International Journal of Research in Marketing xxx (xxxx) xxx

Contents lists available at ScienceDirect

International Journal of Research in Marketing

journal homepage: www.elsevier.com/locate/ijresmar

What if your owners also own other firms in your industry? The relationship between institutional common ownership, marketing, and firm performance

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ARTICLE INFO

Article history:
Received 16 December 2019
Available online xxxx

Keywords:
Institutional investors
Agency theory
Marketing-finance interface
Marketing capabilities
Strategic emphasis
Common ownership

ABSTRACT

The growth in institutional holdings of public firms has led to increased interest in the concept of common ownership, in which the same investor owns stakes in multiple firms within the same industry. Economic theory suggests that common ownership could affect firm performance, but little empirical research has examined the nature of this effect or how a firm's extant marketing potentially relates to this effect. This paper addresses this gap by proposing a relationship between common ownership and firm performance that is moderated by the firm's extant marketing capabilities and its relative marketing strategic emphasis. Our empirical approach employs data from over 43 million institutional holdings to develop a measure of common ownership and accounts for empirical issues like endogeneity and unobserved heterogeneity. The results document a positive relationship between common ownership and firm performance and provide some evidence that this effect is stronger for firms with lower marketing capabilities and a relative strategic emphasis towards R&D spending. These results suggest that public policymakers should consider the firms' extant strategic marketing when assessing regulations on common ownership.

> "In 1950, institutional investors owned about 7 percent of the United States stock market; today they own almost 70 percent. If you count them as a single investor, BlackRock, Vanguard and State Street are the largest owner of 88 percent of the companies in the Standard & Poor's 500. Control of the economy has not been this concentrated since the Gilded Age." (Posner, Morton, & Weyl (2016), in a New York Times Editorial)

1. Introduction

Institutional investors, i.e., organizations such as banks, insurance companies, foundations, and mutual, hedge, and pension funds that manage at least $100 million in equity, are a mainstay of the U.S. economy (Azar et al., 2018). Institutional investors own approximately 75% of the outstanding equity in the 1,000 largest U.S. companies (Aguilar, 2013) and directly

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https://doi.org/10.1016/j.ijresmar.2021.05.003
0167-8116/

manage trillions of dollars of shareholdings (Federal Trade Commission, 2018). Their importance and overall clout in the economy has generated considerable interest from regulators and scholars across business and economic disciplines (e.g., Hansen & Hill, 1991; McCahery et al., 2016).

One consequence of the increasing concentration of overall equity holdings by institutional investors is that such investors now often own large stakes in multiple firms in the same industry, even when firms may be direct competitors (Kang et al., 2018). Consider the case of the two largest institutional investors: BlackRock and Vanguard. In the tech industry, BlackRock and Vanguard are the two largest shareholders for Microsoft *and* Apple. In the retail banking industry, BlackRock and Vanguard are among the three largest shareholders of Bank of America, Citigroup, JPMorgan Chase, PNC Bank, US Bancorp, *and* Wells Fargo (Posner et al., 2016). In the airline industry, in the soft drink industry, and even in smaller and less well-publicized industries, such as cooking appliances, this pattern of relatively large ownership stakes across firms within industries continues (Posner et al., 2016).

Recently, regulators (e.g., Federal Trade Commission, 2018), the popular press (e.g., Authers, 2016), *and* academics across the fields of business, economics, and law (e.g., Azar et al., 2018) have expressed concern regarding the potential consequences of the practice of institutional common ownership, where institutional investors own large and influential stakes in multiple and sometimes competing firms in an industry. For example, Noah Joshua Phillips, the U.S. Federal Trade Commission (FTC) Commissioner, stated in a 2018 public policy conference:

> "I am interested, in particular, to see how common ownership impacts a broad set of industries, whether a clear mechanism of harm can be identified, a rationale for why managers put the interests of one set of shareholders above the others and a rigorous weighing of the pro-competitive effects of institutional shareholding. For now, I do not believe we know enough to warrant policy changes."

Commissioner Phillips also noted:

> "This debate is not just academic. In December 2017, the OECD held hearings [on the topic of institutional common ownership]; and European antitrust enforcers have begun putting common ownership theory into practice."

Further outlining concerns regarding institutional common ownership, Robert Jackson, the U.S. Securities and Exchange Commission (SEC) Commissioner, suggested that the debate on the consequences of institutional common ownership is centrally about "competition and consumer protection in the 21st Century" (Federal Trade Commission, 2018). Marketing, serving as the connection between the firm and consumers, is crucially related to competition and the resulting impact on consumer welfare. Thus, marketing academics can provide a unique perspective on *how* institutional common ownership may affect firm performance. Marketing academics possess a unique understanding of the interconnected relationships between owners, firms, managers, and customers, and how such relationships can impact firm performance (e.g., Joseph & Richardson, 2002; Srinivasan et al., 2018). This knowledge and perspective is crucial in developing theory-based knowledge, tactics, and strategies for how regulators should assess institutional common owners. In addition, extant research has demonstrated that institutional common ownership can affect firm profitability, competition, and consumer welfare via marketing related issues such as the firm's pricing strategies (e.g., Azar et al., 2018) and innovation productivity (e.g., He & Huang, 2017), indicating marketing's potential as an important determinant of the consequences of institutional common ownership.

However, despite its potential importance to public policy, to our knowledge, marketers have been absent from such debates, with no research in marketing heretofore investigating the concept of common ownership (see Table 1). This paper takes a first step to addressing this gap by introducing the topic of institutional common ownership to the marketing literature and proposing a conceptual model that examines the relationship between institutional common ownership and firm performance and explores how two high level strategic marketing variables potentially moderate that relationship.

Central to our proposed model is the agency theory-based principal–agent paradigm (e.g., Jensen & Meckling, 1976). Institutional common owners (principals) often regularly engage with managers (agents) from firms to optimize firm actions that produce results with their customers, discuss how such results are driven by tactics regarding costs and revenues, and better understand why firms may not be performing as well as some of their competitors (Edmans et al., 2019). Further, institutional common owners regularly engage with managers (agents) from the multiple firms they own in an industry, which, enables common owners to accumulate and then provide greater insights to each of these firms than investors that have stakes in one firm (Park et al., 2019). Hence, institutional common owners possess a unique ability to influence the productivity of each of their individual firm's operations (Kang et al., 2018), and a capability to provide greater market knowledge and a reduction in barriers to collaboration between their commonly owned firms (He & Huang, 2017). However, institutional common owners' also have unique incentives due to their fiduciary responsibilities to maximize the performance of their entire portfolio of firms, which could come at the expense of individual firms (Backus et al., 2019). Further, for firms that are already producing better results with customers, institutional common owners may have a lesser ability to help by providing greater industry best practice knowledge.

Therefore, we build on these conflicting theorized effects on whether institutional common owners' impact on individual firm performance is positive (e.g., He & Huang, 2017) or negative (e.g., Azar et al., 2018) to propose a model to assess the impact of common ownership. We identify two strategic marketing characteristics as moderators or determinants of the relative effects of institutional common ownership on firm performance. The first moderator, the firm's marketing capabilities, or ability to efficiently convert marketing inputs into sales outputs (Dutta et al., 1999), is proposed based on institutional

common owners' ability to provide gains in efficiencies and productivity (e.g., He et al., 2019) and their direct involvement and monitoring of a greater number of firms in the industry (Fich et al., 2015; Kang et al., 2018). The second moderator, the firm's relative marketing strategic emphasis, or its spending on value-appropriating (advertising) in relation to its spending on value creating (research and development [R&D]) activities (Mizik & Jacobson, 2003), is proposed based on institutional common owners' ability to enhance long-term value creation activities (e.g., Connelly et al., 2018) by affecting the productivity of the firm's risk-taking with their ability to reduce barriers to collaboration (Faccio et al., 2011; He & Huang, 2017). Taken together, from a theoretical point of view, these two marketing moderators are proposed because they provide strategic-level measures for how the firm allocates marketing expenditures and how the firm efficiently utilizes those expenditures to generate sales, which as described in a subsequent section, is often institutional common owners' main monitoring and engagement focus with their managers.

To empirically test our proposed model, we employ data from 1986 to 2016 on 43,063,833 institutional owner holdings across 22 industries to construct a measure of institutional common ownership. We find that, for a given firm, an increase in institutional common ownership is significantly associated with an increase in firm performance. Further, we find this effect is stronger for firms possessing lower marketing capabilities and stronger, under some model specifications, for firms that have a strategic emphasis oriented towards R&D rather than advertising spending. The key implications of these results is that, despite the focus on negative consequences of institutional common owners in popular press (e.g., Posner et al., 2016) and notable academic articles (e.g., Azar et al., 2018), institutional common ownership's effects on competition and consumer protection are not uniform and, in fact, can be beneficial for certain firms. As such, public policy makers should account for the firm's extant marketing efficiency and the emphasis of their marketing expenditures when considering regulations to limit the potential negative effects of institutional common ownership.

The remainder of the paper is organized as follows. First, we provide background information on institutional investors and institutional common ownership. Subsequently, we describe our conceptual framework based on agency theory and develop our hypotheses. Then, we present and discuss the implications of our empirical analysis.

2. Background on institutional investors and institutional common ownership

2.1. Institutional investors

Institutional investors are predominately sophisticated professional investors that strive to earn long-term profits for their clients (Connelly et al., 2018). Due to institutional investors' holding size, investment strategies, influence on financial markets, and inability to sell underperforming firms, institutional owners often engage, directly or indirectly, with their firms (Edmans & Holderness, 2017).[1] Directly, institutions often engage with the firm's senior management and its board of directors about the firm's direction and its strategic actions (Anton et al., 2018). For example, academic surveys on institutional investors (McCahery et al., 2016) and practitioner surveys on individual firms (Federal Trade Commission, 2018) have both reported that the vast majority of firms regularly engage in direct conversations with their institutional owners about the firm's strategic actions. Further, institutional investors promote this engagement with firms as a core competitive advantage of employing their investment services. For instance, Vanguard, Blackrock, and State Street, the three largest institutional investors, have each promoted this capability on their websites, investment prospectuses, and executive communications (e.g., Posner et al., 2017).

Indirectly, the ability for institutional investors to provide incentives and enforce discipline on the firm is important in motivating and facilitating strategic actions and processes that they consider advantageous for the firm (Brav et al., 2008). Five tactics that institutions employ to indirectly affect firm practices are (i) the appointment of board members, (ii) risk oversight, (iii) adjustment of executive compensation, (iv) implementation of corporate governance structures, and (v) public criticism of the firm either via announcements in the media or in support of shareholder proposals (e.g., Connelly et al., 2010; Vanguard, 2017).[2] Consequently, through their direct and indirect engagements with the firm, institutional owners are able to exert an influence in firm decision making (Backus et al., 2019).

2.2. Institutional common owners

Institutional investors often own considerable stakes in multiple firms in a single industry (Posner et al., 2016), a practice labeled as "institutional common ownership" (Azar et al., 2018). Institutional common owners have a fiduciary responsibility to their investors to maximize the returns of their entire portfolio of firms, rather than the returns of each individual firm (O'Brien & Waehrer, 2017). Hence, concerns have been raised that institutional common owners' interests and ability to influence firm activities can result in an adjustment to the principal-agent relationship that could lead to deviations from

[1] This includes the growing share of passive institutional *investors*, who prior research has demonstrated are not passive *owners*, in that they often engage and are active owners of their firms, despite their passive investing style (Appel et al., 2016). For example, Larry Fink, the CEO of BlackRock, stated that "[we] can't sell those stocks even if they are terrible companies. As an indexer, our only action is our voice and so we are taking a more active dialogue with our companies and are imposing more of what we think is correct" (Authers, 2016).

[2] Vanguard cast more than 171,000 votes at 18,000 shareholder meetings in 2017 alone (Vanguard, 2017).

an optimal individual firm performance strategy (Azar et al., 2018; Backus et al., 2019). We expand on the theory underlying these concerns in the next section.

The recognition of conflicting interests and potential deviations from firm optimal strategies due to institutional common owners' or other owners' unique interests is not new (e.g., Gilo et al., 2006). However, the concerns related to institutional common ownership have recently expanded because of research that empirically highlighted both the extent of the current concentration of institutional ownership (e.g., Posner et al., 2016) and that institutional common ownership is potentially related to lower competitive intensity and higher pricing in the airline industry (Azar et al., 2018). Hence, as summarized in Table 1, researchers from accounting, finance, economics, law, management, and operations have investigated the potential consequences (both positive and negative) of common ownership by linking institutional common ownership to firm

Table 1
Selected published papers on common ownership.

Author(s)	Focal Topic				Summary of Findings
	Competitive/ Anti-Competitive Effects	Corporate Governance	Mergers & Acquisitions	Marketing Capabilities and Strategic Emphasis	
Azar et al. (2018)	✓				Common ownership is related to higher ticket prices in the airline industry, suggesting anti-competitive effects related to common ownership
Cheung et al. (2020)	✓				Common ownership is positively related to suppliers' operating and market performance, especially for suppliers with greater dependence on buyers.
Connelly et al. (2018)	✓				Firms with common owners are more likely to compete with dissimilar competitive repertoires, and these dissimilarities have positive performance implications
Elhauge (2020)	✓		✓		Common ownership in concentrated markets has anticompetitive effects and hence should be accounted for in M&A regulation decisions
Faccio et al. (2011)	✓				Firms with greater common ownership undertake riskier investments than firms with less common ownership
Gilo et al. (2006)	✓				Common ownership can impact the incentives of firms to engage in tacit collusion
He and Huang (2017)	✓				Common ownership may facilitate explicit forms of product market collaboration
López and Vives (2018)	✓				Common ownership leads to internalization of rivals' profits by firms and increases output for high spillovers on R&D projects between firms
O'Brien and Waehrer (2017)	✓				Common ownership is not found to have a significant effect on airline ticket prices
Posner et al. (2017)	✓				Proposes that anti-trust regulation is needed based on the size of common owners
Edmans et al. (2019)		✓			Common ownership influences corporate governance through voice and investor exit tactics
He et al. (2019)		✓			Common ownership is positively related to institutional owners' voting against management on shareholder-sponsored governance proposals
Lin et al. (2018)		✓			Common ownership is positively related to industry peers' likelihood and frequency of issuing management forecasts
Kang et al. (2018)		✓			Common ownership is positively related to better corporate governance practices
Park et al. (2019)		✓			Common ownership is positively related to voluntary firm disclosures
Fich et al. (2015)			✓		Common ownership is positively related to acquisition deal completion
Harford et al. (2011)			✓		Common ownership has no significant effect on firm acquisition decisions
Matvos and Ostrovsky (2008)			✓		Common ownership has no significant effect on acquisition outcomes and profits
THIS PAPER				✓	*Common ownership benefits the performance of firms with lower marketing capabilities and a relative strategic marketing emphasis towards R&D over advertising spending*

performance outcomes due to changes in individual firms' (i) competitive (or anti-competitive) strategies (e.g., Connelly et al., 2018; He & Huang, 2017), (ii) corporate governance policies (e.g., Lin et al., 2018; Kang et al., 2018), and (iii) mergers and acquisitions (e.g., Fich et al., 2015; Harford et al., 2011). Building on this prior research, we propose that a firm's extant marketing strategy is also likely to be an important consideration in determining the nature of the effects of institutional common ownership on firm performance.

3. Conceptual framework

Given the resource intensity and efficient allocation of resources required for firms to achieve sustained performance, principals such as institutional common owners are likely to play a major role in how managers develop and implement firm processes and strategies. This notion is central to agency theory (e.g., Fama, 1980; Jensen & Meckling, 1976), in which principals are theorized to design systems that incentivize and reward agents for developing firm strategies that align managerial actions with the principals' best interests. In the traditional agency theory principal-agent paradigm, principals' interests are typically identified as maximizing the individual firm's performance in order to maximize their own returns (Fich et al., 2015). Thus, principals, such as institutional investors, attempt to align their agents' incentives to maximize the individual firm's performance. In contrast, since institutional common owners have a fiduciary obligation to maximize the profits of their entire portfolio, individual firm profit maximization may no longer be optimal for this set of the firm's principals (Backus et al., 2019). Hence, the presence of institutional common ownership could create a misalignment of principal's interests to focus on maximizing the performance of their overall portfolio of firms at the expense of individual firms (Azar et al., 2018). As such, institutional common owners, as principals, may attempt to influence their managers, as agents, to pursue policies and strategies that may not maximize individual firm performance.

Yet, individual firms are also likely to benefit from institutional common owners' experience monitoring multiple firms (Kang et al., 2018) and ability to share knowledge gained from this monitoring to improve the productivity or efficiency in individual firm operations (He & Huang, 2017). Further, individual firms should benefit from institutional common owners that can supply informed and incentivized advice and oversight to minimize inefficient aggressive firm actions, such as advertising or price wars (Park et al., 2019), and enable firms to substitute investments in marketing capabilities and R&D output by reducing barriers to collaboration across co-owned firms (Connelly et al., 2018). This potential ability to benefit individual firms' productivity or efficiencies is likely dependent on individual firms' extant marketing capabilities, or ability to convert marketing inputs into sales outputs.

In addition, individual firms are likely to benefit from institutional common owners' ability to establish R&D and advertising collaborative partnerships with their other common owned firms in the industry (He & Huang, 2017). Further, individual firms with greater institutional common ownership should, on average, benefit from greater ability to manage risk due to more dispersed ownership stakes than firms with fewer institutional common owners that are less diversified and more risk averse (Faccio et al., 2011). Consequently, we expect that a firm's strategic emphasis on longer-term and riskier value creation activities, such as R&D, relative to shorter-term value appropriation activities, such as advertising, will influence the benefits provided by institutional common owners' ability to establish collaborative partnerships and encouragement to engage in greater risk-taking.

Thus, we expect institutional common ownership to be related to firm performance, and a firm's marketing capabilities and relative marketing strategic emphasis to moderate this relationship. However, the extant literature has not directly addressed this possibility. As such, we decided to augment our agency theory-based expectations with practitioner-based insights by conducting in-depth interviews with three institutional common owning fund managers that, respectively, manage several hundred million dollars, a couple billion dollars, and several billion dollars in holdings. Overall, the interviews

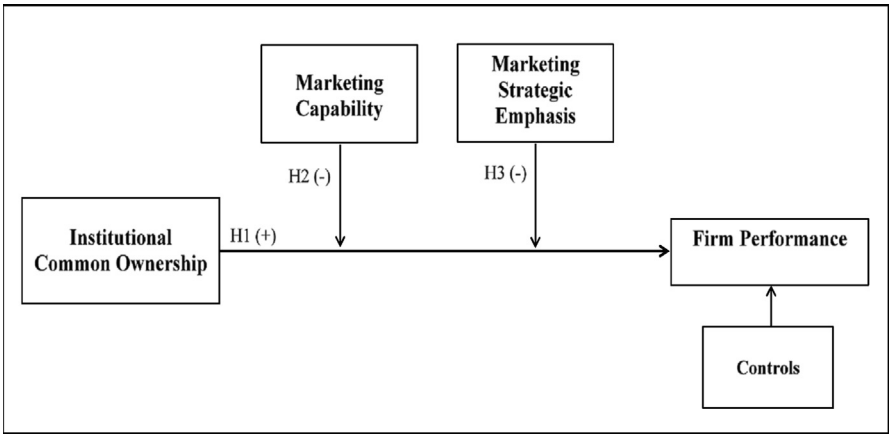

Fig. 1. Conceptual framework.

revealed that the outcomes of institutional common owners' regular engagements with management is remarkably similar to how agency theory posits that principals monitor and interact with their managers in attempts to maximize the profitability of their portfolios. Importantly, topics related to marketing play a role in these engagements because institutional investors often engage with managers to understand and influence firm actions that produce results with their customers, and why firms may not be producing the same level of results as some of their competitors. Further, institutional common owners' engagement with management is often focused on factors associated with generating the firm's costs and driving the firm's revenues, e.g., how these costs and revenues compare to other firms they own in the industry and how the firm is actively managing these processes (i.e., the firm's spending/resource allocation and the efficiency of such spending). Therefore, based on agency theory and our interviews, we propose the conceptual model depicted in Fig. 1. Next, we provide further rationale for each of our hypotheses.

4. Hypotheses

4.1. Institutional common ownership and firm performance

Institutional common owners' fiduciary responsibility is to maximize the profitability of their entire portfolio of firms (Azar et al., 2018). As such, it has been suggested that institutional common owners are less motivated to provide oversight and incentivize and pressure the executives of each firm they own compared to other investors (Anton et al., 2018). This reduction in managerial oversight could make managers in the firms they own operate in a less optimal or "lazier" fashion, which would detrimentally effect firm performance (Azar et al., 2018). Consequently, widespread general public concerns have been based on institutional common ownership causing a negative effect on the performance of individual firms (Backus et al., 2019).

In contrast, our expectation, based on agency theory, research across economics, law, and business literatures, and insights from our interviews with institutional common owners, is that an increase in institutional common ownership will be associated with an increase in firm performance. Our theoretical rationale is as follows. First, while common owners may not observe *all* firm actions (e.g., Kempf et al., 2017), institutional common owners are still likely to monitor a larger number of individual firm actions across the industry since they possess ownership stakes in more firms than other types of investors (He et al., 2019). Thus, institutional common owners likely possess greater knowledge of industry best practices compared to owners with narrower or more concentrated portfolios (Kang et al., 2018). This enables institutional common owners to diffuse industry best practice knowledge among co-owned firms through their engagement with management, so these firms can employ such best practices to increase their performance (Connelly et al., 2018).

Second, institutional common owners are highly motivated to reduce rivalries and potential industry-wide inefficiencies, such as R&D, price, or advertising wars (Park et al., 2019), which can generate negative effects on their entire portfolio of firms in an industry (Connelly et al., 2018). Consequently, institutional common owners are motivated to serve as a conduit to lessen barriers of collaboration and reduce information asymmetry between co-owned competitors since they can benefit from the improved performance of each of their co-owned firms (He & Huang, 2017). Third, through prior experiences, common owners are expected to accumulate knowledge on how best to design appropriate incentives to better facilitate and advocate for the adoption of best practices by their firms (Posner et al., 2017).

Therefore, in summary, we expect institutional common owners to learn what processes are effective in an industry, reduce barriers of collaborations with other firms, and more effectively influence firms to utilize such processes and collaborations. Further, through their regular engagements with management, we expect firms with greater institutional common ownership to improve their performance. In addition, we propose that these positive effects should overcome potential negative inefficiencies that could be attributed to common ownership, such as lower incentives to effectively monitor management (Azar et al., 2018) and misaligned incentives that prioritize improved industry rather than firm performance (Anton et al., 2018). Hence, we expect:

H1: An increase in the institutional common ownership of a firm will be associated with an increase in the firm's performance.

4.2. The moderating role of marketing

4.2.1. Marketing Capabilities

Institutional common owners possess market knowledge and a capacity to foster tacit coordination with other firms that they own (Connelly et al., 2018). In addition, institutional common owners may have a greater ability to incentivize and facilitate firms to enact superior processes than other owners who may not have the same level of clout or experience in dealing with upper management (Posner et al., 2017). These strategic advantages should particularly benefit firms characterized by lower marketing capabilities. Marketing capabilities are regarded as "complex bundles of firm-level skills and knowledge that carry out marketing tasks and firm adaptation to marketplace changes" (Moorman & Day, 2016, p. 6). Hence, firms with lower marketing capabilities are less likely to be engaged in industry best practices and more likely to be engaged in less optimal competitive activities like advertising or pricing wars (Dutta et al., 1999). As such, when institutional common own-

ers engage with management to encourage the use of best practices and help reduce industry-wide inefficiencies, the benefits will primarily accrue to their firms that are not initially as efficient in converting marketing inputs into sales outputs. Consequently, we expect:

H2: The positive effect of institutional common ownership on a firm's performance will be weaker (stronger) for firms with greater (less) marketing capabilities.

4.2.2. Relative marketing strategic emphasis

Strategic emphasis measures the spending by a firm on advertising versus R&D efforts, which, theoretically, captures the relative emphasis of the firm on value appropriation versus value creation activities (Mizik & Jacobson, 2003). R&D activities, captured by value creation, tend to be, on average, riskier than value-appropriating advertising activities (Hauser et al., 2006). Institutional common owners can improve the productivity of such risk-taking activities (Faccio et al., 2011) due to their lower risk aversion resulting from their more diversified portfolios (Edmans et al., 2019) and ability to act as a conduit to link firms to work together on joint products, alliances, bundles, etc. (Connelly et al., 2018). Hence, institutional common owners' capabilities and interests are likely to help firms with a value creating R&D focused strategic emphasis to gain from knowledge spillovers, a reduction of information asymmetries, and an increase in the likelihood of collaborative partnerships (Park et al., 2019). Further, institutional investors regularly engage, provide oversight, and opine on the firm's R&D spending (He & Huang, 2017). Thus, through their greater tolerance to and productivity of risk-taking activities and via engagement with executives with multiple firms in the same industry, we expect the gains in performance from common ownership to be greater for firms with a value creating R&D-focused strategic emphasis than for firms with a value appropriating advertising-focused strategic emphasis. This is despite firms with a value appropriating advertising focused strategic emphasis also potentially benefiting from institutional common ownership, in particular, due to potential bundling and joint advertising opportunities with other common owned firms. Therefore, we expect:

H3: The positive effect of institutional common ownership on firm performance will be stronger for firms with a greater strategic emphasis on R&D over advertising efforts.

5. Empirical analysis

5.1. Data

To empirically test our conceptual model, we employ data from various sources covering three decades (1986–2016) and comprising of 43,063,833 institutional common ownership holdings, 7,998 institutional investors, and 22 NAICS industries. First, to obtain annual firm-level information, we merged data from Compustat, which provides annual 10-K-based firm-level information, with data from the Thompson Reuters 13f Summary Database, which reports firm-level institutional ownership summary statistics. Any observations from industries with fewer than three firms per year were eliminated. Second, we paired this data with information on each institutional investor's holdings from the Thomson Reuters s34 Institutional Investor Holdings Database. As our interest is only on institutions with a potential "voice" or influence in the firm, we restricted our data to institutions who own $\geq$1% of outstanding shares in a firm.[3] Third, we constructed our institutional common ownership measure, described in the next sub-section. We maximized the number of firm observations per industry per year to construct this measure, which included observations from firms that had missing data on variables unrelated to the construction of the institutional common ownership measure.

5.1.1. Focal variable

Given the empirical context of our conceptual framework, our focal variable, institutional common ownership, needs to be both applicable to a diverse set of industries and allow for comparisons across and between industries. However, institutional common ownership metrics previously employed in the literature either rely on data from a single highly regulated industry, such as banking and airlines (e.g., Azar et al., 2018), or do not account for differences in individual firms' extent of institutional common ownership, apart from the number of common owners or the sum of common ownership holdings in a firm (e.g., He & Huang, 2017). Therefore, we develop a new institutional common ownership metric that measures the average concentration of a firm's institutional common owners' holdings across an industry for a given year.

To operationalize this measure, we broadly follow the operationalization of the Herfindahl–Hirschman Index (HHI) measure. The reason is twofold. First, HHI is a widely employed measure for evaluating industry-level concentration and competition. Hence, the use of an HHI-type index for institutional common ownership provides a theoretical basis for the development of an institutional common ownership measure that relies on concentration of holdings by individual institu-

[3] This is a conservative restriction in comparison to other commonly used cut-offs, such as a $\geq$5% ownership stake for blockholders, so that we can account for the majority of owners with sufficient stakes to influence firm behavior. Edmans and Holderness (2017, p. 542) describe that "there is no theoretical basis for the commonly used 5% threshold or indeed any threshold. Future research should study blocks below 5% when possible." Further, in our interviews, the institutional common owners described that nearly all their engagements with firms is when they own 1–5% of the firm's shares, and that institutional liquidity restraints often prevent them from owning >5% of shares in a firm. Consequently, we chose the 1% cut-off instead of the 5% cut-off.

tional investors across multiple firms in an industry. Second, the use of an HHI-type index for institutional common ownership enables us to measure the average concentration of a firm's institutional common ownership holdings within and across an industry for a given year and allows us to examine comparisons of institutional common ownership over a large period of time. This measure ranges from 0 to 1, with greater (lower) numbers closer to one (zero) indicating that a firm's average common owner has more dispersed (concentrated) market-weighted holdings across their industry and greater (less) common ownership.

The operationalization of the institutional common ownership measure involves the following seven steps for firm k in year t. In the first step, to assess the extent firm k is owned by institutional investor i, we calculate the percentage of shares of firm k each institutional investor i owns in year t.

$$PercOwnOfFirmByInst_{ikt} = \frac{InstSharesOfFirm_{ikt}}{TotalSharesOfFirm_{kt}} \tag{1}$$

In the second step, we multiply $PercOwnOfFirmByInst_{ikt}$ by the market value of firm k in year t to obtain the market-weighted value of institutional investor i's ownership stakes in firm k in year t.[4]

$$HoldingMktValue_{ikt} = (PercOwnOfFirmByInst_{ikt})(MktValueOfFirm_{kt}) \tag{2}$$

In the third step, to assess the overall holdings for institution i in industry l for year t, we sum the market-weighted value of shares owned by institution i across all firms in industry l for year t.

$$TotalInstMktValueByInstInInd_{ilt} = \sum_{k=1}^{K} HoldingMktValue_{ikt} \tag{3}$$

In the fourth step, to find the market-weighted share of each institutional investor's holdings relative to the institutional investor's overall holdings in an industry, we divide the market-weighted percentage of shares of firm k held by institutional investor i by the total market value held by institution i in industry l in year t.

$$HoldingMktValueForInst_{iklt} = \frac{HoldingMktValue_{ikt}}{TotalInstMktValueByInstInInd_{ilt}} \tag{4}$$

In the fifth step, to assess the market-weighted dispersion of each individual institutional investor's holdings <u>across an industry</u>, we compute a sum of squares concentration measure for each holding for each institution i in industry l for a given year t.

$$InstHoldingsConcentration_{ilt} = \sum_{k=1}^{K} (HoldingMktValueForInst_{iklt})^2 \tag{5}$$

In the sixth step, to calculate the average institutional common ownership <u>per firm</u>, we average $InstHoldingsConcentration_{ilt}$ across all institutions who own firm k for a given year t. The resultant value provides an easy-to-compare firm-based measure that assesses the dispersion of holdings for each firm's institutional investor holdings across the industry for a given year.[5]

$$CommonOwnConc_{kt} = \frac{\sum_{i=1}^{I} InstHoldingsConcentration_{ikt}}{NumInst_{kt}} \tag{6}$$

In the last step, to assist in interpretation, we take one minus $CommonOwnConc_{kt}$ so that larger numbers are associated with a greater extent of institutional common ownership.

$$CoOwn_{kt} = 1 - (CommonOwnConc_{kt}) \tag{7}$$

The intuition behind our measure of institutional common ownership for each individual firm is that the measure should be low and closer to zero if the average institutional investor for a given firm only holds ownership stakes in a small number of firms or are concentrated in a small number of firms. For example, Dynasil Corporation had an institutional common ownership score of zero in 2016 since it had only a single institutional investor that owned $\geq$1% of its shares for that year, Finemark National Bank & Trust, who did not own $\geq$1% of the shares of any other firm in Dynasil's industry. In contrast, the measure of institutional common ownership should be greater and closer to one for a firm if the average institution holds shares in many firms in the industry and its market-weighted industry portfolio is highly diversified. Thus, Oshkosh Corporation had a near maximum institutional common score of 0.985 in 2015 since it had 16 institutional investors that owned $\geq$1% of its shares, including BlackRock, Fidelity, and State Street, with each having highly dispersed market-weighted holdings.

[4] As a robustness test, we also calculated market-weighted values for institutional investor i's ownership stakes in firm k in year t by employing a variety of other financial variables, such as market share, sales, total assets, cash, and property, plant, and equipment. The results with these alternative financial metrics were similar to the market value-based metric. Thus, for the remainder of the paper, we only discuss the results of our market-value weighted institutional common ownership measure.

[5] We classify industries based on two-digit NAICS codes because it is the standard industry reporting that the U.S. government requires and was designed to replace the SIC industry classification system that had grown inconsistent in its classifications (https://www.census.gov/eos/www/naics/). Further, NAICS had better data availability than the large number of firms with missing two-digit SIC codes.

To establish theoretical and empirical validity of our proposed measure, we, first, found that institutional common owners in our interviews believed that a concentration-based measure that captured the market-value based holdings of firms was more representative than a tally of number of firms they held shares in the industry that did not account for the market-value of such holdings. Then, as an empirical test, we find that larger firms, which are typically listed on various indexes or ETFs such as the S&P 500 or Russell 1000 that generate a larger proportion of common owners (e.g., Edmans & Holderness, 2017), indeed have greater institutional common ownership scores. We further elaborate on this in the descriptive statistics section.

5.1.2. Dependent variable

We employ the firm's return on assets (ROA) as our measure of performance, which is operationalized as earnings before interest, taxes, and depreciation divided by total assets (e.g., Feng et al., 2015; Srinivasan et al., 2011). We focus on a firm's accounting performance rather than its financial market performance due to the potential for reverse causality between common ownership and financial performance, since common ownership may have a direct effect on the stock return or price of a firm. However, as a robustness test, we also tested alternative financial measures of performance in Section 6.3.

5.1.3. Moderating variables

Marketing capabilities are operationalized consistent with prior research via an input–output approach using stochastic frontier estimation (SFE) (e.g., Dutta et al., 1999). The SFE model estimates an inefficiency score based on the firm's ability to transform its marketing inputs into sales outputs. Firms with smaller inefficiency scores have greater marketing capabilities. Following Swaminathan and Moorman (2009), we include (1) the installed base of customers (lagged firm sales), (2) firm resources devoted to the development of customer relationships (firm receivables), (3) overall marketing expenditures (sales, general, and administrative expenses), (4) advertising expenditures, and (5) R&D expenditures as the marketing input variables, and sales as the output variable for the model to estimate the firm's marketing capabilities. To estimate this model, we estimate a Production Frontier Model with a nonnegative distribution component that is assumed to be from a half-normal distribution. We then compare the firm's actual sales with the projected sales frontier to obtain an inefficiency score, which is the inverse of a firm's marketing capabilities.[6]

Relative strategic emphasis is operationalized consistent with prior literature as advertising expenditures minus R&D expenditures, divided by total assets (Han et al., 2017; Mizik & Jacobson, 2003).[7] Hence, firms spending more on advertising activities than R&D activities will have a greater strategic emphasis value, which indicates the firm is relatively emphasizing value-appropriating over value-creating activities. Further, we scale strategic emphasis by the firm's total assets to minimize concerns that strategic emphasis may be confounded with the firm's ROA.

5.1.4. Control variables

We also control for a variety of firm, industry, and institutional investor variables that may affect a firm's performance. First, because institutional investors and institutional common owners could prefer certain firms and industries, we include the following three variables to account for such unobserved preferences and potential sources of endogeneity: (1) percentage of institutional ownership for a firm, (2) average percentage of institutional ownership for an industry, and (3) industry institutional common ownership. Second, we include controls for firm performance commonly employed in previous marketing–finance interface research, such as the firm's size, financial leverage, industry competitive intensity, industry growth rate, and industry dynamism (e.g., Feng et al., 2015; Han et al., 2017; Wang et al., 2015). Third, to account for unobserved effects for a given year, we include dummy variables for each observation year. Finally, as described in the next subsection, we control for additional firm and industry characteristics such as R&D pipeline, CEO's industry experience, and CMO on the board that are time invariant or do not vary significantly over time by the nature of the model, which accounts for unobserved firm heterogeneity. We refer the reader to Table 2 for further details on each of our variables, their operationalizations, and literature sources.

5.2. Statistical model

5.2.1. Model overview

Given the strategic nature of the focal variables in our conceptual model, we must account for a number of empirical issues, such as endogeneity, reverse causality, unobserved heterogeneity, and potential persistence or inertia in decision-

[6] As two separate robustness tests, we estimated two marketing capabilities measures that (i) did not include R&D expenditures and (ii) was calculated by including industry-level dummy variables as an input in the SFE model. The focal results for models utilizing these alternative specifications of marketing capabilities were consistent with the results from the described specification (see Web Appendix Table 6). Thus, for simplicity, we proceed by only using the marketing capabilities measure described in the main text.

[7] Empirically, we do not find much variation in marketing capabilities and strategic emphasis by industry. Thus, we do not include industry-dummies interacted with these moderators in our analysis. We also note that while advertising and R&D spending are part of the operationalization of both our marketing moderators, theoretically, marketing capabilities and strategic emphasis are two independent constructs since marketing capabilities measures the efficiency of marketing inputs in creating sales outputs, and SE measures how the firm relatively allocates its marketing expenditures. In addition, we also do not find much dependence between marketing capabilities and strategic emphasis as their correlation is r = 0.08. Finally, substantively, we observe a nearly equal split of low and high strategic emphasis firms that have above and below median marketing capabilities, and vice versa.

Table 2
Operationalizations, data and literature sources, and descriptive statistics of variables.

Variable	Operationalization	Data Source	Literature Source (s)	Mean	St. Dev.
Focal Variables					
Firm Performance (Return on Assets)	(EBITDA)/Total Assets	Compustat	Feng et al. (2015); Srinivasan et al. (2011)	0.01	0.30
Institutional Common Ownership	For a given firm, the average dispersion (concentration) of their institutional investors' holdings across an industry; see Section 5.1.1	Computed based on data from: • Compustat • Thompson Reuters 13f Summary Database • Thomson Reuters s34 Institutional Investor Holdings Database	–	0.97	0.07
Marketing Capabilities	Determined through SFE model which produces inefficiency score; see Section 5.1.3	Compustat	Swaminathan and Moorman (2009); Newmeyer et al. (2016); Nguyen et al. (2020)	0.98	0.08
Strategic Emphasis	(Advertising – R&D Expenses)/Total Assets	Computed based on data from Compustat	Mizik and Jacobson (2003); Han et al. (2017)	−0.01	0.10
Control Variables					
Firm Institutional Owner Percentage	Percent of a firm's stock held by institutional investors	Thompson Reuters 13f Summary Database	Bushee (1998)	0.55	0.27
Industry Institutional Owner Percentage	Average firm institutional owner percentage per industry	Computed based on merged datasets	–	0.58	0.12
Average Industry Common Ownership	Average common ownership across an industry in a year	Computed based on merged datasets	–	0.87	0.07
Competitive Intensity	Herfindahl-Hirschman Index (HHI)	Computed based on data from Compustat	Feng et al. (2015)	0.04	0.06
Financial Leverage	(Debt in Current Liabilities + Total Long-Term Debt)/Total Assets	Compustat	Han et al. (2017)	0.24	0.22
Firm Size	Number of employees, in thousands (natural log scaled)	Compustat	Han et al. (2017)	1.34	2.16
Industry Growth	Average rate of sales growth (annualized) between t − 2 and t	Computed based on data from Compustat	Wang et al. (2015)	0.06	0.08
Industry Dynamism	Absolute difference in the industry growth rate from t − 2 to t − 1 versus from t − 1 to t	Computed based on data from Compustat	Wang et al. (2015)	0.19	0.12
Year	Observation Year	Compustat			

making and performance. However, finding appropriate instrumental variables (IVs) correlated with these variables but that do not have an effect on firm performance is difficult due to the endogeneity of our focal variables (e.g., see Rossi, 2014) and the lack of theory or knowledge on drivers of common ownership behavior (e.g., see Edmans & Holderness, 2017). Hence, consistent with prior research analyzing dynamic panel data in the marketing–finance interface literature (e.g., Feng et al., 2015; Mizik & Jacobson, 2009; Nezami et al., 2018), we estimate our model using the Arellano–Bond General Method of Moments (GMM) method.

The Arellano-Bond GMM method utilizes first-differencing transformations, i.e., how changes in the independent variables affect changes in the dependent variables, to analyze dynamic panel data. The first-differencing transformations, like other methods of controlling for unobserved heterogeneity, controls for serial correlation (Ivanov et al., 2013) and accounts for static differences between firms, such as the industry in which the firm is classified (Tuli & Bharadwaj, 2009). The Arellano-Bond GMM also helps control for endogeneity and reverse causality (as detailed in Section 5.2.2) through the use of IVs created by lagging endogenous variables (Kirca et al., 2020; Xiong & Bharadwaj, 2013). Further, the Arellano-Bond GMM method computes valid asymptotic errors unlike other IV-based approaches like a control function (Rossi, 2014). Consequently, prior research in corporate finance identifies the Arellano-Bond GMM method as an appropriate method to deal with a dynamic panel data structure that has an unbalanced set of panels, unobserved heterogeneity, and endogenous variables (Flannery & Hankins, 2013).

Thus, we specify our statistical model as:

$$\begin{aligned}\Delta ROA_{it} = {} & \alpha + \beta_1(\Delta CommonOwn_{it-1}) + \beta_2(\Delta MktgCapability_{it-1}) + \beta_3(\Delta StrategicEmphasis_{it-1}) \\ & + \beta_4(\Delta MktgCapability_{it-1})(\Delta CommonOwn_{it-1}) + \beta_5(\Delta StrategicEmphasis_{it-1})(\Delta CommonOwn_{it-1}) \\ & + \beta_6(\Delta ROA_{it-1}) + \sum_{w=1}^{8}\beta_{w+6}\Delta Controls_{it-1} + \sum_{t=1}^{T}\varphi_t Year_{it} + \Delta\varepsilon_{it} \end{aligned} \quad (8)$$

5.2.2. Endogeneity

Despite accounting for the preferences of institutional investors for certain firms or industries via (i) the inclusion of several control variables and (ii) first-differencing all of our focal and control variables to help account for unobserved heterogeneity and potential inertia and persistence in our focal variables, endogeneity may still be present in our analysis. For example, institutional common owners may have additional, unobserved, and unaccounted for investment knowledge about certain firms compared to all other institutions or investors, which could result in biased empirical estimates due to endogeneity. Thus, to control for such potential endogeneity, the Arellano–Bond GMM model allows for the creation of instrumental variables (IVs) based on the lagged values of first-differenced covariates, which are theoretically correlated with our variable of interest, but not the model's error terms (Arellano & Bond, 1991; Xiong & Bharadwaj, 2013). In our model, we conservatively assume that all of our focal variables are endogenous. Hence, our approach results in theoretically valid IVs since it is unlikely that the error terms would be correlated with the instruments created using the lagged first-differenced variables, which prior research in the management-finance interface literature has suggested produces valid IVs to account for potential endogeneity in the ownership and firm performance context (Schultz et al., 2010). Thus, the remaining endogeneity in our analysis that may be persistent even after controlling for firm- and industry-specific unobserved heterogeneity and institutional investor preferences should be accounted for by using such lagged IVs.[8]

5.3. Descriptive statistics

Our final estimation sample contains 5,817 firm–year observations from 1,065 firms.[9] In Table 2, we provide descriptive statistics. In Web Appendix Table 1, we provide a correlation matrix. The median firm in the sample has 3,900 employees and spends $9.5 million and $7.4 million on advertising and R&D, respectively.

In Fig. 2, we display how institutional investors' percent of holdings steadily increases over three-decades of data from a low of 33.59% (in 1987) to a high of 72.11% (in 2015), apart from a small decrease during the Great Financial Crisis. On a firm–year observation level, we find the average firm in our sample has 8.5 institutional investors that own ≥1% shares of the firm, who, combined, own an average of 26.0% of the firm's stock. The average firm-year observation has a common ownership measure of 0.968, with a standard deviation of 0.07, showing that institutional owners often engage in extensive common ownership, but the dispersion of common ownership varies by firm.

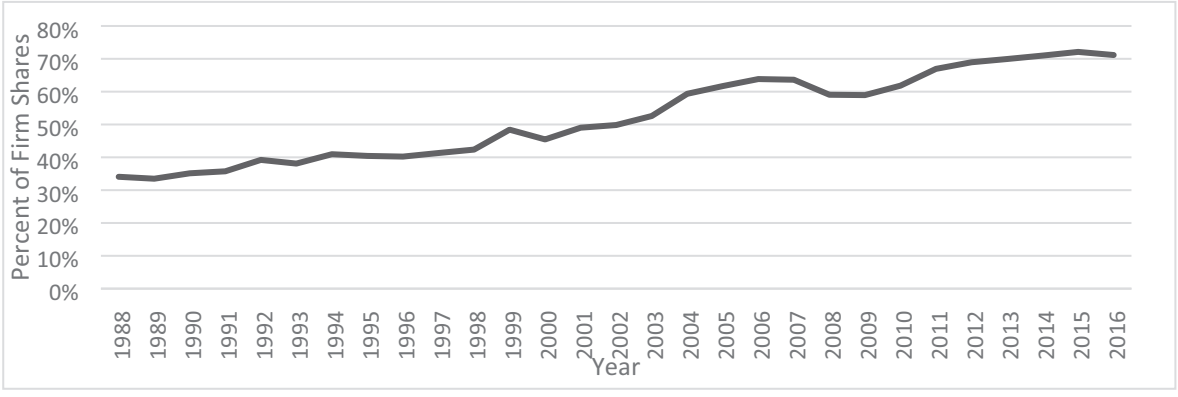

Fig. 2. Total ownership of firm stocks by institutional investors.

In Web Appendix Table 2, we rank-order all 1065 firms in our estimation sample based on their average extent of institutional common ownership over time. This table should be useful for public policymakers to examine which firms have the greatest and least extent of institutional common ownership, on average over time, based on an extensive collection of institutional holdings across a large number of firms and years. For example, we report the five firms with the greatest extent of common ownership are Empire Resorts Inc., Santa Barbara Restaurant Group, Allin Corp., H&H Oil Tool Co., and Audio King

[8] To further test the effect of industry-level unobservable effects, we estimated a model that included time-invariant industry-level dummy variables. We find that the results are consistent with the results of our focal model.

[9] The sample size was reduced from the initial sample employed to construct our institutional common ownership measure because we eliminated firms from our dataset that had missing data on one of our focal variables, and firms that did not have fully reported data for at least three consecutive years since our dynamic panel Arellano-Bond GMM estimation method requires lagged data to form instrumental variables to account for endogeneity. This greatly reduced our dataset as not every firm in Compustat reports all data employed for multiple years in a row. For example, not every firm the Compustat data is forced to report their advertising spending (a variable employed to compute our marketing strategic emphasis and marketing capability measures), and, in fact, previous reports have documented that less than half the firms in Compustat actually do report such spending (Han et al., 2017). In addition, missing data also exists from many firms on their R&D spending.

Corp. and the five firms with the lowest common ownership are Telkonet Inc., Dynasil Corp., Taitron Components, Lyris Inc., and Conversant Inc.

Finally, in Web Appendix Table 3, we provide a comparison between firms with low and high institutional common ownership on key aspects. Interestingly, we do not find many differences between firms with low and high institutional common ownership, apart from firm size. These lack of differences are consistent with previous findings on institutional common ownership and large ownership blocks, which has described a lack of theory and knowledge on drivers of common ownership behavior other than larger firms are likely to have a greater prevalence of institutional owners (e.g., Edmans & Holderness, 2017).

6. Results

6.1. Model-free evidence

In Fig. 3, we provide model-free evidence to better understand the nature of the relationships between common ownership, marketing, and firm performance. To enable ease of understanding of model-free visual evidence, we average a variable's score across a firm's yearly observations and then take median splits for each of the focal variables to provide low and high measures. In Panel A of Fig. 3, we observe that firms with high common ownership have slightly greater average ROA than firms with low common ownership. In Panel B of Fig. 3, we observe a positive relationship between institutional common ownership and ROA for firms with low marketing capabilities and firms with high strategic emphasis, but not for firms with high marketing capabilities and low strategic emphasis. Taken together, this model-free evidence indicates that the effects of institutional common ownership are not uniform and instead may be contingent on moderators, such as the firm's marketing capabilities and strategic emphasis. However, the model-free results presented could be driven by empirical issues inherent in this context, including reverse causality, endogeneity, unobserved heterogeneity, and firm- and industry-level effects. As such, to better analyze the data, we estimate our Arellano-Bond GMM econometric model, the results of which we discuss next.

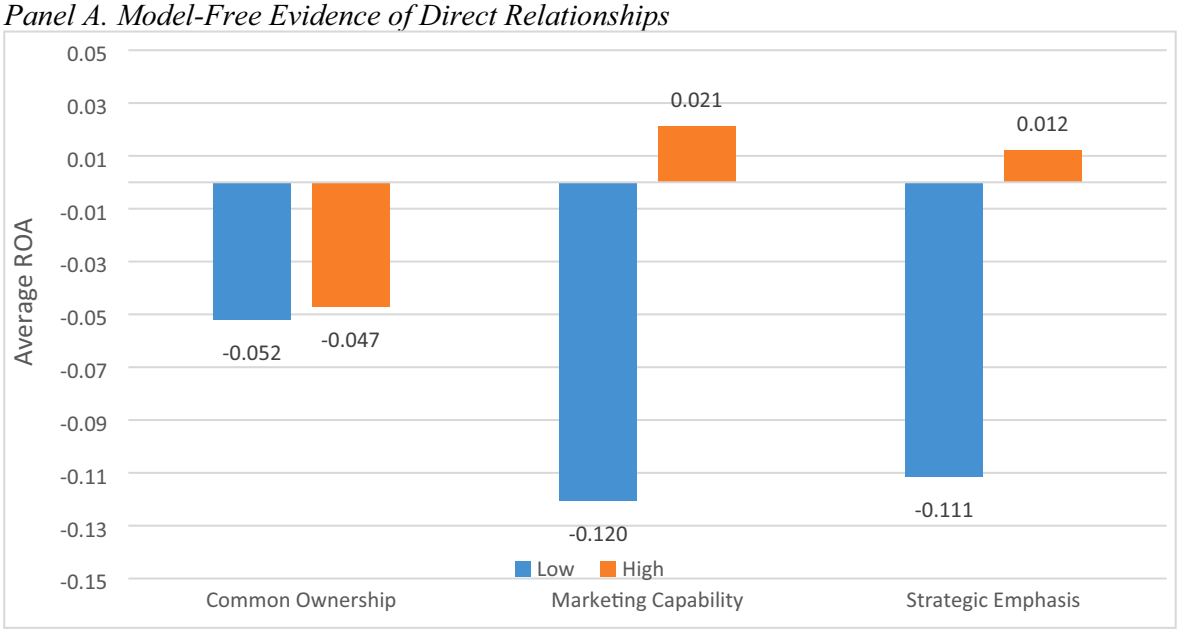

Fig. 3. Model-free evidence. Note: The average ROA provided is the average of a variable's score across all a firm's yearly observations for each median split of high and low measures of the focal variables.

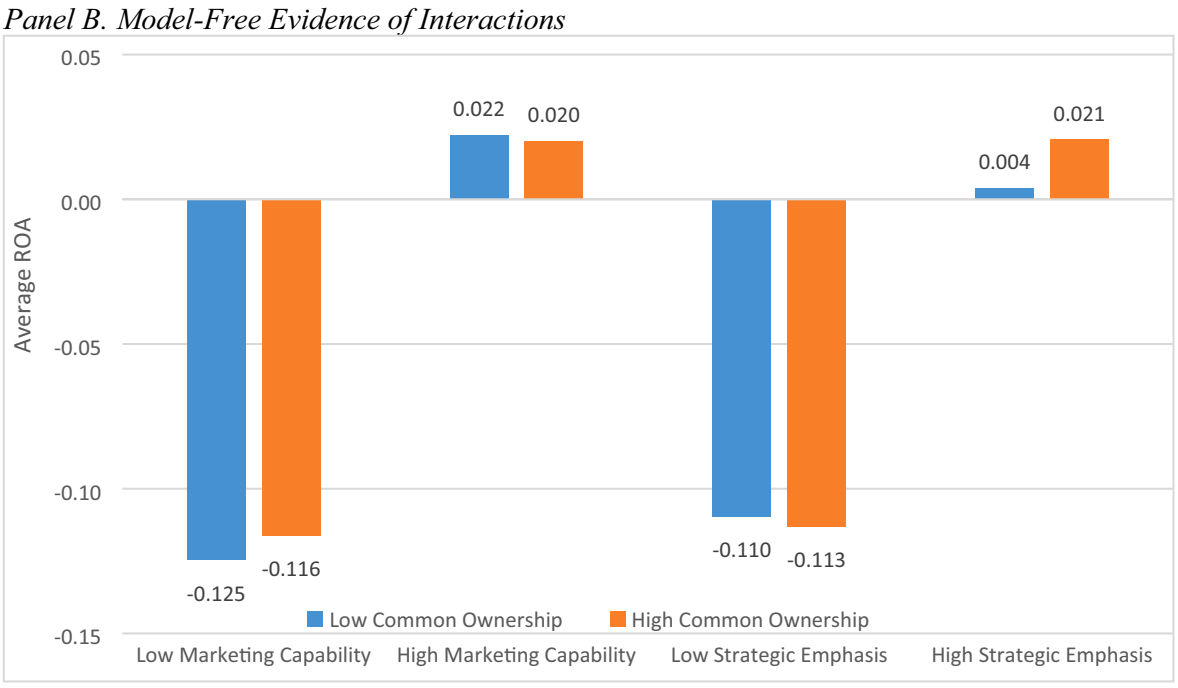

Fig. 3. (*continued*).

6.2. Parameter estimates

In Table 3, we provide the results of the empirical analysis. To begin, we find that an increase in institutional common ownership is associated with an increase in firm performance ($p < .01$). Consequently, we find that institutional common ownership is related to better individual firm performance, which supports our expectation in H1. As a reminder, we include controls for the firm, industry, and economic setting as well as the percent of institutional ownership in a firm to ensure that our results are not due to an increase in overall institutional ownership. Further, we control for changes in an industry's institutional common ownership, which helps account for institutions' industry-level preferences.

Table 3
Results of Arellano-Bond GMM estimation.

Variable	Coefficient	Z-Score	Sig.
Intercept	−2.49***	−2.94	0.003
Focal Variables			
Institutional Common Ownership	2.50***	2.93	0.003
Marketing Capability	2.82***	2.82	0.873
Strategic Emphasis	1.01*	1.85	0.065
Institutional Common Ownership × Marketing Capabilities	−2.60***	−2.95	0.003
Institutional Common Ownership × Strategic Emphasis	−3.16***	−5.80	0.000
Control Variables			
Lagged Performance	0.05***	2.60	0.009
Institutional Ownership of Firm	0.31***	10.14	0.000
Industry Institutional Ownership	−0.04	−0.43	0.668
Industry Institutional Common Ownership	−0.38***	−3.51	0.000
Competitive Intensity	0.28***	2.82	0.005
Financial Leverage	−0.02	−0.59	0.557
Industry Growth	−0.04	−0.81	0.418
Industry Dynamism	−0.03	−0.95	0.342
Ln(Firm Size)	0.01	1.35	0.178
Model Diagnostics			
χ^2	1,137		

NOTES, ***p < .01; **p < .05; *p < 0.1.

Next, we examine whether the relationship between a firm's extent of institutional common ownership and its performance is moderated by its marketing capabilities and relative strategic emphasis, two measures that describe marketing at the strategic level. As expected, we find a negative interaction between institutional common ownership and marketing capabilities ($p < .01$), indicating that common ownership provides less (more) benefit to more (less) marketing capable firms. Hence, we find support for H2. We also find that an increase in institutional common ownership relates to superior performance in firms whose strategic emphasis is oriented more toward value-creating R&D over value-appropriating advertising activities ($p < .01$), providing support for H3. Combined, these marketing-related findings demonstrate that the relationship between institutional common ownership and firm performance can be impacted by strategic functions of the firm, such as its marketing.

6.3. Robustness tests

Table 4 provides a summary of motivation, results, and insights gained from variants of our focal analysis conducted as robustness tests. First, given that we develop a new measure of institutional common ownership in this research, we test the robustness of our results to four alternative institutional common ownership measures: (i) common ownership across the entire sample of firms, (ii) the absolute size of the firm to account for differences in investors' attention towards larger firms (e.g., Ferreira & Matos, 2008), and by employing two of He and Huang's (2017) common ownership measures, i.e., (iii) the number of same-industry peers that share any common institutional owner with the firm and (iv) the sum of all common institutional owner percent holdings in the firm itself. We find statistical support for H1 and H2 when using each of these alternative institutional common ownership measures, and statistical support for H3 in the first two models.

Second, we follow a "shoe-leather empirics" strategy, as recommended by Edmans and Holderness (2017) when empirically examining the effects of large stockholders on firm performance. This strategy involves examining whether our results are consistent when only testing subsets of the sample in which a firm's strategic marketing is most likely to moderate the relationship between institutional common owners and firm performance. If we do not find support for our hypotheses in these sub-samples, our estimation and measures could appear biased or have validity issues. Therefore, we split the sample by firms that possess more or less than the median amount of (i) marketing capabilities and (ii) strategic emphasis, and by firms that have their largest block of institutional common investors (iii) classified as professional investment firms and (iv) considered to employ an active investment strategy.[10] In each of the models employing subsets of our data, we find that the results for each of our hypotheses hold.

Third, we examine whether common ownership has similar effects on different measures of firm performance other than ROA. We employ three alternative performance measures to evaluate the robustness of our results: (i) sales (natural log-scaled), (ii) Tobin's q, and (iii) market value. We find the results of H1 and H2 remain consistent with the focal model when employing each of the three alternative performance measures, but only find partial support for H3.

Finally, to provide evidence that the results are not driven exclusively by the methodology and estimation technique used to test our hypotheses, we test our conceptual framework by employing an alternative control for endogeneity, specifically, a switching regression model (e.g., Cao & Sorescu, 2013). As discussed in detail in Web Appendix A, the switching regression model estimates two regression equations and a criterion function to control for endogeneity of a focal variable by using observed and unobserved factors to assign observations to each regression equation. In this analysis, we estimate two regression equations based on regimes determined by whether the observation is likely to be characterized by a high or low amount of common ownership. We find that the positive effect of institutional common owners on firm performance (H1) and the moderating effect of marketing capabilities on this relationship (H2) are both driven primarily by firms with lower levels of common ownership. In contrast, we find the moderating effect of strategic emphasis (H3) exists for common ownership at both high and low levels. The potential implications of these results to public policy are detailed in the Discussion section.

7. Additional analysis on the role of firm size

An additional insight from our interviews with institutional common owners was that managers of smaller firms were more likely to seek and implement insights and industry best marketing and R&D practices in comparison to their larger competitors. For example, one institutional common owner described how smaller firms often aggressively sought advice on best practices to improve their productivity, including by seeking knowledge about competitor marketing efforts. Further, another institutional common owner described his role as a conduit linking his smaller firms with his other firms to collaboratively work on R&D projects and establish knowledge sharing of best practices.

Prior literature also suggests that institutional investors often hold more clout in smaller firms' decision making due to institutions' punitive financial market repercussions to such firms if they sell their stakes (Brav et al., 2008). In addition, prior literature has found that smaller firms have more limited resources than larger firms (Wang et al., 2015), constraining smaller firms' risk-taking abilities (González-Uribe, 2020) and access to external and internal networks of knowledge

[10] The investor classifications are defined by data from Paul Bushee's Wharton School website: https://accounting-faculty.wharton.upenn.edu/bushee/iivars/#mgrno.

Table 4
Summary of expected effects and results for robustness tests.

Robustness Test	Motivation for Robustness Test	Common Owner	Common Owner × Mkt. Cap.	Common Owner × tr. Emp.	Insights from Robustness Test
	Hypothesis (Expected Effect)	H1 (+)	H2 (−)	H3 (−)	
Focal Results	–	✓	✓	✓	Common ownership is positively associated with firm perf.; stronger effect for firms with lower marketing capab. and relative str. emp. oriented to R&D over advertising
Alternative Specifications to Common Ownership Measure					
Entire Sample Common Ownership	Common owners may benefit co-owned firms outside of industry; also, to test sensitivity of this measure to the usage of NAICS-based industry specification	✓	✓	✓	Common ownership provides benefits firms across and within industries
Absolute Size of Firm	Investors' attention and preferences may be focused towards larger firms (e.g., Ferreira & Matos, 2008)	✓	✓	✓	Common ownership provides benefits to firms, even accounting for owners paying more attention to larger firms
Number of Common Owners	Alternative measure of common ownership employed by He and Huang (2017)	✓	✓	X	Effect of common ownership and the moderating effect of marketing capab. are robust to these specifications of common ownership; Str. Emp. potentially insignificant due to the measure no longer being market-weighted, which can dilute common owners' influence in firms
Sum of Common Owners Holding in Firm	Alternative measure of common ownership employed by He and Huang (2017)	✓	✓	X	
Subsets of Data					
Low Marketing Capabilities (below median)	Common ownership is expected to benefit firm perf. for firms with lower marketing capabilities	✓	✓	✓	Common ownership provides greater benefits to firms with low marketing cap.; results also hold when only examining firms with high marketing capab.
Low Strategic Emphasis (below median)	Common ownership is expected to benefit firm perf. for firms with lower strategic emphasis	✓	✓	✓	Common ownership provides greater benefits to firms that spend more on R&D than advertising (low str. emp. emphasis); Results also hold when only examining firms with high marketing capab.
Investment Firm	Professional institutional common investment advisors provide unique benefits for firm perf.	✓	✓	✓	Results hold when investigating solely the firms that have largest block of institutional common investors
Active Investment Strategies	Active investor institutional common owners provide unique benefits for firm perf. (He & Huang, 2017)	✓	✓	✓	classified as (i) investment advisors and (ii) active investors
Alternative Measures of Performance					
Sales	Examine whether common ownership affects other forms of firm perf.	✓	✓	X	Str. Emp. does not impact common own.'s effect on firm sales
Tobin's q		✓	✓	✓	Results hold when examining market value perf.
Market value		✓	✓	X	Investors may negatively value a strategy that emphasizes less R&D spending to develop breakthrough R&D-based innovations (e.g., Wies & Moorman, 2015)
Alternative Model Specification to Account for Endogeneity					
Low Common Ownership (below median)	Switching regression that controls for observed and unobserved factors	✓	✓	✓	Greater common ownership provides benefits for firms with less common ownership, especially for firms with lower marketing capab. and strategically oriented towards value creation (R&D)
High Common Ownership (above median)	driving common ownership	X	X	✓	

+ = a positive hypothesized relationship; − = a negative hypothesized relationship; ✓= $p \leq 0.1$; X = $p > 0.1$. Web Appendix Table 4 provides each model's coefficients.

(Harmancioglu et al., 2010). Consequently, we provide exploratory analyses for whether firm size acts as an additional moderator of the relationships between institutional common ownership, marketing capabilities, strategic emphasis, and firm performance. Based on the theory and managerial insights noted above, we expect an increase in institutional common ownership to be associated with a greater increase in the performance of smaller over larger firms. In addition, we expect smaller

firms to benefit more from common ownership if they have lower marketing capabilities and when they spend relatively more on value-creating R&D expenditures than on value-appropriating advertising expenditures.

We test the potential moderating role of firm size via three methods. First, we add two-way and three-way interactions to Eq. (8). Second, we analyze sub-samples of our data, based on two thresholds of firm size, i.e., the smallest 50% and 75% of firms. Third, we employ switching regressions that examine observations classified into two regimes based on expected small and large firm size, as an alternative method to account for potential endogeneity of firm size. We report the results of these analyses in Web Appendix Table 5. In the models that (i) examine subsets of data based on firm size and (ii) utilize switching regression models to account for endogeneity in firm size, we find that an increase in institutional common ownership is significantly associated with an increase in the performance of smaller but not larger firms. In addition, we find that an increase in institutional common ownership is significantly associated with an increase in the performance for firms with less marketing capabilities and with a strategic emphasis oriented toward value-creating R&D over value-appropriating advertising activities, again, only for smaller and not for larger firms, and these results are consistent across the different estimated models. Hence, we find smaller (larger) firms are more (less) likely to experience the positive benefits provided by institutional common ownership. This suggests that although smaller firms are less likely to have greater institutional common ownership (e.g., Edmans & Holderness, 2017), these firms offer a profitable opportunity for common owners to invest and provide performance-oriented-benefits.

8. Discussion

8.1. Managerial and theoretical implications

Institutional common ownership has garnered interest and concern from regulators (e.g., Federal Trade Commission, 2018), the popular press (e.g., Authers, 2016), and academics (e.g., Azar et al., 2018). Despite this interest, to our knowledge, no research has heretofore examined how the nature and effectiveness of certain organizational functions and strategies, such as a firm's marketing strategy, impacts the relationship between common ownership and firm performance. To address this gap, this research builds on the principal-agent relationship between institutional common owners and firm managers to examine how institutional common owners' incentives and capabilities to influence firm managers are linked to firm performance and how this effect can differ in extent between firms characterized by varying marketing efficiency and allocation between advertising and R&D expenditures.

Empirically, across a number of models and analyses, we find that an increase in institutional common ownership is associated with a positive, rather than a negative, effect on firm performance. Further, we find institutional common owners' effect on performance is stronger for firms with lower marketing capabilities. We also find partial support that the positive relationship between institutional common ownership and firm performance is stronger for firms with a marketing strategic emphasis towards value-creating R&D expenditures rather than value appropriating advertising expenditures. Also, in our additional analysis, we find the empirical relationships between institutional common ownership, marketing capabilities, strategic emphasis, and firm performance are primarily driven by their effects on smaller firms.

Taken together, these results demonstrate institutional common ownership can provide firm performance benefits to firms that are in greater need of common owners' market knowledge, enabling of risk-taking, and ability to reduce barriers to collaboration (i.e., firms with less marketing capabilities, a strategic emphasis on value creation, and that are smaller). Hence, our results demonstrate that institutional common owners can provide positive consequences to their individual firms, which is in contrast to the negative consequences generally noted in the popular press (e.g., Posner et al., 2016). Further, our research provides evidence that regulators should consider how a firm's extant strategic marketing can help determine whether institutional common owners provide positive or negative effects to their individual firms. As such, our results suggest that appropriate regulation of common ownership should not be a one-size-fits all strategy as not all of common owners' consequences will be negative. Their consequences will, instead, be dependent on the firm's functions and strategies, such as their extant marketing.

8.2. Future research and limitations

Future research is needed to expand beyond this first study in marketing to better understand the relationship between institutional common ownership and marketing. For example, the performance effects of common ownership documented in our research could be a function of institutional common owners providing their firms with better knowledge of consumers' wants and needs, potentially increasing consumer welfare, or due to a variety of factors that can potentially harm consumer welfare, such as lower competitive intensity or avoidance of price wars between firms. Thus, the results documented in our research could come at the expense of consumer welfare or, in contrast, be beneficial for consumers by potentially improving the ability of firms to match offerings with consumer wants and needs. Further, less is known about how changes in the concentration of institutional common ownership affects employee compensation, informal and formal communication and projects with competitors, and vertical distribution channels. In addition, future research can examine the effect of institutional common ownership by including more fluid industry classification based on individual annual reports, such as via textual network industry classification (Hoberg et al., 2013).

One follow-up question we explored is whether institutional common owners directly affect firms' marketing efforts. We examined whether an increase in institutional common ownership directly affected advertising intensity, R&D intensity, strategic emphasis, marketing capabilities, and the inclusion of a marketer as a top management team executive (proxied as a top-five most paid employee). However, despite the likelihood of institutional common ownership directly affecting the marketing practices of individual firms, we did not find that institutional common ownership significantly affected changes to these marketing factors. In contrast, we found that marketing has an indirect effect on the relationship between institutional common ownership and firm performance. Institutional common owners have a lesser ability to help firms that are producing better results with customers (i.e., better marketing capabilities) and spending more on value-appropriating advertising activities than value-creating R&D activities, as such firms are in less need of common owners' knowledge of industry best practice, enabling of risk-taking, and ability to reduce barriers to collaboration.

We also examined the relationship between institutional common owners, a firm's extant marketing, and firm strategic activities like acquisitions, board interlocks, and corporate governance. In exploratory analysis using switching regression models to account for endogenous selection effects, we find the positive effects of institutional common ownership appear to be mostly associated with firms that are not engaging in acquisition behavior, but do not find evidence suggesting that board interlocks or corporate governance changes are related to the performance effects of common ownership or marketing's moderating effect on this relationship. These results, which are summarized in Table 5, suggest that institutional common owners' accumulated market knowledge and ability to reduce barriers of collaboration could serve as an alternative to firms relying on formal acquisitions. In addition, these results demonstrate how institutional common owners can benefit firms with fewer resources, such as those less likely to engage in acquisitions.

Overall, the goal of our research was to introduce the concept of institutional common ownership to the marketing literature and establish that strategic marketing, as measured in this study by the firm's marketing capabilities and strategic emphasis, can affect the relationship between institutional common ownership and firm performance. Further, our research

Table 5
Summary of additional analyses.

Focus of analysis	Motivation	Empirical Test Method	Result	Insight(s)
Firm Size				
Common Owner × Firm Size	Common owners' have more clout to influence small firms, which should increase likelihood of use of common owner's recommendations	Two-way interactions, switching regressions, and subsets of data based on firm size (smallest 50% and 75% of firms)	P	1) Smaller (larger) firms are more (less) likely to experience the positive benefits provided by institutional common ownership
Common Owner × Mkt. Cap. × Firm Size	The relative advantage of common ownership to firms with lower marketing capabilities will primarily occur in smaller firms	Three-way interactions, switching regressions, and subsets of data based on firm size (smallest 50% and 75% of firms)	✓	2) Smaller firms offer a profitable opportunity for common owners to invest and provide performance-oriented-benefits
Common Owner × Str. Emp. × Firm Size	The relative advantage of common ownership to firms with a relative strategic emphasis on value creation (R&D) will primarily occur in smaller firms		✓	
Direct Effect of Common Ownership				
Ad. Intensity	Common owners may directly affect a firm's marketing efforts and strategies		X	No direct effect on firm practice documented
R&D Intensity			X	
Mkt. Cap.			X	
Str. Emp.			X	
Marketer as a top 5 paid employee			X	
Mediating Effect of Common Ownership				
Acquisitions	Common ownership can help identify acquisition targets or negatively affect the need to engage in acquisitions (e.g., Matvos & Ostrovsky 2008)	Switching regression models for each variable (yes/no)	✓	Institutional common owners' accumulated market knowledge and ability to reduce barriers of collaboration could serve as an alternative to formal acquisitions
Board Interlocks	Common owned firms can help increase likelihood of board members on co-owned firms, which facilitates knowledge transfer and ability to collaborate (He & Huang, 2017)		X	No mediated effect on board interlocks or corporate governance documented
Corporate Governance	Common ownership improves corporate governance structure, which should increase firm performance (He et al., 2019; Kang et al., 2018)		X	

✓ = $p \leq 0.1$; X = $p > 0.1$; P = partial support (i.e., significant in some models).

identifies the importance of marketing as a moderator when analyzing the consequences of institutional common ownership on firm performance, which should be useful for policymakers when assessing the possibility of regulations to address concerns about institutional common ownership. Specifically, firms characterized by less efficient marketing and value creation marketing strategies gain performance benefits from institutional common ownership, potentially creating more intense competition. As such, it is important for marketing researchers to continue to develop our understanding of this relationship with future research on this topic.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijresmar.2021.05.003.

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