup>
CAPEX	.9785 (6.7883) <sup>***</sup>
INTANGIBLE	–.1421 (–2.8557) <sup>***</sup>
R&D_INTENSITY	.0009 (.0059)
ANALYST_COV	–.0366 (–3.4409) <sup>***</sup>
Constant	–2.4787 (–36.0484) <sup>***</sup>
Study period	1994–2018
Number of firms	4,226
Number of firm-year observations	29,911
Year FEs	Yes
Firm FEs	Yes
Adj. R-squared	.5118
F-statistic	8.3564
p-value (F-statistic)	.0000

\*p &lt; .10.

\*\*p &lt; .05.

\*\*\*p &lt; .01.

Notes: t-statistics are in parentheses. Variables of interest are highlighted in boldface. FEs = fixed effects.

business in an SIC code in which the focal firm is also active are its peers. Second-degree peers, in turn, are firms that have any business in an SIC code in which the focal firm's peers are also active, but in which the focal firm itself is *not* active. Thus, second-degree peers do not directly compete with the focal firm, as is graphically illustrated in Figure J1 in Web Appendix J.

A valid instrument should satisfy the relevancy criterion and exclusion restriction (Germann, Ebbes, and Grewal 2015; Wetzel et al. 2018). The relevancy criterion requires that the IV is correlated with the potential endogenous variable, advertising share of voice. In this regard, it is reasonable to expect that the advertising intensity of second-degree peers correlates with the focal firm's advertising share of voice because of its

effect on the advertising expenditures of the focal firm's first-degree peers by setting a common budgeting norm for advertising (Jindal and McAlister 2015; McAlister et al. 2016). The exclusion restriction requires that the IV is unrelated to the error term in the explanatory equation (and thus not correlated with the dependent variable, stock price synchronicity). In this regard, it is unlikely that the second-degree peers' advertising expenditures affect the focal firm's synchronicity.

Next, we run two-stage least squares regressions. Table K1 in Web Appendix K presents results. In the first-stage regression, we use second-degree peer average advertising intensity SECOND\_DEGREE\_PEERS\_ADV\_INTENSITY to predict the focal firm's advertising share of voice ADV\_SHARE. The fitted values of the first-stage regression are then used as the instrumented variable for the second stage. In the first-stage regression, the coefficient of SECOND\_DEGREE\_PEER\_S\_ADV\_INTENSITY is statistically significant. This result confirms that the IV is correlated with a firm's ADV\_SHARE. The negative direction of the coefficient is consistent with the "herding" or "peer pressure" described by Shi, Grewal, and Sridhar (2021) in that a higher advertising intensity of the focal firm's second-degree peers encourages a higher advertising intensity in its first-degree peers, which—all else equal—makes it less likely that the focal firm has a large advertising share of voice.<sup>12</sup> The coefficient of the instrumented ADV\_SHARE variable in the second-stage regression explaining synchronicity is also negative and significant, consistent with our baseline result and confirming its robustness. The interaction term of the instrumented ADV\_SHARE × COMPLEX\_PRODUCTS is also negative and significant, while the interaction term of the instrumented ADV\_SHARE × INST\_INVESTOR is positive and significant, confirming the moderator effects' robustness.

### Sensitivity Analyses for Managerial Insights on the Moderating Effect of Marketing Strategies

This section reports on sensitivity analyses utilizing variables that are directly relevant for marketing managers to establish whether the effect of advertising share of voice on stock price synchronicity is specific to particular strategic situations. We examine two important factors that directly connect the name of the firm as mentioned in its advertising to its visibility in the financial market—ticker symbol congruity and brand strategy. The results of these analyses help develop actionable insights for marketers.

**Ticker symbol congruity.** Spillovers between product markets and financial markets are a central notion of the mechanism underlying the effect of advertising on the informativeness of a firm's stock price. Accordingly, we expect the negative effect of advertising share of voice on stock price synchronicity to be

<sup>12</sup> Table K1 also reports a significant F-statistic from a weak instrument exclusion test, implying that it is a valid instrument.

stronger when such spillovers are more likely. One relevant condition for this to be the case is if there is congruence between a firm's corporate name and its ticker symbol.

A congruent ticker symbol means that a firm's corporate name is similar to the ticker symbol which uniquely identifies its stock as traded on the financial market (Srinivasan and Umashankar 2014). An example of a congruent ticker symbol is "CSCO" for Cisco, while an example of an incongruent ticker symbol is "JWN" for Nordstrom. In their advertising, firms typically mention their corporate name. A congruent ticker symbol will make it easier for investors to relate any relevant information obtained from a firm's product-market advertising to the firm's stock as traded on the financial market, thus facilitating the incorporation of any previously unavailable information into its stock price. Firms seem to be aware of the role of ticker symbols in reducing investors' information search costs, as illustrated by anecdotal and academic evidence.

For example, New York Stock Exchange Euronext spokesman Richard Adamonis notes that "ticker symbols are an important distinguishing characteristic for issuers...to reinforce brand distinction" (Reuters 2007a). Furthermore, the finance literature highlights the importance of a distinct ticker symbol to avoid investor confusion (Rashes 2001). It is important to note that "it's not just small-time mom and pop individual investors who get mixed up. Ticker confusion also can upend sophisticated institutional investors" (La Monica 2019). This sentiment was also echoed in our interviews. In particular, an interviewed head of investor relations remarked, "I think having a congruent ticker is critical, you just can't afford to leave anything to chance," and "It does not bode well to have a ticker that is too far away from your specific name."

In Web Appendix L, we describe our measure of the congruency between a firm's corporate name and ticker symbol (CONGRUENT) and show in Table L1 that the coefficient of the interaction term  $ADV\_SHARE \times CONGRUENT$  is both negative and significant. Thus, the negative effect of advertising share of voice on stock price synchronicity is stronger for firms with a congruent ticker symbol.

**Corporate branding strategy.** For firms with a corporate branding strategy, it is easy for investors to trace product-market advertising back to the underlying firm, as the names of the brands mentioned in their advertising are the same as the names of the publicly listed firms that own those brands. Indeed, Rao, Agarwal, and Dahlhoff (2004, p. 128) explicitly state that "a corporate brand name is an efficient means to communicate with a firm's stakeholders other than customers (e.g., shareholders)." Consistent with this reasoning, Fehle, Tsyplakov, and Zdorovtsov (2005) find that increased investor attention after Super Bowl commercials occurs only for firms that are easily recognizable, in the sense of the firms' corporate names being the same as those of the products being featured. Thus, we expect the negative effect of advertising share of voice on stock price synchronicity to be stronger when a firm follows a corporate branding instead of a house of brands or mixed branding strategy.

In Web Appendix M, we describe our measure of whether a firm follows a corporate branding strategy or not (CORP\_BRAND) and show in Table M1 that the coefficient of the interaction term  $ADV\_SHARE \times CORP\_BRAND$  is both negative and significant. Thus, the negative effect of advertising share of voice on stock price synchronicity is stronger for firms following a corporate branding strategy. Similar to the effect of a congruent ticker symbol, this result emphasizes the value for marketers of ensuring that it is easy for investors to link product names as used in advertising campaigns to the corporate name. The reason being that in these circumstances, positive spillovers between the product and financial market are more likely. Indeed, an interviewed chief financial controller explained the value of a corporate branding strategy as follows: "You want your retail advertising to give you some benefit in the financial market as well."

### *Product Recalls as an Empirical Illustration of How Low Stock Price Synchronicity Benefits a Firm*

Previously, we reviewed literature showing how low synchronicity facilitates a firm's long-term value creation by increasing the economic efficiency of corporate investment (Durnev, Morck, and Yeung 2004) and fostering managerial learning (Bennett, Stulz, and Wang 2020). Next, we use product recalls to provide direct empirical evidence illustrating how low stock price synchronicity benefits a firm.

We use an event study methodology to analyze the effect of product recalls as an influential marketing-relevant incident (see, e.g., Chen, Ganesan, and Liu 2009) on the financial value of the firm. We are especially interested in whether firms that are not included in the recall themselves, but operate in the same industry as the affected firm—so-called "peer firms"—are affected differently in terms of their financial value depending on their level of stock price synchronicity. Drawing on the anecdotal evidence discussed previously, we expect that firms with high synchronicity will be "tarred with the same brush" as the firms actually included in the product recall, but this will not be the case for firms with low synchronicity, whose stock price movements are driven more by firm-specific information.

In Web Appendix N, we describe our event study and show that when the U.S. Consumer Product Safety Commission announces a product recall, (1) firms included in the actual recall experience significant negative abnormal returns; (2) peer firms that are not included in the recall but that have *high* synchronicity also experience significant, though slightly smaller, negative abnormal returns; and (3) peer firms that are not included in the recall but that have *low* synchronicity do *not* experience any significant abnormal returns. These results demonstrate that low stock price synchronicity should matter to marketers, as this characteristic can "shield" the firm from being "tarred with the same brush" and experience a drop in firm value when its competitors have a product recall.



### *News Coverage as an Alternative Source of Firm-Specific Information Reducing Synchronicity*

According to our conceptual framework, the negative effect of advertising on stock price synchronicity is driven by an increased availability of firm-specific information in the financial market. In general, a firm's stock price synchronicity should be reduced by the presence of more information, regardless of whether this represents positive or negative news. Given that advertising usually highlights positive aspects of a firm and its products (e.g., Weiger, Hammerschmidt, and Wetzel 2018), we consider news coverage as an alternative source of firm-specific information that is not skewed toward highlighting either positive or negative aspects about a firm and its products.

In Web Appendix O, we describe our measure of news coverage (NEWS\_COVERAGE) and show in Table O1 that the coefficient of NEWS\_COVERAGE is both negative and significant. When simultaneously including ADV\_SHARE, we find that both coefficients are negative and significant, with the standardized coefficients indicating that the relative impact of ADV\_SHARE is 2.5 times that of NEWS\_COVERAGE. These results indicate that firms with more news coverage have lower synchronicity, which supports the underlying proposition of our conceptual framework that synchronicity is driven by the availability of firm-specific information. Importantly, these results also demonstrate that advertising provides substantial additional information to the financial market above and beyond that included in news.

### **Discussion**

Historically, research in marketing has focused on product-market outcomes, whereas research in finance has focused on financial-market outcomes. More recent literature in marketing (e.g., Hanssens, Rust, and Srivastava 2009; Hyman and Mathur 2005) and finance (e.g., Grullon, Kanatas, and Weston 2004; Lou 2014), however, notes important spillover effects between product markets and financial markets. We add to this growing body of research on the marketing–finance interface by studying the association between a firm's advertising share of voice and stock price synchronicity. In particular, we introduce stock price synchronicity as a novel concept to the extant marketing literature, show how it differs from previously examined risk and return measures (see Figure 1) and demonstrate its relevance for marketing managers in terms of its link with marketing actions (i.e., advertising expenditure) as well as contingencies related to a firm's product characteristics (i.e., complexity), ownership structure (i.e., institutional ownership), and marketing strategies (i.e., ticker symbol congruity and branding strategy). Our key finding is that advertising can increase the information content of a firm's stock price, which has several theoretical and practical implications.

### *Theoretical Implications*

Since Srivastava, Shervani, and Fahey's (1998) seminal work on market-based assets and shareholder value, a substantial amount of research has addressed how marketing assets (e.g., brand equity, customer satisfaction) and actions (e.g., advertising, promotions) affect the risk and return of a firm's stock. Such research shows how advertising can improve the risk-return profile of a firm's stock by decreasing risk and/or increasing returns (Edeling and Fischer 2016; Srinivasan and Hanssens 2009). We broaden the dialogue by shedding light on an overlooked dimension of the marketing–finance interface.

That is, while advertising is known to serve a pivotal role in differentiating a firm's products and services from its competitors, we find that it can also help differentiate a firm's stock price movements from general industry- and market-wide trends. Indeed, advertising can help a firm differentiate itself from its financial market competitors and thus avoid “being tarred with the same brush” by communicating firm-specific information to investors, thereby increasing the information content of its stock price. In this regard, our findings extend prior finance literature, which finds that an expanded voluntary disclosure policy can increase stock price informativeness (e.g., Grewal, Hauptmann, and Serafeim 2020; Haggard, Martin, and Pereira 2008). Moreover, our findings help resolve the debate about whether synchronicity decreases by news or noise (e.g., Li, Rajgopal, and Venkatachalam 2014) by providing empirical evidence which is consistent with lower synchronicity being a sign of more information, not noise.

There are various reasons why it is relevant to broaden the scope of marketing–finance research to include the information content of a firm's stock price as an outcome variable of interest. Specifically, financial markets facilitate (marketing) managers in realizing their product-market objectives—both by providing access to the investment capital required to fund their strategies and by giving feedback on the quality of their decisions (Durnev, Morck, and Yeung 2004). Regarding the former, when a firm's stock price is less informative, investors experience more information asymmetry (Edmans, Jayaraman, and Schneemeier 2017). This lowers their willingness to provide capital, hindering corporate investment (Stiglitz and Weiss 1981). Regarding the latter, Bennett, Stulz, and Wang (2020, p. 281) argue that “management, directly or indirectly, learns from its firm's stock price, so a more informative stock price should make the firm more productive.” Indeed, financial market returns to new product development can provide firms with informative signals on how responsive the product market will be to their marketing activities (Park, Chintagunta, and Suk 2019). However, stock prices need to be informative for financial markets to be able to fulfill this role of providing managers with market intelligence (Markovitch, Steckel, and Yeung 2005).

That is, it is difficult for managers to learn anything useful from fluctuations in their firm's stock price when these are mostly driven by general industry- and market-wide trends rather than firm-specific information, as would be the case

when stock price synchronicity is high (Durnev et al. 2003). Accordingly, firm managers have an incentive to disclose firm-specific information to the financial market, so that investors can process this information using their unique access to a wider set of decision-relevant factors, and provide feedback to firms through their trading activity. In this regard, an interviewed chief financial controller remarked, “Firms can definitely learn something by watching how shareholders respond to what they do by pushing the share price up or down.” An interviewed head of marketing of a consumer electronics/home appliances firm confirmed this perspective by stating, “When we announced our partnership with [a leading manufacturer of single-serve coffee capsules], that drove a sharp increase in our share price, which was a clear indication of the market letting us know this would be a profitable new strategy.”

### *Practical Implications*

For marketers working at publicly listed firms, our results reinforce the need to realize that decisions primarily aimed at product markets—such as advertising—also affect financial markets. In this regard, consistent with the informative view of advertising (Bagwell 2007), we find that advertising can be a source of firm-specific information for investors, reducing a firm’s stock price synchronicity. To provide an example of the economic significance of the impact of advertising share of voice on stock price synchronicity, we focus on a subsample of firms that are similar in size (i.e., within 5% of the industry median in terms of their total assets) within the eating and drinking industry (i.e., SIC 58, which includes such firms as McDonald’s, Starbucks, and Yum Brands). We then rank these firms by how much they spend on advertising. We find that firms in the bottom quintile of advertising share of voice (spending, on average, \$2.4 million per year) have a 47.68% higher stock price synchronicity value than firms in the top quintile (spending, on average, \$23.5 million per year).

Importantly, our results indicate that the effect of advertising in improving the information content of a firm’s stock price is more pronounced for firms with complex products, due to the higher information asymmetry surrounding these firms (Solberg 2008). Accordingly, advertising can play an important role not just in helping consumers understand the benefits of the firm’s products but also in communicating firm-specific information to (potential) investors (Fehle, Tsyplakov, and Zdorovtsov 2005). This account was echoed by an interviewed CMO, who stated, “The homogeneity of products detracts from the need for that sort of communication through advertising or communication of information in the first place.”

Managers interested in incorporating our findings in their strategic decision making should also be aware that the informative role of advertising is less pronounced for firms that have a higher institutional ownership, arguably because professional investors already have superior access to information compared with individual investors (Ke and Petroni 2004). Indeed, when reflecting on our findings, a head of investor relations noted, “It

makes total sense to me that the effect of advertising is weaker for institutional investors, as the quality of information provided to an institutional investor, both historic and forward-looking, is infinitely better than that provided to a standard mum and dad individual investor.” Thus, firms with high institutional ownership would do well by focusing on the product-market outcomes of their advertising investments, as potential spillovers to the financial market are likely to be limited.

Firms interested in increasing the odds that any firm-specific information conveyed in or by its advertising is incorporated into its stock price are advised to ensure that their ticker symbol is similar to their corporate name, as we find that the effect of advertising on stock price synchronicity is more pronounced for firms with a congruent ticker symbol. Highlighting the critical nature of such similarity, an interviewed head of investor relations reflected on how their own firm’s ticker symbol was missing one letter compared with the acronym of the firm’s corporate name, stating that “even that tiny, tiny level of incongruence muddies the message.” Strengthening the link between a firm’s presence in the product versus financial market in this way might also have other benefits, such as increasing the chance that consumers not only buy the firm’s products, but also its shares. In this regard, it is worthy of note that the empirical finance literature shows that individuals’ product-market choices influence their investment decisions. In particular, investors are more likely to buy, and less likely to sell, shares of companies they also frequent as consumers (Keloharju, Knüpfer, and Linnainmaa 2012).

As there are no direct costs associated with changing one’s ticker symbol, this might be a cost-effective strategy for firm managers to contemplate. In doing so, however, managers must consider further contingencies. For example, some firms might be better known for the name of one of their key products than their corporate name and might want to revise their ticker symbol accordingly. Indeed Sun Microsystems changed its ticker symbol from reflecting its corporate name, “SUNW” to reflecting the name of its most important product, “JAVA.” This firm argued that doing so “more effectively connects it with the marketplace” (Reuters 2007b).

The aforementioned anecdotal evidence corresponds well with our other finding that the effect of advertising share of voice on stock price synchronicity is also stronger for firms with a corporate branding strategy, in which the brand names mentioned in advertising are the same as those of the firms that own those brands. Indeed, in support of our findings on the importance of corporate branding in facilitating spillovers between product and financial markets, a chief executive officer of a subsidiary whose parent company follows a house of brands strategy remarked, “It’s about brand awareness and confidence, and I am sure that if we were listed on the share market under the name of our particular restaurant chain, people would have that brand connection and confidence, and it would almost be like: that is a fun brand to invest in.”

In summary, buttressing our results on the relevance of having a congruent ticker symbol and/or following a corporate

branding strategy as a firm, the finance literature shows that these factors play an important role in improving one's visibility amongst investors through attention grabbing and memorization (Anderson and Larkin 2019; Fehle, Tsyplakov, and Zdorovtsov 2005; Lou 2014). Indeed, a head of marketing was quick to comment on our branding results, "That is another reason why brand awareness and brand advertising is important as opposed to just the product."

### **Limitations and Opportunities for Further Research**

In this article, we have used financial archival evidence to show how advertising investments are related to the informativeness of a firm's stock price. An inherent limitation of using such quantitative data, however, is that it does not allow one to identify which proportion of a firm's reported advertising expenditure might be deliberately directed at financial versus product markets. Indeed, firms likely differ in the extent to which they purposefully target investors in their advertising (for real-world examples, see Luo and De Jong [2012]), and information on this important aspect of their marketing strategy may lead to a more nuanced understanding of the relationship between advertising share of voice and stock price synchronicity.

Although a full qualitative study was beyond the scope of the present research, we did explore the extent to which a firm's advertising is aimed at financial versus product markets in our interviews with executives of publicly listed firms. In this regard, when asked about targeting investors with their advertising, a CMO noted that "ensuring that that profile and branding is there would be really valuable for us" and "a lot of what we do is around influence. A lot of our advertising is around influence and relationships. So, there is a natural way in how that could correlate to if you would be looking at investors." While this qualitative evidence is far from conclusive, it suggests the value for future research of examining how a firm's advertising focus on product versus financial markets affects the relationship between advertising investments and stock price synchronicity.

### **Conclusion**

Prior research on the marketing–finance interface has focused on the impact of marketing assets and actions on the risk and returns of a firm's stock (Srinivasan and Hanssens 2009). In this article, we introduce a novel concept to this stream of literature—stock price synchronicity—and show how it differs from previously used measures. Building on the informative view of advertising (Bagwell 2007), we develop a conceptual framework in which we propose that advertising can help reduce investors' search costs and information asymmetry in the financial market. We show that a firm's advertising share of voice is negatively related to its stock price synchronicity and provide insights on the boundary conditions of this association as related to information demand versus supply about the firm in the financial market driven by its product characteristics

(i.e., complexity) and ownership structure (i.e., institutional ownership). Results from sensitivity analyses examining variables under the influence of the marketing function (i.e., ticker symbol congruity and branding strategy) provide actionable insights that support managers in understanding how advertising influences investors and can transmit firm-specific information to the financial market. Given prior literature indicating that low stock price synchronicity facilitates a firm's long-term value creation by increasing the economic efficiency of corporate investment (Durnev, Morck, and Yeung 2004) and promoting managerial learning (Bennett, Stulz, and Wang 2020) as well as an event study in which we demonstrate that high synchronicity increases the likelihood of being "tarred with the same brush" and experiencing negative abnormal returns when competitors are affected by a product recall, we believe these are important findings for marketers. Our results have implications for theory building in marketing about the spillover effects between product and financial markets, and provide novel insights about the financial market relevance of the marketing function, strengthening its often-challenged legitimacy within the firm (Verhoef and Leeflang 2009). In summary, by introducing the concept of stock price synchronicity to the marketing literature, we hope to stimulate future marketing–finance research to further explore this relevant—but understudied—outcome variable.

### **Authors' Notes**

The authors are listed in alphabetical order.

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