Dual Distribution and Intangible Firm Value: Franchising in Restaurant Chains

Dual distribution systems in which firms use vertical integration and market governance simultaneously are widely used across diverse marketing contexts (e.g., restaurants, retailing, industrial selling). A prominent example of dual distribution includes business format franchising, in which firms (i.e., the franchisors) license the operation of some of their units to franchisees while owning and operating some units themselves. Despite the widespread prevalence of dual distribution, there are few insights into its performance implications. In this article, the author examines the relationship between a firm's dual distribution strategy and its intangible value. Franchising in restaurant chains serves as the empirical context for the study. It is proposed that a firm's dual distribution strategy affects its intangible value both independently and jointly with a set of firm characteristics. The author considers the firm's age, scope of vertical integration, advertising, financial leverage, and financial liquidity as firm characteristics that influence the relationship between dual distribution strategy and intangible value. The author measures the firm's dual distribution strategy by the proportion of its franchised units to its total units and intangible value by its Tobin's q. The author estimates the proposed model using panel data on 55 publicly listed U.S. restaurant chains for the period 1992–2002. Unobserved firm heterogeneity is accommodated using latent class regression analysis. The results support a four-segment model. Dual distribution increases intangible value for some firms but decreases intangible value for others, both independently and in conjunction with other firm characteristics.

Dual distribution systems in which firms use vertical integration and market governance are widely used across diverse marketing contexts, including retailing, restaurants, and industrial selling. Although the nature of dual distribution systems varies by marketing context, in principle, dual distribution implies that the firm contracts with market agents to manage parts of its distribution system while owning and managing other parts of it. Given the widespread prevalence of dual distribution, some observers suggest that it has become the dominant channel design with important implications for firms' marketing strategies and performance (Anderson, Day, and Rangan 1997; Stern and Weitz 1997).

In this article, I examine the relationship between dual distribution strategy and intangible value using the context of franchising in restaurant chains. In what is known as business format franchising, the chains (i.e., the franchisors) own and operate some restaurant units and simultaneously license the operation of other restaurant units to market agents (i.e., the franchisees). Franchisors provide marketing and operations support to franchisees in return for royalty income, which is a fixed percentage of franchisees' revenues.

Dual distribution has been extensively studied by marketing scholars as hybrid channels, multiple channels, or plural governance. However, prior research has focused primarily on its various antecedents, including information asymmetry (Heide 1994, 2003), transaction costs (Anderson 1988; Anderson and Schmittlein 1984; Bergen, Dutta, and Walker 1992; Dahlstrom and Nygaard 1994, 1999; Rindfleisch and Heide 1997; Weiss and Anderson 1992), and uncertainty (Dutta et al. 1995; John and Weitz 1988). There are fewer insights into the performance implications of dual distribution. As Heide (2003, p. 27) notes, "the specific performance implications of plural systems remain unanswered:... establishing a link between particular governance approaches and outcome variables seems an important research priority."

Relating dual distribution strategy to intangible value is also valuable from a marketing metrics perspective (Bolton 2004; Rust et al. 2004). Recent developments in accounting suggest that a firm's accounting data alone cannot adequately explain its value because they do not capture its intangible assets (Amir and Lev 1996). Accordingly, there is interest in identifying value-relevant, nonaccounting measures, including business strategies that may affect shareholder value (e.g., Barth et al. 1998). Relating marketing strategies to firm value is especially pertinent because most marketing investments create intangible market-based...
assets that are not reflected on balance sheets (Srivastava, Shervani, and Fahey 1998, 1999).

Consistent with conceptual advances in the marketing metrics area (Srivastava, Shervani, and Fahey 1998, 1999), empirical research has identified a value-relevant role for various aspects of marketing strategy, including branding (e.g., Rao, Agarwal, and Dahloff 2004; Simon and Sullivan 1993), product management (Aaker and Jacobson 2001; Pauwels et al. 2004), and customer relationship management (e.g., Anderson, Fornell, and Mazvancheryl 2004). However, there are few insights into the relationship between distribution strategy, a key aspect of a firm's marketing strategy, and its value. An exception to this, however, is the work of Banerji and Simon (1991), who use survey data from 34 restaurants and report a positive relationship between the proportion of firms' franchised units to their company units and their intangible value. More recently, two studies (Geyskens, Gielens, and Dekimpe 2002; Lee and Grewal 2004) show that a firm's adoption of the Internet as a distribution channel positively influences its intangible value. These developments raise questions about the value relevance of distribution strategy.

A study relating dual distribution strategy to firm value is also important for marketing practice because of the increasing scrutiny of the financial accountability of marketing investments from various stakeholders (Rust et al. 2004). Testifying to the potential managerial significance of this issue, an empirical survey of restaurant chains, the industry context for this article, suggests an intriguing relationship between chains' dual distribution strategies and their intangible values (see Figure 1).

Notably, the scatter plot in Figure 1 indicates that restaurant chains using given dual distribution strategies have different intangible values. For example, in 2002, McDonald's Corporation and Panera Bread Company, which had similar dual distribution strategies (.72 of their system units were franchised), had intangible values of 1.290 and 5.300, respectively. Likewise, Benihana and California Pizza Kitchen, which had similar dual distribution strategies (.18 of their system units were franchised), had intangible values of .990 and 2.780, respectively. Similar patterns were observed in other industries in which dual distribution is prevalent (e.g., automotive repair services, hotels), suggesting a complex and perhaps contingent relationship between dual distribution strategy and intangible value. Insights clarifying this relationship will be useful to managers whose business strategies must be informed by their performance implications. In this article, I examine two research questions: Does a firm's dual distribution strategy affect its intangible value? and Do the effects of dual distribution on intangible value vary across firms?

Firms are urged to leverage synergy among elements of their marketing strategy to optimize resource allocation (Capon, Farley, and Hoenig 1990, pp. 1144–59; Gatignon and Hanssens 1987, p. 257). Surprisingly, however, prior studies relating marketing to firm performance have focused on one aspect of marketing, such as new product introductions (e.g., Bayus, Erickson, and Jacobson 2003) or brand management (e.g., Rao, Agarwal, and Dahloff 2004), without consideration of potential synergies among them. Indeed, the considerable variability in intangible values of firms for a given dual distribution strategy, as observed in Figure 1, suggests that a contingent relationship between dual distribution strategy and other firm characteristics affects intangible value.

Accordingly, I apply contingency theory (Hambrick 1983; Zeithaml, Varadarajan, and Zeithaml 1988), which proposes complementary effects of various aspects of a firm's profile, strategy, and resources on its performance, to relate a firm's dual distribution strategy to its intangible value. I propose that a firm's dual distribution strategy affects intangible value both independently and jointly with other firm characteristics. The firm's age, scope of vertical integration, advertising, financial leverage, and financial liquidity are considered characteristics that influence the effects of its dual distribution strategy on its intangible value.

I estimate the model using panel data on 55 publicly listed U.S. restaurant chains in the period 1992–2002, resulting in 394 firm years. Unobserved firm heterogeneity is accommodated using latent class regression analysis that derives latent segments (for a review, see Wedel and Kamakura 2000). I use the proportion of a chain's franchised units to the total number of its units in its distribution system as the indicator of its dual distribution strategy. I measure the chain's intangible value by its Tobin's q, a forward-looking, stock market-based measure (e.g., Bharadwaj, Bharadwaj, and Konsynski 1999).

The results support a four-segment model and indicate that a firm's dual distribution strategy influences its intangible value both independently and jointly with other firm characteristics. The effect of dual distribution on intangible value varies across firms in the four segments, in support of firm heterogeneity. The proposed model explains a firm's intangible value significantly better than its accounting data, in strong support of the value relevance of its dual distribution strategy. The model also predicts a firm's intangible value well, given its characteristics.

I organized the article as follows: In the next section, I define dual distribution and provide an overview of it. Then, I develop the hypotheses. In the subsequent sections, I describe the data and the model estimation procedure, and then I present the results. The article concludes with a discussion of the study's contributions, its limitations, and opportunities for further research.

Theory

Definition of Dual Distribution

I conceptualize a firm's dual distribution as a hybrid system, involving the simultaneous use of vertical integration (known as "vertically integrated channels" or "company units" in franchising) and market governance (also called...
FIGURE 1
Dual Distribution and Intangible Value in Restaurant Chains (2002)
“market-based channels” or “franchised units”). In the restaurant industry, most chains use dual distribution, though some (e.g., Planet Hollywood International, Lone Star Steakhouse & Saloon) use only vertically integrated channels and others (e.g., Noble Roman’s, Triarc Companies) use only market-based channels.

I define the proportion of a chain’s franchised units to the total number of its system units in its distribution system as the indicator of its dual distribution strategy for three reasons. First, this definition captures the chain’s emphasis on market-based channels relative to its system size, reflecting the conceptualization of dual distribution as a hybrid system. Second, the definition also captures the chain’s relative emphasis on the creation of intangible assets (e.g., franchised units, franchisee relationships, and knowledge) in its distribution system; this is consistent with the study’s focus on firm value, which is achieved through intangible market-based assets (Srivastava, Shervani, and Fahey 1998). Third, the proportion of a chain’s market-based channels to its system size is a strategic choice variable because chains first determine their overall distribution strategy (e.g., system size, location of units) and then determine which units should be franchised (Lafontaine 1992).

Overview of Dual Distribution

Vertically integrated channels and market-based channels embody different economic, structural, and managerial characteristics and serve different marketing functions (Dutta et al. 1995; Heide 1994, 2003). For example, firms own, operate, and manage vertically integrated channels through hierarchical, corporate control, whereas market agents own and operate market-based channels, which are managed primarily through provisions and incentives in a relational contract between the firm and its agents (Williamson 1975, 1985).

Marketing scholars have examined the conditions in which plural governance in general and dual distribution in particular lead to greater efficiency using the theoretical lenses of agency theory (Bergen, Dutta, and Walker 1992; Dutta et al. 1995) and transaction cost economics (Heide 1994, 2003; John and Weitz 1988; Rindfleisch and Heide 1997). The emergent consensus is that under some conditions, dual distribution eliminates problems associated with either exclusive vertical integration or market governance (for discussions of agency theory and transaction cost economics applicable to dual distribution, see Bergen, Dutta, and Walker 1992, pp. 13–16; Heide 1994, pp. 74–78; Rindfleisch and Heide 1997, pp. 32–43).

Advantages of Dual Distribution

Both vertical integration and market governance have distinctive economic and structural characteristics and marketing functions. Thus, the advantages and disadvantages of dual distribution arise from the aggregation of benefits and costs of each channel and the synergy across the dual channels.

Greater control over operations in vertically integrated channels. In the presence of dual distribution, vertical integration enhances the credibility of the firm’s contract termination safeguard, curtails agents’ opportunism, and reduces the firm’s vulnerability (Dutta et al. 1995). Vertical integration also provides a firm with greater control over its business processes, products, and profits (Heide 1994). Consistent with greater control over company units, the chief executive officer (CEO) of McDonald’s stated, “We maintain a global base of company-operated restaurants to generate profits, link our interest with franchisees, develop management talent, gather research, and test ideas for better restaurant execution” (McDonald’s Corporation 1995, p. 11).

Lower costs and higher returns in market-based channels. Market agents are an important source of scarce financial and managerial resources that are bundled efficiently in the contract (Alchian and Demsetz 1972; Grossman and Hart 1986; Jensen and Meckling 1976). As Anderson and Weitz (1986, p. 13) note, “administrative costs associated with external agents are quite low;... the ‘invisible hand’ of the market places substantial pressures on independent agents to provide a marketing activity efficiently.”

For example, in restaurant chains, owner-managers of franchised units, with rights to residual profits from their units, are more motivated and work more efficiently than salary-based employees in company units, thus lowering operating costs. Chains monitor franchised units infrequently, relying instead on provisions in the contract, which lowers monitoring costs as well (Lafontaine and Shaw 2005). Furthermore, chains make no capital investment in franchised units, even as they earn income, which is set as a fixed percentage of franchisees’ revenues. As the executive vice president at a leading fish-and-chips chain noted, “with franchise units, you receive a smaller margin but the return on investment approaches infinity because there is no investment” (Bradach 1998, p. 68).

Market-based channels are more responsive to market needs. Owner-managers of market-based channels follow complex strategies and are more responsive to market changes than are bureaucratic, vertically integrated channels (Yin and Zajac 2004). As a Pizza Hut franchisee noted (Bradach 1998, p. 127), “Franchisees have a faster reaction time. With all the layers in the company, it takes a long time to get things done.” Because they are responsive to market needs, franchised units are an important source of innovations (Lewin-Solomons 1998). For example, three of
McDonald's most successful products—the Big Mac, Filet-O-Fish, and Egg McMuffin—were originally introduced by its franchisees (BusinessWeek 1997).

Market-based channels provide low-cost, low-risk access to new markets. Market-based channels provide firms with low-risk, low-cost access to markets that are not economically worthwhile to pursue with vertically integrated channels (Dahlstrom and Nygaard 1994). Indeed, franchised units are frequently located in remote, low-potential markets that, on average, achieve lower sales per unit than company units (Brickley and Dark 1987). Furthermore, the franchise contract is designed such that the upside benefit of increased revenues accrues to chains, whereas the downside risk of poor performance is borne solely by the franchisees. As Robert Nugent, the CEO of Jack in the Box, noted, “The economic advantage to franchising is that there is less risk to our income statement because we’re not affected by cost pressures” (Bradach 1998, p. 68).

Synergy between dual channels. In addition to the distinct advantages of vertically integrated channels and market-based channels, synergy between the dual channels provides advantages (Lafontaine and Kaufmann 1994; Martin 1988). Chains leverage their experience in company units, over which they have control, to model responses in franchised units, over which they have much less control. Bradach (1997) calls this the “ratcheting process.” In addition, Bradach (1997) finds evidence of two-way, “mutual-learning” processes between company units and franchised units. Testifying to synergy between the dual channels, the CEO of a restaurant chain noted (Bradach 1998, p. 2), “The chain [company units] gives you a system perspective, while franchisees give you a local perspective. We are constantly working to balance both perspectives. By having both company and franchised units, we are able to do that.”

Disadvantages of Dual Distribution

Moral hazard problems in market-based channels. Because agents invest only in their business (i.e., the franchised unit), they experience higher risk than well-diversified investors and may invest suboptimally in their unit, creating moral hazard problems for the firm (Blair and Kaserman 1994; Fama and Jensen 1983). For example, franchisees may attract customers on the basis of the franchisee’s reputation but deliver inferior products (e.g., Pizza Hut franchisees can reduce the quality and quantity of cheese in pizzas), thus profiting from such actions with limited negative consequences to them while hurting the firm’s reputation. Such moral hazard problems are especially common when franchised units are located in remote markets characterized by high monitoring costs (Oxenfeldt and Kelly 1969).

Uncertainty about income from market-based channels. Restaurant chains that use dual distribution rely on market-based channels that are not under their control for a portion of their income, resulting in uncertainty about this income stream (Bradach 1997). Indeed, the forward-looking statements in chains’ annual reports identify uncertainty in income from franchised units as an important risk factor (e.g., Papa John’s International 2004). However, as I discussed previously, this risk is mitigated partly by vertical integration.

Hypotheses

The considerable variability in chains’ intangible values for a given dual distribution strategy, as evident in Figure 1, suggests that a contingent relationship between dual distribution strategy and other firm characteristics affects intangible value. Accordingly, I use the contingency-based approach, which argues for a complementary effect of a firm’s resources and strategy on its performance (Hambrick 1983; Zeithaml, Varadarajan, and Zeithaml 1988). Extending the contingency theory, I suggest that a firm’s dual distribution strategy affects its intangible value both independently and jointly with its other characteristics. Thus, in addition to the main effect of dual distribution strategy on intangible value, I consider the effects of its interactions with the firm’s age, scope of vertical integration, advertising, financial leverage, and financial liquidity on its intangible value. Note that though age, financial leverage, and financial liquidity are not marketing variables in the traditional sense, developments in agency theory (e.g., Bergen, Dutta, and Walker 1992) and transaction cost economics (e.g., Rindfleisch and Heide 1997) imply that they may influence the relationship between governance mode (i.e., dual distribution strategy) and firm performance.

Extending theoretical developments in market-based assets theory (Srivastava, Shervani, and Fahey 1998), I propose that under some conditions, defined by these interaction effects, the stock market will anticipate increasing cash flows, higher speed of cash flows, and lower risk of cash flows, which should increase the firm’s intangible value. Under other conditions, the stock market will anticipate decreasing cash flows, lower speed of cash flows, and higher risk of cash flows, which should decrease the firm’s intangible value. Because dual distribution offers both advantages and disadvantages, I hypothesize opposite effects when appropriate. The latent class regression approach, which I describe subsequently, accommodates opposite effects across firms in the different segments.

Main Effect of Dual Distribution

As I discussed previously, dual distribution offers several advantages, including lowering a firm’s capital requirements, operating costs, monitoring costs, and risk. From a shareholder value perspective, market-based channels create relational, knowledge, and intellectual assets that increase future cash flow while reducing risk (Srivastava, Shervani, and Fahey 1998, 1999). From a real-options perspective (Bowman and Hurry 1993; Kulatilaka and Trigeorgis 1994), market-based channels are “options” investments that are useful for managing demand growth and uncertainty. Thus, an increasing proportion of market-based channels should increase a firm’s intangible value.

However, agency theory accounts suggest some disadvantages of dual distribution as well, including potential underinvestment and free riding by market agents (Bergen, Dutta, and Walker 1992). Thus, an increasing proportion of market-based channels in such firms may decrease their
future cash flows and increase the uncertainty of these cash flows, thus negatively affecting the firm’s intangible value.

Given these opposing arguments, I expect that there is a positive effect of the proportion of market-based channels on intangible value for some firms and a negative effect for others. Thus:

\[ H_{1a} (H_{1b}): \] The greater the proportion of market-based channels in a firm that uses a dual distribution strategy, the higher (lower) is its intangible value.

**Dual Distribution and Firm Age**

Over time, most high-potential markets are covered by a firm’s existing distribution system so that its expansion may be limited to smaller, remote markets, which are more efficiently served by market-based channels (Lafontaine and Shaw 2005). In such a situation, the stock market may view an increasing proportion of market-based channels as a cost-effective way to grow, thus strengthening the firm’s cash flows and increasing its intangible value.

However, other arguments from the strategy and franchise literature suggest an opposite effect. The life cycles of firms influence their resource profiles and strategies (Penrose 1959). Franchising is important in the early years of a firm when its resources are scarce (Carney and Gedajlovic 1991). Over time, as resources increase, franchising may become less important, resulting in the well-documented reversion to company ownership of franchised units in older firms (e.g., Lafontaine and Kaufmann 1994; Oxenfeldt and Kelly 1969). Thus, the older the firm and the greater the proportion of its market-based channels, the lower is its future cash flows, the higher is the risk of these cash flows, and the lower is its intangible value. Given these opposite effects,

\[ H_{2a} (H_{2b}): \] The interaction between the proportion of market-based channels in a firm that uses a dual distribution strategy and its age increases (decreases) its intangible value.

**Dual Distribution and Scope of Vertical Integration**

In the current context, the scope of a firm’s vertical integration is the proportion of the firm’s sales from its vertically integrated channels to its total sales (John and Weitz 1988). Several factors suggest a positive effect of the interaction between the scope of a firm’s vertical integration and dual distribution on its intangible value.

A firm that depends more on its vertically integrated channels for sales will have higher fixed investments in its integrated channels, offering a credible termination safeguard against agents’ opportunism and improving both the agents’ and the system’s performance (Heide 1994). Furthermore, a firm that depends more on its vertically integrated channels for sales will have higher marketing expenditures (Lafontaine 1992; Lafontaine and Shaw 2005), creating positive marketing spillovers for its market-based channels and, again, strengthening its performance.

In addition, when a firm has an increasing proportion of sales from its vertically integrated channels and a large proportion of market-based channels, its market-based channels will have lower sales per unit than its vertically integrated channels, suggesting that they are covering smaller markets with lower potential. In such a situation, the firm’s market-based channels are a cost-effective way to reach these smaller markets without attendant capital investment and risk. Thus, the interaction between the scope of a firm’s vertical integration and an increasing proportion of market-based channels may strengthen its future cash flows, reduce the risk of these cash flows, and increase intangible value.

**Dual Distribution and Financial Leverage**

In the current context, financial leverage is the extent to which a firm uses debt to finance its assets (Jensen and Meckling 1976). A firm’s financial leverage affects its strategy and performance through agency problems between the...
firms and their bondholders and stockholders (Bradley, Jarrell, and Kim 1984). As I discuss next, these agency problems may result in an effect of the interaction between a firm's financial leverage and dual distribution strategy on its intangible value.

Stock and bond markets cannot differentiate between "good-quality" and "bad-quality" firms. Thus, good-quality firms with high financial leverage signal their quality with actions that are too costly for bad-quality firms (Myers and Majluf 1984). For example, good-quality firms may invest in fixed assets, increasing the security for their bondholders and reducing their cost of capital (Myers 1977).

By the reverse logic, when a firm with high financial leverage has a high proportion of market-based channels, an inexpensive source of financial resources (Carney and Gedajlovic 1991), the bond market may interpret this as a signal of low funds, inferring the firm's inability to service its debt, lower its debt rating, and increase its cost of capital (Lang, Ofek, and Stulz 1996). In such a situation, the stock market may expect the firm's future cash flows to decrease, even as its risk increases, thus negatively affecting its intangible value. Thus:

\[ H_5: \text{The interaction between the proportion of market-based channels in a firm that uses a dual distribution strategy and its financial leverage decreases its intangible value.} \]

**Dual Distribution and Financial Liquidity**

Firms vary in their financial liquidity, or acid ratio (i.e., the extent to which current assets cover current liabilities); a higher acid ratio suggests a larger proportion of current assets than current liabilities. Financial liquidity affects a firm's strategy and performance through investment constraints (e.g., Bond and Meghir 1994), creating agency problems between the firm and its shareholders (Fazzari, Hubbard, and Petersen 1988; Hsiao and Tahmiscioglu 1997). A high acid ratio suggests cash availability to fund investments with superior earnings potential. Indeed, the stock market prefers a lower acid ratio to a higher one because it views current assets as less productive than fixed assets (Myers and Rajan 1998).

When a firm has a high proportion of market-based channels and a high acid ratio, the stock market may infer that the firm is forgoing income generation opportunities by not investing in vertically integrated channels. Thus, the stock market may expect a firm's increasing liquidity and an increasing proportion of its market-based channels to lower its intangible value. Thus:

\[ H_5: \text{The interaction between the proportion of market-based channels in a firm that uses a dual distribution strategy and its financial liquidity decreases its intangible value.} \]

**Method**

**Data**

I used unbalanced panel data of publicly listed U.S. restaurant chains for the period 1992–2002, which I obtained from various sources, including Technomic (an industry market research firm), Compustat, and the firms' annual reports. The data included 55 firms observed for 394 firm years. Some firms entered after 1992 or exited before 2002, contributing fewer firm years. The average number of firm years was 7.164 (minimum = 1 year; maximum = 11 years).

The firms in the study constituted 28% of publicly listed restaurant chains. The profile of firms in the study did not differ from the population of firms in Compustat (N = 198) in terms of profit (t(prof,ability) = 1.012, not significant [n.s.]), but they were larger (t(sales) = 1.912, p < .10; t(employees) = 1.987, p < .05). The firms in the study are representative of the population, though they are slightly larger. This is not surprising, because larger firms are favored in public data sources.

**Measures**

Tobin's q is the measure of a firm's intangible value. Chung and Pruitt's (1994) method was used to calculate Tobin's q:

\[ q = \frac{MVE + PS - DEBT}{TA} \]

where MVE is the closing price of shares at the end of the financial year × number of common shares outstanding; PS is the liquidation value of outstanding preferred stock; DEBT is the sum of book value of inventories, long-term debt, and current liabilities less current assets; and TA is the book value of total assets.

As I discussed previously, the proportion of the restaurant chain's franchised units to the total number of its system units, a continuous measure bounded between 0 (only vertically integrated channels) and 1 (only market-based channels), was the indicator of its dual distribution strategy. The trends in dual distribution for the period 1992–2002 suggested variability in dual distribution across chains and over time. The firm's age was measured by the number of years since its incorporation. The scope of vertical integration was measured by the proportion of the firm's sales from its company units to its total sales. The firm's sales from its company units and its total sales were obtained from Technomic and Compustat, respectively. The firm's advertising was measured by its advertising stock, using advertising expenditures reported in Compustat. To account for the persistence of advertising, advertising stock was measured using one-, two-, and three-year lags with annual discount rates of .45 (Hirschey and Weygandt 1985). Through the use of information criteria, the three-year lag was identified as the appropriate lag. The firm's financial

\[ 4None of the firms in the study reported research and development expenditure. \]

\[ 5I thank an anonymous reviewer for this suggestion. The Schwarz Bayesian information criterion (BIC) for the four-segment model (reported subsequently) without profiling variables is 784.682, and it is 786.029 for models with advertising stock with a one-year and two-year lagged term for the advertising stock, respectively, compared with 778.354 for the model with a three-year lag for the advertising stock. Thus, the three-year lagged term for advertising stock was selected as the appropriate lag term. In addition, following the suggestions of a reviewer, I reestimated the model with advertising stock adjusted for the firm's sales. In general, the results were consistent, but the model with the advertising adjusted for sales performed worse (BIC =

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leverage was measured as the ratio of its long-term debt to its total assets (Jensen and Meckling 1976), and the firm’s financial liquidity was measured as the ratio of its cash, marketable securities, notes receivable, and accounts receivables to its current liabilities (Schmidgall, Hayes, and Nine-meier 2002). Table 1 contains the descriptive statistics and the correlation matrix of the measures.

The correlations were within acceptable limits (highest correlation = -.438 between firm age and financial leverage). Following the work of Belsley, Kuh, and Welsch (1980), I assessed potential threats from multicollinearity. The variance inflation factor and condition numbers were lower than 10 (average = 1.238; maximum = 3.456) and 15 (average = 1.875; maximum = 2.893), respectively, suggesting that multicollinearity is not a threat to the validity of the study’s findings.

**Latent Class Regression**

To account for unobserved firm heterogeneity, I used latent class regression that simultaneously classifies observations into latent segments and estimates regression models within each segment (see Wedel and Kamakura 2000). The latent class regression approach directly identifies latent segments on the basis of the inferred relationship between a response variable (i.e., Tobin’s q) and the set of explanatory variables (i.e., dual distribution and related interactions) within each homogeneous group (i.e., a given latent segment). An outline of latent class regression models appears in the Appendix.

**Results**

**Correction for Sample Selection Bias**

Some firms (n = 20) were not observed for the entire period. If the data were not missing randomly and the model was estimated with the observed data, the parameter estimates may be biased (Heckman 1979). I corrected for potential sample selection bias by including Lee’s lambda (Inverse Mill’s Ratio), which I obtained from a Heckman selection model in the regression model for Tobin’s q.

I first estimated the Probit selection model, including the firm’s age, sales, and return on assets as factors that influence its exit from the data set. The results support the selection model ($\chi^2 = 20.342, \text{d.f.} = 1, p < .01$). The firm’s age (b = -.063, p < .01), size (b = -.005, p < .01), and return on assets (b = -.965, p < .01) had negative effects in the selection model. Consistent with the liabilities-of-newness arguments in organizational sociology (Brüderl and Schussler 1990), newer, smaller, and less profitable firms were more likely to exit.

**Model Estimation and Selection**

Following the procedure outlined in the Appendix, I estimated two sets of latent class regression models (1) with the restaurant chain’s class (i.e., whether it was casual dining, quick service, and limited service) and the number of brands in its portfolio (e.g., Yum! Brands had four brands, including KFC, A&W, Pizza Hut, and Taco Bell) as profiling variables and (2) with only a constant term (i.e., no restaurant characteristics) as the profiling variable. I included all main effects of explanatory variables used to create the interaction effects to ensure complete model specification. I also included the firm’s return on its shareholders’ equity, measured as the ratio of net income to shareholders’ equity, and a quadratic term of the proportion of its market-based channels as control variables in the regression model.

To determine the number of latent segments, I used the Bayesian information criterion (BIC) to compare the model with s segments with a model with s + 1 segments ∀ s = 1, 2, ..., until the model fit stopped improving (Schwarz 1978). The four-segment model, without the restaurant characteristics term for profiling, outperformed models with

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**TABLE 1**

<table>
<thead>
<tr>
<th>Variable</th>
<th>M (SD)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<tbody>
<tr>
<td>1. Tobin’s q</td>
<td>1.548 (1.046)</td>
<td>1.000</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>2. Dual distribution (proportion of market-based channels)</td>
<td>.390 (.326)</td>
<td>.025</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3. Firm age (years)</td>
<td>26.980 (18.000)</td>
<td>-0.52</td>
<td>.229**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Scope of vertical integration</td>
<td>.654 (.562)</td>
<td>-105*</td>
<td>-0.79</td>
<td>-116*</td>
<td>1.000</td>
<td></td>
<td></td>
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<tr>
<td>5. Advertising stock (in millions of dollars)</td>
<td>56.132 (152.693)</td>
<td>.120*</td>
<td>.273**</td>
<td>.347**</td>
<td>-.222**</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Financial leverage</td>
<td>.259 (2.237)</td>
<td>-.185**</td>
<td>.123*</td>
<td>-.438**</td>
<td>-.199**</td>
<td>.207**</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>7. Financial liquidity</td>
<td>.741 (.978)</td>
<td>.185**</td>
<td>.221**</td>
<td>-.231**</td>
<td>.013</td>
<td>-.099*</td>
<td>-.225**</td>
<td>1.000</td>
</tr>
</tbody>
</table>

*p < .05.

**p < .01.
one, two, three, and five segments both with and without profiling variables, as well as the four-segment model with profiling variables. The entropy of separation for the selected four-segment model was .972, which compares well with the results in the literature (Wedel and Kamakura 2000).

Tests of Hypotheses

Table 2 contains the results of the four-segment model with the constant term for profiling. First, Lee’s lambda significantly affected a firm’s intangible value in two segments (Segment 2: b = -.379, p < .01; Segment 4: b = 1.405, p < .01), in support of the correction for sample selection bias. There were several un hypothesized main effects of the explanatory variables. Specifically, the negative effect of advertising stock on intangible value was counterintuitive (Segment 2: b = -.001, p < .01; Segment 4: b = -.031, p < .01). I examine this result in detail subsequently.

As I predicted in H1b and H1b, respectively, the results support both the positive (Segment 2: b = .694, p < .01) and the negative (Segment 1: b = -.321, p < .05) effects of the firm’s proportion of market-based channels on its intangible value. In addition, the square of the proportion of market-based channels had an un hypothesized positive effect on intangible value in Segment 1 (b = 1.190, p < .01). As I predicted in H2a and H2b, respectively, the results support the positive (Segment 1: b = .022, p < .01) and negative (Segment 2: b = -.034, p < .01; Segment 4: b = -.091, p < .01) effects of interaction between the firm’s age and the proportion of its market-based channels on its intangible value. As I predicted in H3, the interaction between the scope of a firm’s vertical integration and the proportion of its market-based channels had a positive (Segment 2: b = .634, p < .05) effect on its intangible value. Somewhat unexpectedly, the interaction between the scope of a firm’s vertical integration and the proportion of its market-based channels also had a negative effect on its intangible value (Segment 1: b = -.413, p < .01). I examine this result in detail subsequently.

The results also support H4a and H4b, which predict positive (Segment 1: b = .005, p < .05; Segment 2: b = .005, p < .01) and negative (Segment 4: b = -.01, p < .01) effects of the interaction between a firm’s advertising stock and the proportion of its market-based channels on its intangible value. As I predicted in H5, there was a negative effect of the interaction between a firm’s vertical integration and the proportion of its market-based channels on its intangible value (Segment 2: b = -.138, p < .01; Segment 3: b = -.091, p < .01). Finally, as I predicted in H6, there was a negative effect of the interaction between financial liquidity and the proportion of a firm’s market-based channels on its intangible value. As I predicted in H7, there was a negative effect of the interaction between a firm’s financial leverage and the proportion of its market-based channels on its intangible value. As I predicted in H8, there was a negative effect of the interaction between financial liquidity and the proportion of a firm’s market-based channels on its intangible value.

TABLE 2

Results for the Model Relating a Firm’s Dual Distribution to Its Intangible Value (N = 394)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Segment 1</th>
<th>Segment 2</th>
<th>Segment 3</th>
<th>Segment 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>.853 (.049)**</td>
<td>1.393 (.071)**</td>
<td>1.891 (2.54)**</td>
<td>.593 (.592)</td>
</tr>
<tr>
<td>H1a/H1b: Dual distributionb</td>
<td>- .321 (.135)**</td>
<td>.694 (.149)**</td>
<td>.564 (.605)</td>
<td>-1.110 (1.009)</td>
</tr>
<tr>
<td>H2a/H2b: Dual distribution × firm age</td>
<td>.022 (.007)**</td>
<td>-.034 (.009)**</td>
<td>.028 (.028)</td>
<td>-.091 (.031)**</td>
</tr>
<tr>
<td>H3: Dual distribution × scope of vertical integration</td>
<td>-.413 (.160)**</td>
<td>.634 (.253)**</td>
<td>.100 (.781)</td>
<td>-.140 (.206)</td>
</tr>
<tr>
<td>H4a/H4b: Dual distribution × advertising stock</td>
<td>.005 (.002)**</td>
<td>.005 (.001)**</td>
<td>-.003 (.010)</td>
<td>-.073 (.025)**</td>
</tr>
<tr>
<td>H5: Dual distribution × financial leverage</td>
<td>-.275 (.471)</td>
<td>-1.634 (.449)**</td>
<td>-7.207 (3.215)**</td>
<td>7.175 (5.218)</td>
</tr>
<tr>
<td>H6: Dual distribution × financial liquidity</td>
<td>-.507 (.072)**</td>
<td>.013 (.153)</td>
<td>-3.67 (.474)</td>
<td>-2.144 (1.043)**</td>
</tr>
<tr>
<td>Firm age</td>
<td>-.004 (.002)**</td>
<td>.006 (.003)**</td>
<td>.009 (.004)**</td>
<td>-.038 (.014)**</td>
</tr>
<tr>
<td>Scope of vertical integration</td>
<td>.001 (.000)**</td>
<td>-.001 (.000)**</td>
<td>-.001 (.000)**</td>
<td>.001 (.000)**</td>
</tr>
<tr>
<td>Advertising stock</td>
<td>.001 (.002)</td>
<td>-.001 (.000)**</td>
<td>-.002 (.003)</td>
<td>-.031 (.007)**</td>
</tr>
<tr>
<td>Financial leverage</td>
<td>.947 (.135)**</td>
<td>-.661 (.142)**</td>
<td>-3.150 (.864)**</td>
<td>-3.019 (1.384)**</td>
</tr>
<tr>
<td>Financial liquidity</td>
<td>.323 (.033)**</td>
<td>-.192 (.050)**</td>
<td>.199 (.179)</td>
<td>.585 (4.05)</td>
</tr>
<tr>
<td>Dual distribution2</td>
<td>1.190 (.358)**</td>
<td>-.695 (.498)</td>
<td>-3.151 (2.657)</td>
<td>1.328 (1.486)</td>
</tr>
<tr>
<td>Return on shareholders’ equity</td>
<td>.035 (.025)</td>
<td>.013 (.013)</td>
<td>.884 (.348)**</td>
<td>-.582 (.235)**</td>
</tr>
<tr>
<td>Lee’s lambda</td>
<td>.011 (.049)</td>
<td>-.379 (.113)**</td>
<td>.111 (.111)</td>
<td>1.405 (.541)**</td>
</tr>
<tr>
<td>Segment size (number of firms)</td>
<td>36% (20)</td>
<td>29% (16)</td>
<td>20% (11)</td>
<td>15% (8)</td>
</tr>
</tbody>
</table>

*p < .10.
**p < .05.
***p < .01.
-Parameter estimates and standard errors.
-Dual distribution is measured by the proportion of market-based channels in the firm.
and the proportion of a firm's market-based channels on its intangible value (Segment 1: \( b = -0.507, p < .01 \); Segment 4: \( b = -2.144, p < .05 \)). Thus, the results strongly support the hypotheses.

**Latent Segment Profiles**

In this section, I report the post hoc segment profiles of the four segments. The results of an analysis of variance (see Table 3) suggest that there are significant differences across firms in the four segments. The following is a summary of the Scheffé multiple comparisons of means of variables across the four segments (Pedhazur 1997):^9

- **Intangible value.** Firms in Segment 4 had higher intangible value than firms in the other segments \( (p < .01) \), firms in Segment 3 had higher intangible value than firms in Segments 1 and 2 \( (p < .01) \), and firms in Segment 2 had higher intangible value than firms in Segment 1 \( (p < .05) \).
- **Return on assets.** Firms in Segment 1 had a much lower return on assets than other firms \( (p < .01) \). 
- **Size.** Firms in Segment 2 were larger in terms of system size, total assets, and sales than other firms \( (p < .01) \), whereas firms in Segment 4 were smaller in system size than other firms \( (p < .01) \).
- **Number of brands.** Firms in Segments 3 had more brands than other firms \( (p < .01) \).
- **Advertising stock.** Firms in Segment 2 had higher advertising stock than other firms \( (p < .01) \), whereas firms in Segment 4 had lower advertising stock than other firms \( (p < .05) \).

^9There are no significant differences across firms in the four segments on other variables.

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**TABLE 3**

Summary of Results Across the Four Latent Segments

<table>
<thead>
<tr>
<th>Variable</th>
<th>Segment 1</th>
<th>Segment 2</th>
<th>Segment 3</th>
<th>Segment 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intangible value (22.192**)(^a)</td>
<td>1.048</td>
<td>1.300</td>
<td>1.903</td>
<td>2.735</td>
</tr>
<tr>
<td>Return on assets (8.345**)</td>
<td>.006</td>
<td>.018</td>
<td>.016</td>
<td>.028</td>
</tr>
<tr>
<td>System size (units) (5.698**)</td>
<td>1671</td>
<td>2229</td>
<td>1064</td>
<td>643</td>
</tr>
<tr>
<td>Total assets (in millions of dollars) (10.082**)</td>
<td>398.451</td>
<td>1450.611</td>
<td>443.613</td>
<td>343.658</td>
</tr>
<tr>
<td>Sales (in millions of dollars) (9.178**)</td>
<td>653.684</td>
<td>1091.030</td>
<td>630.852</td>
<td>518.781</td>
</tr>
<tr>
<td>Number of brands (3.184*)</td>
<td>1.400</td>
<td>1.375</td>
<td>2.545</td>
<td>1.375</td>
</tr>
<tr>
<td>Advertising stock (in millions of dollars) (9.231**)</td>
<td>42.363</td>
<td>83.832</td>
<td>32.557</td>
<td>23.388</td>
</tr>
<tr>
<td>Financial leverage (6.792**)</td>
<td>.323</td>
<td>.315</td>
<td>.205</td>
<td>.155</td>
</tr>
</tbody>
</table>

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**Exemplar Members**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual distribution ( H_{1a}/H_{1b} ) (+/-)</td>
<td>-/+ (quadratic)</td>
<td>+</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>Dual distribution × firm age ( H_{2a}/H_{2b} ) (+/-)</td>
<td>+</td>
<td>-</td>
<td>n.s.</td>
<td>-</td>
</tr>
<tr>
<td>Dual distribution × scope of vertical integration ( H_3 ) (+)</td>
<td>-</td>
<td>+</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>Dual distribution × advertising ( H_{4a}/H_{4b} ) (+/-)</td>
<td>+</td>
<td>+</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>Dual distribution × financial leverage ( H_5 ) (-)</td>
<td>n.s.</td>
<td>-</td>
<td>-</td>
<td>n.s.</td>
</tr>
<tr>
<td>Dual distribution × financial liquidity ( H_6 ) (-)</td>
<td>-</td>
<td>n.s.</td>
<td>n.s.</td>
<td>-</td>
</tr>
</tbody>
</table>

\(^a\)Significant at the .05 level.
\(^b\)Significant at the .01 level.

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\(^*\)Significant at the .05 level.
\(^**\)Significant at the .01 level.

---

\(^*\)Significant at the .05 level.
\(^**\)Significant at the .01 level.

---

**Financial leverage.** Firms in Segment 4 had much lower financial leverage than firms in the other segments \( (p < .05) \).

I integrate the segment profiles with the regression results to explain the findings across the segments. Firms in Segment 1 (e.g., Backyard Burgers, Nathan’s Famous, Carrols Corporation) performed poorly in this period. For these firms, the proportion of market-based channels had a U-shaped relationship \( b_{(linear)} = -.321, p < .05; b_{(quadratic)} = 1.190, p < .01 \) on their intangible values. Perhaps the stock market infers that given their poor overall performance, these firms have limited ability to manage market-based channels, though notably, this negative effect disappears at very high proportions of market-based channels. For firms in Segment 1, the scope of vertical integration has a positive main effect on intangible values \( (b = .001, p < .01) \), but this effect is reversed in conjunction with the proportion of their market-based channels \( (b = -.413, p < .01) \). The positive main effect of vertical integration suggests that for these poorly performing firms, increasing their sales from the company-based channels reassures the stock market of their future cash flows. Conversely, the negative main effect of the proportion of market-based channels, both independently and in conjunction with the scope of vertical integration, implies that the stock market may view these poorly performing firms as not being well positioned to manage market-based channels. However, as these firms aged, the proportion of their market-based channels positively affected their intangible values \( (b = .022, p < .01) \), suggesting that, over time, market-based channels are an effective mechanism for these firms to achieve growth. Likewise, as firms’ advertising stock increased, the proportion of market-
based channels positively affected their intangible values \( (b = .005, p < .05) \), suggesting that market-based channels also enable effective leverage of advertising stocks.

Firms in Segment 2 (e.g., IHOP Corporation, McDonald’s Corporation, and Wendy’s International) were large firms with large advertising stocks. For these firms, the proportion of market-based channels positively affected their intangible values \( (b = .694, p < .01) \), suggesting that perhaps because of market saturation, market-based channels that tap small and low-potential markets are an efficient way to grow. The effects of the interactions between proportion of market-based channels and both advertising \( (b = .005, p < .01) \) and scope of vertical integration \( (b = .634, p < .05) \) positively affected firms’ intangible values. Notably, the main effects of both advertising \( (b = -.001, p < .01) \) and scope of vertical integration \( (b = -.001, p < .10) \) for these firms are negative. For large firms with large advertising stocks, perhaps the ceiling effects of advertising result in the negative main effect. However, the stock market may view these large firms as being able to leverage their large advertising stocks effectively over a larger market using market-based channels, resulting in the observed positive effect of the interaction between advertising stock and the proportion of market-based channels on intangible values.

The negative main effect of the scope of vertical integration and the positive effect of the interaction between the proportion of market-based channels and the scope of vertical integration suggest that the stock market views expansion through market-based channels as the most effective way for these large firms to achieve growth.

Firms in Segment 3 (e.g., Brinker International, CBRL Group, AFC Enterprises) were small firms with a larger portfolio of brands than other firms. Notably, most hypothesized effects of dual distribution on intangible value were not supported for these firms (the one exception was the interaction between financial leverage and proportion of market-based channels: \( b = -7.207, p < .05 \)). Overall, the intangible values of these firms appeared to be impervious to their dual distribution strategies, perhaps because the stock market views their brand portfolio diversification as a sufficient hedge against market uncertainty.

Firms in Segment 4 (e.g., California Pizza Kitchen, Panera Bread Company, Diedrich Coffee) were very small firms with low advertising stocks and low financial leverage. For these firms, there was no main effect of the proportion of market-based channels \( (b = -1.110, \text{n.s.}) \) on their intangible values, but advertising had a negative main effect \( (b = -.031, p < .01) \) and the scope of vertical integration had a positive main effect \( (b = .001, p < .01) \) on their intangible values. However, there were negative effects of the interactions between the proportion of market-based channels and advertising stock \( (b = -.073, p < .01) \), age \( (b = -.091, p < .01) \), and financial liquidity \( (b = -2.144, p < .05) \) on their intangible values. The negative effect of advertising stock on intangible value, both independently and in conjunction with dual distribution, is intriguing. Indeed, after the large firms in Segment 2, the firms in Segment 4 have the highest proportion of advertising stock to system size. I conjecture that the stock market may perceive these firms as having adequate advertising stock and thus need to achieve system growth. In addition, for these firms, dual distribution has a negative effect on intangible value. Integrating this pattern of findings suggests that perhaps the stock market views these firms as good custodians of intangible value and rewards them for organic growth through company-based channels (i.e., lower emphasis on dual distribution).

Additional Analyses

Model comparisons. First, I compared the proposed model with a model with only the accounting data of financial leverage, liquidity, and return on shareholders’ equity. The hypothesized model \((\text{BIC} = 778.354)\) outperformed this baseline model \((\text{BIC} = 823.358)\). Second, I compared the hypothesized model with a model that included the firm’s age, scope of vertical integration, advertising stock, and financial accounting data, but I excluded dual distribution and the related interaction effects. Again, the hypothesized model \((\text{BIC} = 778.354)\) outperformed the model that excluded dual distribution \((\text{BIC} = 798.567)\). Third, I compared the proposed model with a model that included main effects of dual distribution and other explanatory variables, but I excluded the interaction effects. Again, the hypothesized model \((\text{BIC} = 778.354)\) outperformed the model that excluded the interaction effects \((\text{BIC} = 810.187)\). Thus, the proposed model with the inclusion of dual distribution and related interactions explained firm value better than models that included only accounting data or models that excluded dual distribution; this shows strong support for the value relevance of the dual distribution strategy.

Predictive validity. I evaluated the model’s predictive ability using a jackknifing technique, holding out a target firm, reestimating the model on other firms, and then using the estimated parameters to predict the target firm’s Tobin’s q. I computed the mean absolute deviation (MAD), defined as \( \frac{1}{NT} \sum_{i=1}^{N} \sum_{t=1}^{T} |\text{Tob}_{q,\text{实际}} - \text{Tob}_{q,\text{预测}}| \), where \( \text{Tob}_{q,\text{实际}} \) and \( \text{Tob}_{q,\text{预测}} \) denote observed and predicted Tobin’s q for firm i in year t, N denotes the number of firms, and T denotes the number of years for each firm i, respectively. The MAD using the proposed model was .473, compared with a MAD of .713 with the average value, representing an improvement of 34%. Thus, the proposed model predicts the firm’s intangible value well.

Discussion

Despite the growing importance of dual distribution channels in practice, there are few insights into their performance implications. In this article, I explore the relationship between dual distribution strategy and intangible value. I conclude with a discussion of the theoretical contributions, managerial implications, and limitations and opportunities for further research.

Theoretical Contributions

Marketing channels. By relating dual distribution strategy to intangible value, this article addresses the call for research on the performance implications of plural governance in general and dual distribution in particular (Heide 2003). The findings indicate that a firm’s dual distribution
strategy significantly affects its intangible value. Furthermore, the differential main and interaction effects of dual distribution across the four latent segments suggest firm heterogeneity in the value relevance of dual distribution.

For some firms (Segments 1 and 2), an emphasis on dual distribution contributes both independently and jointly with other firm characteristics to their intangible values. For others (Segment 3), their intangible values are mostly impervious to their dual distribution. Still others (Segment 4) are punished by the stock market for emphasizing dual distribution, albeit in conjunction with other firm characteristics. This evidence of firm heterogeneity in the value relevance of dual distribution empirically validates prior theoretical developments (e.g., Bergen, Dutta, and Walker 1992; Heide 1994) that indicate both advantages and disadvantages of dual distribution. The generalizability of the contingent nature of the performance effects of dual distribution to other performance metrics (e.g., profit, market share) emerges as an area for further research.

Importantly, from a shareholder value perspective, dual distribution does not offer unilateral benefits to all firms, as implied by some observers (e.g., Bradach 1998; Moriarty and Moran 1990). Instead, it is contingent on their other characteristics, including marketing and financial strategies. This finding, which stresses synergies between aspects of firms’ distribution and business strategies, represents a useful extension to marketing strategy research in general and to marketing channels research in particular, which, for the most part, has not examined such synergies.

Marketing metrics. This article’s findings also contribute to the marketing metrics literature, in which there is a gap with respect to the relationship between a firm’s distribution strategy (dual distribution, in particular) and its performance. By providing strong evidence of the value relevance of dual distribution strategy, this study takes a first step toward addressing this gap.

In a departure from prior studies in both marketing and accounting literature, which have used a functional silo-based approach (i.e., using either marketing or accounting measures, respectively) to study the value relevance of strategy, this article’s findings support interactions between aspects of marketing and finance strategies. These interactions suggest a previously unexamined potential interchangeability between marketing and financial strategies in maximizing intangible value. For example, a firm with high financial liquidity (firms in Segment 1 and Segment 4) can decrease its emphasis on dual distribution to increase its shareholder value. Exploring the boundaries of such interchangeability across marketing and other aspects of business strategies (e.g., finance, accounting, human resources) is a worthwhile area for further research, given the growing importance of the financial accountability of marketing (Rust et al. 2004).

Furthermore, the value relevance of dual distribution suggests that intangible, market-based channels not accounted for on firms’ balance sheets but rather on their market agents’ balance sheets significantly affect their intangible values. This finding implies the existence of boundaries beyond firms’ balance sheets that are critical for an accurate assessment of their intangible values. The demarcation of such extended boundaries for inventorying value-relevant, intangible, market-based assets emerges as an important area for further research.

Finally, the unhypothesized negative effect of advertising stock on intangible value (Segment 2 and Segment 4) is counterintuitive and merits discussion. For the large firms (Segment 2), perhaps ceiling effects on their large advertising stocks produce this negative effect. For the small firms (Segment 4), perhaps the stock market views advertising as an exploratory, risky, value creation strategy and an emphasis on market-based channels as an exploitative, value appropriation strategy (March 1991). These findings, combined with those of Mizik and Jacobson (2003), who report a value creation role for research and development and a value appropriation role for advertising, imply that whether the stock market views a given strategy as creating or appropriating value may be context specific.

Managerial Implications

The study’s findings also generate useful implications for marketing practice. For example, the significant and different main and interaction effects of dual distribution on firms’ intangible value across the four latent segments indicate that the value relevance of dual distribution is contingent on other firm characteristics. This clarifies the puzzling relationship between chains’ dual distribution strategies and their intangible values reported in Figure 1. For example, in 2002, the differences in intangible values between McDonald’s Corporation (ticker: MCD: Tobin’s q = 1.290) and Panera Bread Company (PNRA: Tobin’s q = 5.300), both with similar dual distribution strategies (.72 of their system units are franchised), may be partly due to the differences in their characteristics, including age (MCD = 47 years; PNRA = 15), system units (MCD = 31,108; PNRA = 478), advertising stock (MCD = 1088.112; PNRA = 13.445 [in million of dollars]), financial leverage (MCD = .400; PNRA = .000), and financial liquidity (MCD = .489; PNRA = 1.348), which influence the relationship between their dual distribution and their intangible values.

Given the increasing pressures on marketing executives to demonstrate the financial accountability of marketing and the limited prior research on the financial accountability of distribution strategy, the value relevance of dual distribution is both a novel and a useful insight. Marketing managers can use the current findings to convince various stakeholders (e.g., top management and finance executives, some of whom may be skeptical of the financial accountability of marketing) of the value relevance of marketing in general and dual distribution strategy in particular. Managers can use the study’s specific findings to develop investor communications programs to increase their firms’ intangible value. In addition, given the model’s predictive ability, investment analysts can use it to assess a chain’s intangible value, given a set of characteristics.

At an operational level, the study’s findings generate action points for managers of firms (in the four segments) to maximize their firms’ intangible values:

Segment 1. For the poorly performing, medium-sized firms in Segment 1, a reduced emphasis on market-based channels, especially at moderate levels and when...
they have high financial liquidity, and an increased scope of vertical integration will reduce the negative effects of dual distribution on their intangible values. Firms in Segment 1, with high financial liquidity, will be well served from a shareholder value perspective by investing their cash resources in vertically integrated channels. Alternatively, these firms can invest their cash resources in additional advertising because as their advertising stocks increase, an increased emphasis on market-based channels increases their intangible value.

Segment 2. The large firms with large advertising stocks in Segment 2 can increase their intangible values by emphasizing market-based channels because dual distribution has both positive main and interaction effects with the scope of their vertical integration and advertising stocks. The negative effect of the interaction between dual distribution and financial leverage suggests that these firms will be well served from a shareholder value perspective by reducing their financial leverage.

Segment 3. In general, the shareholder values of the small firms with a large portfolio of brands in Segment 3 appear to be impervious to their dual distribution strategies. One exception is the negative effect of the interaction between their dual distribution and financial leverage on intangible values. These firms can increase their intangible values by decreasing their financial leverage.

Segment 4. Surprisingly, for the very small, well-performing firms, there are no positive effects of dual distribution, either independently or jointly with other characteristics. However, dual distribution has a negative interaction effect with age, advertising, and financial liquidity, suggesting that over time and as their advertising stocks and liquidity increase, the stock market rewards them for investing in vertically integrated channels.

Finally, a study of performance in franchise firms is worthy of empirical investigation in its own right because franchising is a vital force in the U.S. economy (Dant and Kaufmann 2003). In 2003, business format franchises accounted for more than 600,000 establishments, 8 million jobs, and $460 billion of economic output (PricewaterhouseCoopers 2004). Restaurant chains dominate the industry, and 15 of the 20 largest franchises are restaurants with sales representing 54% of revenues of all U.S. franchises. Yet there are few insights into the performance of franchise firms. As Bradach (1997, p. 301) notes, “future work should investigate how the functioning and performance of the plural forms compares in chains with different mixes of company and franchised units.” The current study’s findings on the factors affecting a chain’s performance could be useful to managers of franchise firms in general and to managers of restaurant chains in particular to increase their firm value.

Limitations and Opportunities for Further Research

In this first study on the performance implications of dual distribution, I focused on franchising in general and restaurant chains in particular. The choice of one industry allows for the control of cross-industry variation, enabling a clean test of the hypotheses. However, as a result, I do not consider environmental characteristics (e.g., uncertainty, competitive conditions), which have been shown to be pertinent to channel decisions. In addition, the use of secondary data precluded consideration of organizational factors (e.g., culture, trust, organizational structure) that affect channel management. Further research on the performance implications of dual distribution that uses other methods (e.g., in-depth interviews, surveys) across diverse industry contexts incorporating other environmental and organizational characteristics would be useful.

This article’s focus on dual distribution raises questions about the generalizability of the study’s findings to other plural governance settings. The study’s sample (N = 55), though representative of the population of restaurant chains, is small. Further research on performance in other plural governance settings (e.g., foreign market entry, outsourcing) with larger sample sizes would represent useful extensions.

The dependent variable in this study is intangible firm value, as measured by Tobin’s q. Although Tobin’s q is a reliable measure of firm value, it represents the stock market’s evaluation of the level, speed, and risk of the firm’s future cash flows. Research extensions using alternative performance metrics, including survival, risk, and volatility in earnings, would both complement and extend the study’s findings.

In summary, this study represents a useful first step in exploring the performance implications of dual distribution strategies. I hope that this article stimulates further work that relates plural governance in general and dual distribution in particular to firm performance.

Appendix

Outline of Latent Class Regression Models

Let $f = 1, \ldots, F$ index the restaurant chains; $t = 1, \ldots, T_f$ index the year of restaurant chain $f$; $s = 1, \ldots, S$ index the number of latent segments; $Y_{ft}$ be the Tobin’s $q$ of restaurant chain $f$ in year $t$; and $X_{fp}$ be the value of the $p$th explanatory variable for restaurant chain $f$ in year $t$. Assume that the vector of observations for $Y_{ft}$ arises from a population that is a mixture of $S$ segments in proportions $\pi_1, \pi_2, \pi_3, \ldots, \pi_s$, where a priori membership of the observations in the different segments is unknown. Then, each firm belongs to only one segment, and the point mass for each segment is denoted by $\pi_s$, such that

$$\sum_{s=1}^{S} \pi_s = 1, \text{ and } 0 \leq \pi_s \leq 1,$$

where $\pi_s$ is the point probability of a firm belonging to segment $s$.

The objective is to predict the means of the dependent variable for each observation in each segment using a set of explanatory variables. To that end, I specify a linear predictor $\eta_{fs}$, which is a function of the $P$ explanatory variables, $X_1, X_2, \ldots, X_P$ ($X_p = X_{ftp}$; $p = 1, \ldots, P$), and parameter vectors $\beta = \beta_p$ to be estimated in segment $s$: 

$$
\text{(A1)} \quad \sum_{s=1}^{S} \pi_s = 1, \text{ and } 0 \leq \pi_s \leq 1, 
$$

where $\pi_s$ is the point probability of a firm belonging to segment $s$. 

In summary, this study represents a useful first step in exploring the performance implications of dual distribution strategies. I hope that this article stimulates further work that relates plural governance in general and dual distribution in particular to firm performance.
In turn, the linear predictor is related to the mean of the distribution, $\mu_{st}$, through a link function $g(\cdot)$ such that in segment $s$,

$$\eta_{ft} = g(\mu_{ft}).$$

In the current case, given the panel structure of the data, the $Y_{ft}$ values are not independent across the $t$ time periods. The distribution of $Y_{ft}$, given that it comes from segment $s$, $f_s(Y_{ft}|\theta_s)$ is normal within each of the $s$ segments, so that the identity link function is pertinent such that $\eta_{fts} = \mu_{fts}$. Thus, by combining Equations A2 and A3, I obtain the standard linear regression model within the segments, given the assumption that the firm can belong to only one segment. I model $\pi_s$ with a logit formulation. Specifically,

$$\pi_s = \frac{e^{\delta_s}}{1 + \sum_{s=1}^{S} e^{\delta_s}},$$

where $\delta_s$ is the segment-specific vector of profiling coefficients. Then, Equation A4 is standardized as

$$\pi_s = \frac{e^{\delta_s}}{\sum_{s=1}^{S} e^{\delta_s}},$$

and $\delta_s$ is parameterized as

$$\delta_s = \beta_{0s} + \sum_{p=1}^{P} z_{fp}\beta_{ps},$$

where $z_{fp}$ is the matrix of profiling variables; $\beta_{0s}$ is a segment-specific constant term; $\beta_{ps}$ is a vector of coefficients for the profiling variables $\forall s = 1, \ldots, S - 1$; and $P$ is the number of profiling variables.

**Estimation and Model Selection**

If the distributions conditional on the segments are formulated, the unconditional distribution of $Y_{ft}$ is obtained as follows:

$$f(Y_{ft}|\phi) = \sum_{s=1}^{S} \pi_s f_s(Y_{ft}|\theta_s),$$

where $\phi = (\pi, \theta)$ and $\theta = (\beta, \lambda_s)$. The purpose of the latent class regression estimation is to estimate the parameter vector $\phi = (\pi, \theta)$ using the maximum likelihood method, so that the likelihood for $\phi$ is

$$L(\phi; Y) = \prod_{f=1}^{F} \prod_{t=1}^{T} f(Y_{ft}|\phi).$$

For a prespecified value of the number of segments $s$, an estimate of $\phi(\theta_s)$ can be obtained by maximizing the likelihood Equation A8 with respect to $\phi$, subject to the restrictions in Equation A1, so that the parameter vector $\phi$ could have produced the observed vector $Y$. To obtain the parameter estimates, I use the expectation-maximization algorithm to maximize the natural logarithm of the likelihood function specified in Equation A8. I use 50 randomly selected starting values for each of the models to ensure convergence (Wedel and Kamakura 2000). To obtain the standard errors for the parameters, the Hessian (or the information matrix) for the final parameter estimates is inverted. After an estimate of $\phi$ has been obtained, estimates of the posterior probability $p_{fts}$, a probabilistic allocation of the firm to the latent segments, are obtained using Bayes’ theorem as follows:

$$p_{fts} = \frac{\pi_s f_s(Y_{ft}|\theta_s)}{\sum_{s=1}^{S} \pi_s f_s(Y_{ft}|\theta_s)}.$$

To determine the number of latent segments, the BIC (Schwarz 1978) is used to compare the model with $s$ segments with a model with $s + 1$ segments $\forall s = 1, 2, \ldots$, until the model fit stops improving. The BIC is calculated as $\text{BIC} = -2 \times LL + P \times \ln(F)$, where $LL$, $P$, and $F$ stand for log-likelihood value, number of parameters, and sample size, respectively. I also report an entropy measure of separation (ES), or the extent of separation of the segments, which is calculated as

$$\text{ES} = 1 - \frac{\sum_{f=1}^{F} \sum_{s=1}^{S} p_{fts} \ln(p_{fts})}{\ln(S)},$$

where $p_{fts}$ is the probability of firm $f$ belonging to segment $s$, which is calculated using the Bayes rule specified in Equation A9. The ES is bounded in the range 0–1, such that a value closer to 1 indicates good separation of the latent segments.

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