

INDUSTRY DIVESTITURE WAVES: HOW A FIRM'S POSITION INFLUENCES INVESTOR RETURNS

Corporate divestiture constitutes a major strategic decision whereby management restructures a firm's business and/or resource portfolio. A divestiture can take the form of a sell-off, spin-off, or equity carve-out of a line of business, or it can be a sale of major corporate assets or resources (e.g., a product line or plant) (Brauer, 2006).¹ The value of divestiture activity has increased significantly over time, from less than \$100 billion in deal value in 1993 to over \$500 billion in 2007 and has represented a third of all merger and acquisition activity by U.S. firms (*Merger & Acquisitions*, 2008). In part because of the fallout from the subprime crises (2007–09),² one now sees even greater managerial attention to divestiture activity. However, despite

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¹ Sell-offs (which involve the sale of a unit or asset to another firm) account for the vast majority of divestiture activity. Spin-offs (which involve distributing the shares of the divested unit to the firm's shareholders through the declaration of a special dividend) and equity carve-outs (which involve sale of the unit to the public by initial public offering) constitute only a fraction of overall divestiture activity (approximately 0.1%).

² Divestiture activity increased significantly, as indi-

the importance of divestiture as a strategic activity, understanding of the performance consequences of divestiture remains somewhat limited. Prior research has shown that, on average, divestiture results in wealth creation for the divesting firm (Mulherin & Boone, 2000).³ However, according to Lee and Madhavan's meta-analysis of the literature, performance outcomes are not uniform and "managers should not pursue divestiture actions without context or contingency" (2010: 1363).

Assessing the performance consequences of divestiture also poses a challenge for investors. Unlike acquisitions, divestitures involve greater ambiguity regarding the source of value creation as well as a lack of transparency regarding the financials and strategy underlying them (Brauer, 2006; Buckley, 1991; Denning, 1988; Lee & Madhavan, 2010). Although managers make acquisitions primarily to expand their firm's strategic scope into new markets or to add capabilities, a more ambiguous

cated by an 83 percent rise in the total dollar value of divestiture deals from quarter 1 2009 to quarter 1 2010 (www.thomsonone.com).

³ In a sample of 370 divestitures, Mulherin and Boone (2000) found that the mean abnormal return is 4.51 percent for spin-offs, 2.27 percent for equity carve-outs, and 2.60 percent for asset sales.

set of operational and strategic factors motivates divestitures (Haynes, Thompson, & Wright, 2003; Johnson, 1996). Thus, investors face greater informational uncertainty when assessing the value consequences of divestiture decisions, and they may therefore utilize firm or contextual factors to infer the quality of these decisions. In this regard, prior research has indicated that the characteristics of firm and deal affect investor response to divestiture (Daley, Mehrotra, & Sivakumar, 1997; Miles & Rosenfeld, 1983; Slovin, Sushka, & Ferraro, 1995). In addition to specific characteristics of a firm and a deal, we propose that the firm's social context may also convey information that investors can use to infer quality. Divestitures, like acquisitions, occur in what have been termed "industry waves" (Mitchell & Mulherin, 1996; Mulherin & Boone, 2000). This provides a rich social context in which to examine the impact of strategic decisions. Recent studies by Carow, Heron, and Saxton (2004) and McNamara, Halebian, and Dykes (2008), for example, utilized the context of industry acquisition waves to analyze the performance impact of firm acquisitions. Both these studies showed that stock market response varied with a firm's position in an industry acquisition wave.

Since divestitures exhibit significant industry clustering (Mulherin & Boone, 2000), industry divestiture wave constitutes an important dimension of a divesting firm's social context that may influence how the stock market values these decisions. Owing to the "opaque" nature of divestitures, investors face information uncertainty when assessing the value consequences of divestiture decisions and thus may utilize the divesting firm's social context to infer the quality of the divestiture decision. We utilize information-based theories of imitative behavior to propose that investor perceptions of the value consequences of divestiture are likely to depend on whether or not it constitutes imitative behavior. Specifically, the position of a firm's divestiture relative to its industry peers provides evidence as to whether or not managers are imitating their industry peers or acting independently, and this in turn will influence how investors perceive and assess the quality of the decision. As divestiture activity becomes more pervasive in an industry, investor perceptions are thus likely to change. With an increase in industry divestiture activity, a managerial decision to divest will be perceived by investors as "herding" (Lieberman & Asaba, 2006). This suggests that investors will respond less favorably to firms that divest at the peak of an industry wave. In addition, we propose that industry characteristics—low munificence and high dynamism—are likely to make investors more respon-

sive to the information conveyed by a firm's position in a divestiture wave.

Our study contributes to a better understanding of the influence of a firm's social context on how investors respond to divestiture decisions. Although prior work has shown that firm and deal characteristics influence how the stock market responds to divestitures (e.g., Allen, 1998; Frank & Harden, 2001; Lang, Poulsen, & Stulz, 1995; Mulherin & Boone, 2000; Slovin, Sushka, & Polonchek, 2005), in our study we argue that the pervasiveness of divestiture activity in an industry also conveys information that influences investor response. Given the information uncertainty that investors face in assessing the value consequences of divestitures, we propose, drawing on information-based theories of imitation, that a firm's position in an industry divestiture wave can shed light on whether or not managers are imitating their industry peers or acting on their own private information. Our study is the first to provide evidence of the role of social context in investor valuations of divestiture decisions. In addition, although environmental characteristics have been largely neglected in prior research on divestiture performance, we also examine the moderating role that industry characteristics have on investor response. Our study is thus responsive to recent calls to surface additional moderators to refine scholars' understanding of divestiture performance (Lee & Madhavan, 2010).

THEORY AND HYPOTHESES

Industry Divestiture Activity and Investor Response

There has been extensive research on the antecedents and performance implications of divestitures (Berger & Ofek, 1999; Haynes, Thompson, & Wright, 2000, 2003; Hite, Owers, & Rogers, 1987; Lang et al., 1995; Markides, 1992a, 1992b; Montgomery, Thomas, & Kamath, 1984). However, recent reviews and meta-analyses (Brauer, 2006; Lee & Madhavan, 2010) reveal that many ambiguities and gaps remain in understanding of the stock market response to divestitures. Unlike acquisitions, which, on average, destroy value for the acquiring firms (Halebian, Devers, McNamara, Carpenter, & Davison, 2009; Moeller, Schlingemann, & Stulz, 2005), divestitures are generally agreed to have a positive shareholder wealth effect (Lee & Madhavan, 2010; Mulherin & Boone, 2000). However, divestitures differ from acquisitions in substantive ways that make these transactions more opaque, making it difficult for investors to assess the quality

of strategic decisions to divest. First, considerable ambiguity exists regarding the source of value creation, since divestitures offer a wide variety of potential efficiency gains (Buckley, 1991; Vijh, 1999, 2002). According to transaction costs economics and resource-based theory, divestitures can result in better resource utilization and the removal of negative synergies or diseconomies of scale and scope across a firm's portfolio, thus leading to value creation (e.g., Berger & Ofek, 1995; Bergh, 1998; Bergh & Lawless, 1998; Kose, Poulsen, & Stulz, 1995; Markides, 1992b). In addition, divestitures can increase the transparency of a firm's business portfolio and corporate strategy and thus enable investors to more accurately assess the value of the firm's businesses (Krishnaswami & Subramaniam, 1999; Zuckerman, 2000). Finally, the cash proceeds from divestitures can improve the firm's liquidity, thus leading to higher valuation (Denning, 1988). The variety of potential efficiency gains makes it difficult to determine the source of value creation in divestitures.

Furthermore, a lack of financial transparency exacerbates the ambiguity over the potential efficiency gains from divestitures. Unlike acquisitions, divestitures lack public disclosure because of the confidential nature of these transactions (Slovin et al., 1995).⁴ Firm-provided financial information are lacking because a divestiture involves the separation of a firm's business unit or asset that lacks operational details, since its associated financial data are consolidated in the firm's financial statements (Nanda & Narayanan, 1999). The lack of transparency regarding financial data (i.e., operational cash flow, EBIT, sales) of the divested unit precludes the use of standard valuation techniques (i.e., comparable transactions analysis) to infer value consequences. Moreover, the lack of transparency regarding the business fundamentals of a divesting unit and its integration into a firm makes it difficult to ascertain the efficiency gains likely to result from the removal of negative synergies or a better utilization of the firm's resources. Yet, removal of this "lack of fit" between units of the firm

⁴ Divestitures are frequently labeled "private transactions." This does not mean that the parties (seller and buyer) are privately held firms, but instead that information (e.g., selling price) about the transaction is not publicly available because of the confidential nature of the negotiation between the parties and the fact that the seller usually negotiates with a single buyer rather than launching an open auction (Sicherman & Pettway, 1992). As Slovin et al. noted, (asset) sell-offs "are typically privately negotiated and, like bank loans and private placements, entail little public disclosure" (1995: 92).

has been argued to be among the fundamental sources of value creation (Hite et al., 1987; Miles & Rosenfeld, 1983).

In addition to greater ambiguity regarding the sources of value creation and the lack of transparency regarding financials, the strategic motives for divestitures are also less certain than those for acquisitions. In general, managers undertake acquisitions to expand their firm's strategic scope by providing the firm with access to new product and geographic markets or the addition of new resources and capabilities. In courting the investment community's acceptance of an acquisition, managers provide a great deal of information about the strategic rationale for it.⁵ Divestitures can occur for a variety of operational and strategic reasons. Prior research has shown that poor performance, either of an individual business unit and/or firm, is a strong factor influencing the managerial decision to divest (Bergh, 1997; Duhaime & Grant, 1984; Hamilton & Chow, 1993; Hopkins, 1991; Moliterno & Wiersema, 2007; Montgomery & Thomas, 1988). On the other hand, the desire to refocus the firm's portfolio of businesses and to remove negative synergies can also be a strong driver (Haynes et al., 2000, 2003; Hoskisson & Hitt, 1994; Kaplan & Weisbach, 1992). Managers may utilize divestitures to shed resources or assets that are no longer productive and rent generating and reconfigure the firm's portfolio of resources to generate greater efficiency and firm value (Capron, Mitchell, & Swaminathan, 2001; Moliterno & Wiersema, 2007). In addition to these different operational and strategic motivating factors, managers are less forthcoming about the reason for divestitures since they represent a reversal of prior investment decisions and are often times perceived as an "admittance of past managerial mistakes" (Markides & Singh, 1997: 213).

The ambiguity regarding the sources of value creation, the lack of transparency regarding the operational and financial details, and the absence of clarity on managerial motives all serve to make divestitures more opaque than acquisitions. Thus, it is difficult for investors to assess the quality of these strategic decisions, leading to uncertainty (Milliken, 1987). Given the ambiguity regarding the value consequence of divestitures, we propose that investors may utilize firm or contextual factors to infer the quality of decisions to divest. Prior re-

⁵ For major acquisitions, firms will typically launch a "road show" in which they market the deal to investors by providing detailed information on the potential synergies and value creation.

search has shown that divestitures by more diversified firms generate a more positive investor response because of the potential for the removal of negative synergies and diseconomies of scale (Miles & Rosenfeld, 1983; Slovin et al., 1995). Furthermore, the characteristics of a divestiture deal (i.e., unit relatedness, mode of payment, divestiture mode) also influence how investors respond to it. In addition to firm- and deal-specific characteristics, a firm's social context may also influence how investors perceive firm divestitures. We propose that social context matters because it provides a frame of reference by which important external constituents such as investors perceive and thus value a firm's actions. It has been noted that divestitures, like acquisitions, tend to occur in industry waves (Mulherin & Boone, 2000). Recent studies on acquisition waves have shown that participating at different points in a wave has performance consequences (Carow et al., 2004; McNamara et al., 2008). Specifically, McNamara et al. (2008) proposed and found that first mover advantages enable early stage firms to acquire a better target at a lower price (cost), but firms that acquire later enter a market in which values for targets have been bid up as a result of bandwagon pressures and so pay a greater price premium for a less desirable target. Further, research on competitive dynamics (Basdeo, Smith, Grimm, Rindova, & Derfus, 2006; Rindova, 1999; Rindova, Ferrier, Wiltbank, & Basdeo, 2002) suggests that the total number of market actions a firm undertakes influences investors' interpretation of an event, and thus their evaluation of the firm. It is argued that investors base expectations about a firm's future on its past strategic activities, and with more market actions, more information becomes available, which enables investors to better understand the firm's strategy (Basdeo et al., 2006). Thus, these studies suggest that a firm's social context, assessed in terms of the pervasiveness of an activity, is likely to influence how investors respond to major corporate actions such as divestitures. Prior research, however, has so far treated firm divestiture as an isolated, self-contained event and neglected divestiture activity by competitors in the same industry.

Theories of imitative behavior provide insight into how the pervasiveness of divestiture activity may convey information about managerial motivation for divestiture and thus influence how investors respond. Both economics and institutional sociology provide theoretical reasons for why managers imitate each other when faced with uncertainty (Lieberman & Asaba, 2006). In economics (Banerjee, 1992; Bikhchandani, Hirshleifer, & Welch, 1992; Bikhchandani & Sharma, 2001), herd-

ing describes this imitative behavior, whereas institutional theory refers to "mimetic isomorphism" to describe imitation (DiMaggio & Powell, 1991; Fligstein, 1991). Both theories rest on the assumption that imitation occurs because a decision maker faces both uncertainty and ambiguity as to the appropriate course of action and considerable search costs associated with reducing the ambiguity of decision making (Cyert & March, 1963).

In the case of institutional theory, DiMaggio and Powell (1991) proposed that managers make decisions with reference to the main social actors (e.g., the other firms) that operate in their firm's environment. Because managers operate in an uncertain and ambiguous environment wherein search is costly, they look to comparable firms for clues on how to respond. DiMaggio and Powell described this as a process of "mimetic isomorphism," whereby managers adopt similar practices because they seek legitimacy and thus imitate the decisions made by their industry peers.

Researchers in economics conceptualize imitation as herding behavior that is based on a theory of "information cascades" (Banerjee, 1992; Bikhchandani, Hirshleifer, & Welch, 1998; Welch, 1992). According to Bikhchandani et al. (1992: 1000), "an informational cascade occurs if an individual's action does not depend on his private information signal," but instead "defers to the actions of predecessors" (Bikhchandani et al., 1998: 155). A cascade occurs quickly because every subsequent actor, after observing others, makes the same choice independent of his/her private information (Banerjee, 1992; Bikhchandani et al., 1998). In the divestiture context, the inclination of managers to ignore private information and instead copy the behavior of others is considerable. Prior research on divestiture decision making has shown that managers tend to engage in cognitive simplification, fixing on a single point of view while losing awareness of alternatives (Duhaime & Grant, 1984; Fiol & O'Connor, 2003).

We propose that, given the information uncertainty associated with valuing divestiture decisions, investors may look to a divesting firm's social context (the pervasiveness of divestiture activity) to infer the quality of a decision. When firms herd in their divestiture activity, it provides evidence of an informational cascade in which managers are ignoring their own private information and are instead deferring to the actions of their predecessors (Bikhchandani et al., 1998). Thus, a firm's position in an industry divestiture wave can convey whether or not managers are imitating their industry peers or acting independently, and it thus influences how investors perceive and assess the

quality of the firm's decision and its likely performance consequences for the firm. We propose that investors will respond more positively to divestitures that occur early in an industry divestiture wave because these managerial decisions are based on private information that is likely to lead to resource efficiency gains. Since divestitures are generally viewed as improving resource efficiency and generating firm value (Lang et al., 1995; Mulherin & Boone, 2000), investors will perceive these decisions favorably. We propose, however, that as an information cascade takes hold and more and more firms divest, investor perceptions will shift. Divestitures that occur at the peak of the wave indicate that managers are ignoring their own private information and instead are deferring to the actions of others (Bikhchandani et al., 1998) and engaging in imitative behavior. Investors may thus perceive that resource efficiency gains are less likely to materialize for divestitures that are taken merely as a consequence of following the herd. Thus, we expect divestiture announcement returns for firms that divest at the peak of an industry divestiture wave to be lower.

Since information cascades that lead to imitative behavior can occur quickly and are idiosyncratic, they can also "shatter easily" (Bikhchandani et al., 1998: 158). Both the managers responsible for a cascade as well as the investors observing their actions are aware "that the cascade is based on little information relative to the information of private individuals" (Bikhchandani et al., 1998: 157–158). Thus, as Bikhchandani et al. noted, "Fragility arises systematically because cascades bring about precarious equilibria" (1992: 1016). The behavior that led to imitation is fragile with respect to "small shocks"—which can occur with "the release of a small amount of public information" (Bikhchandani et al., 1992: 1005). As an activity becomes more pervasive, the likelihood of "new" information becomes increasingly probable with each subsequent transaction (Hoffman-Burchardi, 2001; Nelson, 2002; Welch, 1992). "The arrival of better informed individuals, the release of new public information, and shifts in the underlying value of adoption versus rejection" (Bikhchandani et al., 1998: 157) can all provide the small shock that results in the breakdown of the information-based cascade. Just as the "switch from full usage of private signals to no usage of private signals" (Hirshleifer & Teoh, 2003: 31) resulting in the information cascade can occur suddenly, the "sensitivity of actions to private signals" (Hirshleifer & Teoh, 2003: 31) can also be restored quickly. Thus, a breakdown or reversal of an information cascade, in which managers are no longer ignoring their private infor-

mation and deferring to the actions of predecessors, can lead to a significant reduction in industry divestiture activity. Since divestitures tend to be relatively small asset transactions, there is no scarcity of opportunities for managers to divest. Instead, the cessation of herding behavior indicates that managers are once again acting independently. We propose that because managers are no longer imitative in their behavior, investors will once again perceive their divestiture decisions as likely to have the potential for resource efficiency gains and thus enhanced firm value.

In summary, given the information uncertainty that investors face in evaluating divestiture decisions, they are likely to utilize the divesting firm's social context—that is, the current pervasiveness of divestiture in its industry—to assess a decision's performance consequences. Drawing on economic theories of imitation (Banerjee, 1992; Bikhchandani et al., 1992, 1998), we propose that investors are more likely to respond positively to divestitures that occur early or late in a divestiture wave than to divestitures occurring at the peak of the wave.

The Moderating Role of Industry Munificence and Dynamism

Because divestiture decisions are opaque, investors face information uncertainty in valuing them. Economic theories of imitative behavior suggest that a firm's position in an industry divestiture wave conveys information about whether or not managers are imitating their industry peers, which in turn will influence how investors perceive and assess the quality of the managers' decision. The performance consequence of a firm's position, however, is also likely to be dependent on industry conditions. In the following, we focus on the moderating effects of industry munificence and dynamism.

Munificent industries are characterized by an abundance of resources, reduced resource dependencies, and greater opportunity for profitable firm growth (e.g., Dess & Beard, 1984; Duncan, 1972; Staw & Sz wajkowski, 1975). In munificent industries—those with abundant resources—managers have the freedom to pursue additional value-generating opportunities without consideration of constraints to resource availability. Low-munificence industries, on the other hand, are indicative

of competition for resources wherein managers have fewer available resources at their disposal. This poses a more difficult environment, since managers are constrained in their ability to pursue activities that will enhance firm value. As a result, for a firm in a low-munificence industry, managers face inherent trade-offs in the utilization of their firm's resources.

The extent of industry munificence is likely to affect how investors evaluate the strategic choices of managers and their performance outcomes (Rajagopalan, Rasheed, & Datta, 1993). Investors are known to limit or cancel investments in firms in low-munificence industries, suggesting that investors generally approve of withdrawal from these industries (Zider, 1998). In industries lacking munificence, divestitures are likely to be viewed as part of a valid strategy to overcome resource constraints and to enhance resource efficiency by re-deploying a firm's resources and capabilities into business activities with higher value-generating potential (Maksimovic & Phillips, 2001). Similarly, Park and Mezias (2005), in their study of alliances, proposed and found that since alliances can enhance a firm's capabilities and thus provide benefit to it, they are more likely to be perceived positively by the market in low-munificence environments. In high-munificence environments, however, when resources are plentiful, partnering is perceived as a sign of weakness, indicating a firm's inability to act independently. Thus, investors are likely to respond more positively to divestitures that occur in low-munificence industries since they will free up resources that can be utilized in activities with greater value potential than divestitures that occur under conditions of high industry munificence.

However, the extent of industry munificence not only influences how investors evaluate a firm's decision to divest, but is also likely to influence investor response to the information conveyed by a firm's position in an industry divestiture wave. In view of economic theories of imitative behavior, we propose that investors' perceptions of resource efficiency gains from divestitures are influenced by whether or not managers are acting on the basis of private information or deferring to the actions of their predecessors—that is, herding. Under conditions of low industry munificence, wherein managers face resource constraints, it becomes particularly salient for them to re-deploy the resources freed up by divestiture into value-generating activities. For example, the proceeds from asset sales may enable a firm to finance profitable investment projects and thus reduce its dependence on external financing (Hege, Lovo, Slovin, & Sushka, 2009; Slovin et al., 2005). In low-munificence industries,

investors will respond more positively to managers who divest using private information because of the potential for re-deploying the firm's resources into activities that will enhance firm value. Thus, investors' evaluations of divestiture decisions in terms of whether or not they constitute imitative behavior are also likely to be influenced by the extent of industry munificence; divestitures that occur early in an industry divestiture wave are perceived as having greater potential for resource efficiency gains in low-munificence industries.

In summary, industry munificence is likely to influence investor perceptions of a firm's divestiture decision. We expect investors to respond more positively to divestitures in low-munificence industries, because those divestitures enable managers to overcome resource constraints and to pursue value-generating activities. In addition, we expect that a low-munificence industry is likely to make investors more responsive to the information conveyed by a firm's position in an industry divestiture wave.

Moderating Role of Industry Dynamism

In addition to the extent of industry munificence, the level of industry dynamism is also likely to have a moderating effect on the relationship between a firm's position in an industry divestiture wave and stock market response to a divestiture. Industry dynamism indicates the extent to which a firm's environment exhibits unpredictable change and instability or uncertainty (Boyd, 1995; Dess & Beard, 1984). We propose that investors will respond more positively to divestitures that limit a firm's exposure to dynamic industries than divestitures that occur in stable industries. This effect originates from investors' general preference for being able to accurately predict future earnings as part of their investment strategy (Copeland & Weston, 1979; Salter & Weinhold, 1979). Future cash flows forecasted with greater confidence will be less severely discounted by investors and have a higher market value (Salter & Weinhold, 1979). Given that increased volatility characterizes a dynamic industry environment, it reduces the accuracy of cash flow predictions. The extent of industry dynamism is also likely to increase the

importance of the information conveyed by a firm's position in an industry divestiture wave. Unpredictable changes in a firm's industry environment make it difficult for investors to appraise the contribution of the divestiture to future firm performance (Li & Simerly, 1998; Miller & Shamsie, 1999). In dynamic industries, it is more difficult for investors to evaluate the performance consequences of divestiture, given uncertainty about a firm's competitive environment and the potential for value generation. When faced with greater uncertainty, investors are likely to pay even greater attention to attributes by which to ascertain the quality of a decision. Consequently, the information conveyed by a firm's position in an industry divestiture wave becomes of increased importance for firms operating in dynamic industries. Thus, we expect that investors will respond more positively to a firm's position in a divestiture wave in a dynamic industry environment.

METHODS

Sample

We identified all divestitures of U.S. companies announced and completed between 1993 and 2007 using Thomson ONE Banker's Merger & Acquisitions Database and Global New Issue Database. During this time period there were more than 40,000 divestitures with an overall deal value in excess of \$4 billion. An analysis of both acquisition and divestiture transaction data conducted in *all* industries suggests that two waves occurred during these 15 years, the first from 1996 to 2000 and the second from 2004 to 2007 (*Mergers & Acquisitions*, 2008).⁶ Since investor sentiment regarding divestitures might differ for the two periods, we conducted a comparative analysis of divestiture announcement returns during the two periods. Results of this analysis indicated no significant difference (difference = 0.05; $t = 0.54$) in the stock market returns associated with divestitures that oc-

⁶ To account for these fluctuations in both acquisition and divestiture activity during our study period, we included period dummies in our statistical analysis (compare section on control variables).

curred in the first wave relative to divestitures that occurred in the second.

In line with prior acquisition and divestitures research (e.g., Haleblan et al., 2009; McNamara et al., 2008), we only considered divestitures involving majority interests (i.e., divestitures of more than a 50 percent stake). Since the regulatory environment and the different asset structure of financial services firms have been found to significantly influence investor response to portfolio decisions (Cornett & De, 1991), we excluded financial services industries from our empirical analyses.

Identification of Divestiture Waves

Industry waves have been defined as short periods of time characterized by an intense, repeated occurrence of a set of activities in a single industry that intensifies at an increasing rate and then declines rapidly (Auster & Sirower, 2002; Reid, 1968). Dasgupta, Goyal, and Tan (1999) and Mulherin and Boone (2000) found that both acquisitions and divestitures cluster by industry and thus provide evidence of the intense activity that would characterize a "wave." In this study, we identify industry divestiture waves using a combination of the procedures developed by Carow et al. (2004), Hartford (2005), and McNamara et al. (2008). We define an industry as all companies having the same four-digit Standard Industrial Classification (SIC) code for their primary or core business. To identify industry divestiture waves, we started with identifying industries that experienced more than 50 divestitures during 1993 to 2007, and one or more years in which 30 or more divestitures occurred.⁷ This resulted in identification of 12 industry divestiture waves. However, we excluded the accounting, auditing, and bookkeeping services industry (SIC 8721) from further empirical analysis since 38 of the 53 divestitures resulted from the dissolution of a single firm, Arthur Andersen.

For each industry, we determined the peak year of the wave as the year in which the greatest number of divestitures occurred. As did McNamara et al. (2008), we determined the length of a wave by establishing its "first year" as that in which divestitures were less than 50 percent of the peak num-

⁷ By definition, a wave of activity only occurs in an industry with a certain level of that activity. The cut-off used for selecting industries with active divesting activity was consistent with that used in prior research (Carow et al., 2004; McNamara et al., 2008) and enabled us to assess the "large bursts of activity in an industry separated by intervals of low activity" (Nelson, 1959: 126; cf. Auster & Sirower, 2002) that constitute a wave.

ber. The “last year” of the wave was the year in which divestitures declined by 50 percent from their peak.

To further confirm the identification of the 11 industry divestiture waves, we followed the procedure used by Hartford (2005) to validate whether an increase and decrease in industry transaction activity reflects a true wave or merely a random occurrence. Specifically, we took the total number of divestitures in an identified industry wave and then simulated 100 distributions of that number, whereby each divestiture was randomly assigned to one of the years in the period. We then assessed the likelihood that the number of divestitures in the peak year of our presumed divestiture wave would have occurred by chance. We found that the peak concentration in all 11 identified divestiture waves exceeded the 95th percentile in the simulated distribution set. This confirmed that the identified 11 industry divestiture waves were not the consequence of a random distribution but instead reflected nonrandom, heightened divestiture activity.

Our sample thus constitutes 11 industry divestiture waves (as defined by four-digit SIC code), representing 2,478 divestitures. Table 1 lists the 11 industries that experienced divestiture waves and the time span of each wave. With regard to the time span of our 11 industry divestiture waves, as shown in the column labeled “Wave date range” in Table 1, none of the industry divestiture waves in our sample spanned or overlapped the two general wave periods identified (1996–2000; 2004–07). On average, a divestiture wave in our sample lasts about five years, which is in line with prior research indicating that acquisition waves play out in four to six years (e.g., Carow et al., 2004; McNamara et al., 2008). For model analysis, our sample of 2,478 divestitures was reduced to 226 observations by eliminating firms without stock market data

(e.g., privately held firms, $n = 1,956$); multiple firm and industry events during the observation period ($n = 79$); and divestitures that lacked information on deal value or CEO characteristics ($n = 217$).⁸ Data on characteristics of a deal such as value, mode, and buyer characteristics were collected from SDC Golden Platinum, Datastream, and Thomson ONE Banker. Firm and industry data were collected from COMPUSTAT and Worldscope. CEO data were collected from the *Reference Book of Corporate Management*.

Dependent Variable: Divestiture Returns

Event study methodology is the most frequently used analytical approach for measuring acquisition and divestiture performance (Haleblian et al., 2009). Following prior research on the performance implications of divestitures (Comment & Jarrell, 1995; Daley et al., 1997; Desai & Jain, 1999; Hite & Owers, 1983; Kaplan & Weisbach, 1992; Kose & Ofek, 1995; Lang & Stulz, 1994; Markides, 1992a; Vijh, 1999), this study used an event study methodology to measure the abnormal stock market returns associated with a firm’s divestiture announcement. The abnormal return (AR) represents the cumulative difference between a company’s observed return and its expected return during a specific period (the event window) surrounding the date of the firm’s divestiture announcement. Cumulative abnormal returns (CARs) are measured as the difference between the actual ex post return of

⁸ The current study’s sample of 226 divestitures is still larger than the average sample used by prior divestitures studies in management (which, on average, have samples of 90 divestitures) and finance (which, on average, have samples of 140 divestitures).

TABLE 1
Industry Divestiture Waves

SIC Code	Industry Description	Wave Dates	Number of Divestitures			
			Total	First Year	Peak Year	Last Year
2721	Periodicals	1997–2000	115	24	49	17
3674	Semiconductors and related devices	1998–2001	89	15	35	10
4832	Radio broadcasting stations	1994–99	373	37	100	42
4911	Electric services	2002–06	178	17	45	40
4953	Refuse systems	1996–2000	92	15	32	8
5812	Drug stores and proprietary stores	1995–99	193	26	53	23
6512	Real estate operators	1996–2000	611	33	227	76
6513	Operators of apartment buildings	2004–07	121	12	48	22
7011	Hotels and motels	1995–99	354	50	109	38
7389	Business services	1998–2002	225	21	69	28
8011	Offices and clinics of doctors of medicine	1994–98	127	14	43	13

a security over the event window and the normal return of the company if the event had not taken place (McKinley, 1997). Using the market model, the regression equation for calculating abnormal returns on stock i at time t is set up as follows:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}),$$

where R_{it} and R_{mt} are the period t returns on stock i and the market portfolio m , α_i is a constant, and β_i is the systematic risk of stock i . Parameters α and β remain stable during the estimation period. Following prior research (e.g., Dewenter, 1995; Hayward, 2002; McNamara et al., 2008), we defined the estimation window as 250 trading days (one year) measured from 295 to 45 days before each event. The market portfolio is represented by the Standard & Poor's 500 Index (S&P 500).

We utilized a 7-day window around announcement dates (3 days before to 3 days after a divestiture announcement). A 7-day window seemed suitable as it is long enough to account for information leakages prior to a divestiture announcement and also captures any price adjustments over the few days subsequent to the divestiture announcement, while at the same time being short enough to limit the influence of potential confounding events (Brown & Warner, 1980; McWilliams & Siegel, 1997; Rosenfeld, 1984).⁹ To examine the sensitivity of our results, we also ran our analyses using 11-day (-5, +5) and 21-day (-10, +10) windows. The empirical relationship between a firm's position in an industry divestiture wave and stock market returns for the longer event windows are consistent with those shown with the 7-day window.

Explanatory Variables

Divestiture position in wave. To determine a divestiture's *position in wave*, we first measured the duration (number of days) of each industry wave. For each divestiture, we then identified the time span (in days) between the start of the wave and the actual day of the divestiture's announcement and divided this time span by the total duration of the industry divestiture wave. Thereby, we accounted for the relative length of time for each wave in calculating a firm's position in the industry divestiture wave. Small values thus indicate divestitures that occur at the outset of a wave, and larger values indicate those at the end.

titures that occur at the outset of a wave, and larger values indicate those at the end.

To check on the robustness of our findings, we also calculated an ordinal position count variable, which was used by McNamara et al. (2008). To determine this variable, we divided a divestiture's ordinal position in the wave by the total number of divestitures that occurred in the wave. Our results remained consistent with this alternative operationalization.

Industry munificence and industry dynamism.

As have prior researchers (Bergh & Lawless, 1998; Boyd, 1995; Dess & Beard, 1984), we measured *industry munificence* and *industry dynamism* using volatility of sales growth in an industry (based on four-digit SIC code). Industry munificence was the regression slope coefficient (sales over time) divided by the corresponding mean value of industry sales. We then reverse-coded the variable so that larger values indicate lower industry munificence (i.e., greater industry decline). Industry dynamism was calculated by dividing the standard error of the regression slope coefficient (sales over time) by the mean value for the five-year period preceding the year of divestiture. Larger values thus indicate greater industry dynamism.

Control Variables

We controlled for several factors that have been found to influence stock market response to a divestiture decision.

Divestiture mode. Prior research has shown that divestiture announcement returns vary depending on divestiture mode. These differences are largely attributed to the information about synergetic and nonsynergetic gains that different divestiture modes convey (Vijh, 1999, 2002). Specifically, empirical results suggest that spin-offs on average generate greater positive stock market returns than sell-offs and equity carve-outs (Frank & Harden, 2001; Mulherin & Boone, 2000; Powers, 2004).¹⁰ We controlled for divestiture mode using two dummy vari-

⁹ As outlined above, we excluded 79 observations from our analysis because multiple or overlapping industry events occurred during the observation period. Confounding events were identified using Reuters Business Briefs, Dow Jones Business News, and Bloomberg.

¹⁰ In the most recent meta-analysis on divestitures, Lee and Madhavan (2010) found additional evidence that the choice of divestiture mode significantly influences the relationship between divestiture activity and divestiture performance. Results from Lee and Madhavan's (2010) supplementary analysis, however, run partly contrary to earlier findings. Although they also found that studies that examine spin-offs show a statistically significantly higher correlation than studies that examine sell-offs, in their findings studies that examined spin-offs did not report significantly different results from those that examined carve-outs.

ables, *sell-off* (coded 1 for sell-offs and 0 otherwise) and *spin-off* (1 for spin-offs and 0 otherwise). The null set on both of these dummy variables would constitute equity *carve-outs*. The type of divestiture mode was identified using the deal synopsis sheets in Thomson ONE Banker.

Mode of payment. Prior research shows that share deals, on average, create more value for sellers than cash deals (Slovin et al., 2005). A seller's decision to divest an operating asset for buyer equity, instead of cash, has been suggested to convey information about the value of the relevant asset (Slovin et al., 2005).¹¹ We used three dummy variables to define the mode of payment, *cash deal* (1 for cash payments and 0 otherwise); *share deal*, (1 for stock payment and 0 otherwise); and *hybrid deal* (1 for both cash and stock payments and 0 otherwise). All other payment modes would constitute the null set on the three dummy variables.

Deal value. The deal value reflects to some degree the size of a divested unit and thus is a proxy for the potential efficiency gains a firm may realize after a divestiture. Prior research shows that the relative size of a divested entity in terms of sales (or assets) is directly related to the cumulative abnormal returns associated with the divestiture announcement (Servaes, 1991). Thus, we included *deal value* as a control, calculated as the sales dollar value of a divestiture divided by a firm's total assets in the year prior to the divestiture.

Divested unit relatedness. Divestitures of assets or lines of business that belong to a different industry than a firm's core business have been found to be more positively received by the stock market than divestitures of assets or a line of business in the same industry as that of a core business. The divestiture of unrelated units/assets is associated with a greater potential for improved efficiency because of the removal of negative synergies from overdiversification (Comment & Jarrell, 1995; Daley et al., 1997; Desai & Jain, 1999; Kose & Ofek, 1995). Following Bergh (1995), we classified a divested business unit as related if its two-digit SIC level is the same as that of the core business of the divesting firm. *Divested unit relatedness* is a dummy variable coded as 1 for core-business-related units and 0 otherwise.

Firm leverage. Firms with greater leverage, and thus higher debt levels, have been found more

likely to divest (Brown, James, & Mooradian, 1994; Kose, Lang, & Netter, 1992). Additionally, the divesting firm's expected need to use the proceeds of the divestiture to service interest costs can affect divestiture announcement returns (Allen, 1998; Lang et al., 1995). Although some studies show that investors respond more positively to divestitures motivated to repay debt (Allen, 1998; Lang et al., 1995), other studies show a negative effect (Brown et al., 1994). In keeping with prior research on divestitures (Berger & Ofek, 1995; Kose et al., 1992), we measured *firm leverage* using a firm's debt-to-equity ratio in the year prior to a focal divestiture.

Firm performance. Poor firm performance is a primary motive for divestiture (Hitt, Hoskisson, Johnson, & Moesel, 1996; Hoskisson & Johnson, 1992; Montgomery & Thomas, 1988; Pashley & Philippatos, 1990). We measured financial performance as a firm's industry-adjusted return on assets (ROA), calculated by subtracting the firm's core industry's mean sales weighted return (based on four-digit SIC code) from the firm's ROA in the year prior to a focal divestiture.

Firm diversification. Prior research shows that a firm's strategic scope in terms of its level of diversification influences decisions to divest (Bergh & Lawless, 1998; Haynes et al., 2000, 2003; Hoskisson & Hitt, 1994; Markides, 1992a). Firm diversification was measured using the entropy measure (Jacquemin & Berry, 1979).

CEO tenure. CEO tenure was measured by counting the years a chief executive had been in office.

CEO duality. CEO duality was coded 1 if a single individual was both CEO and board chairperson at a firm and 0 otherwise.

Wave period. Overall acquisition and divestiture activity fluctuates over time, and some periods see intense deal activity (*Mergers & Acquisitions*, 2008). To account for these differences in deal activity over time, we constructed two time period dummies to include in our model. The first, *wave period I*, was coded 1 when a divestiture occurred during 1996–2000 and 0 otherwise. The second, *wave period II*, was coded 1 when a divestiture occurred during 2004–07 period and 0 otherwise. The intense period of deal activity prior to 2001 (the tech boom–bust year) is within wave period I. Intense deal activity prior to the financial meltdown in 2008 is within wave period II.

Industry dummies. In addition to industry dynamism and industry munificence, which capture some industry effects, we included ten industry dummies in our analyses to account for differences in aspects of the market for corporate control (e.g.,

¹¹ It is assumed that sellers with favorable private information about their asset and its expected productivity when combined with the acquirer may prefer payment in acquirer equity to capture part of the increase in acquirer value that they anticipate will ensue when future cash flows are revealed to the market.

investor attention, tradability of assets) in our 11 industries.

Data Analysis

Our sample consists of pooled cross-sectional data, as firms could divest multiple times over the course of a wave. In a pooled cross-sectional sample, unobserved heterogeneity is a potential problem because each firm can contribute multiple nonindependent observations (Peterson & Koput, 1991). To address this issue, we used a random-effects model including firm-specific error terms that vary randomly over time for each firm (Sayrs, 1989). To evaluate whether the random-effects model was appropriate for our data, we ran a Hausman test on our model (Greene, 2008). Results of the Hausman test were not significant, indicating that the choice of a random-effects model was appropriate.¹²

As a robustness check, we also ran generalized estimating equations (GEE) regression models, a method found suitable for panel data because it measures both within- and between-firm variance

¹² The Hausman test evaluates the null hypothesis that the coefficients estimated by the efficient random-effects estimator are the same as those estimated by the consistent fixed-effects estimator. If the test results are not significant, then a random-effects model is appropriate and preferred because it allows use of both within and between information to calculate estimates; in contrast, the fixed-effects model only allows for within information to be used (for a more extensive discussion of these two forms of modeling, see, e.g., Certo and Semadeni [2006]).

and generates robust estimates of standard errors (Ballinger, 2004; Wade, Porac, Pollock, & Graffin, 2006). Our results were the same.

To address the potential issue of multicollinearity arising from interaction terms being highly correlated with their constituent variables, we mean-centered the direct terms used to construct the interaction term (Aiken & West, 1991). Subsequent collinearity diagnostics using the variance inflation factor (VIF) indicated no multicollinearity problems, as none of the VIF values approached the threshold of 10 (Cohen, Cohen, West, & Aiken, 2003; Neter, Kutner, & Wasserman, 1996). The mean variance inflation factors for the variables in our regression models ranged from 2.76 to 3.92 (Cohen et al., 2003; Neter et al., 1996).

RESULTS

Table 2 depicts means, standard deviations, and correlations coefficients for all variables used in the study. Over the seven-day event window (-3, +3), there are, on average, significant, positive abnormal returns for firms with divestiture announcements (CARs of 0.2%). This finding is consistent with prior divestiture research (e.g., Jain, 1985; Miles & Rosenfeld, 1983).

Table 3 presents the result of estimating the effect of the control and explanatory variables on the stock market response to a firm's divestiture announcement using random-effects regression models.

Model 1 in Table 3, the control model, indicates that sell-offs ($p < .01$), spin-offs ($p < .05$), and firm leverage ($p < .10$) are significant and positively associated with abnormal stock returns, as expected.

TABLE 2
Descriptive Statistics and Correlations^a

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. CAR (-3, +3)	0.002	0.11															
2. Position in wave	0.55	0.31	-.16														
3. Industry munificence	-0.13	0.45	.04	-.08													
4. Industry dynamism	0.003	0.27	.09	-.29	.66												
5. Sell-off	0.95	0.21	.07	.04	-.02	-.03											
6. Spin-off	0.03	0.17	.00	-.07	-.03	.01	-.81										
7. Cash deal	0.27	0.45	-.03	.02	.03	.05	.13	-.11									
8. Share deal	0.02	0.12	.02	.08	.08	.05	-.12	-.02	-.08								
9. Hybrid deal	0.02	0.15	-.05	-.04	.09	.02	.03	-.03	-.09	-.02							
10. Deal value	0.14	0.33	.02	-.05	.04	.08	-.17	.09	-.07	.00	.01						
11. Divested unit relatedness	0.76	0.43	.07	-.08	.00	.05	-.08	.05	-.15	.00	.03	.04					
12. Firm leverage	1.89	2.76	.17	.07	-.08	-.04	.09	-.08	-.06	-.01	-.03	-.13	.03				
13. Firm performance	0.03	0.15	-.07	.03	-.09	-.01	-.08	.04	-.02	.02	.00	-.25	.05	.03			
14. Firm diversification	0.70	0.24	.00	.07	.10	.04	.20	-.19	-.06	.00	.00	.06	-.05	-.04	-.15		
15. CEO tenure	5.35	5.71	.08	-.08	-.02	-.01	.07	-.06	-.06	-.03	-.00	.07	.03	-.00	-.02	.03	
16. CEO duality	0.57	0.50	.03	-.08	.11	.09	-.04	-.02	.03	.05	.08	.00	.01	-.04	-.05	-.08	.17

^a $n = 226$. Correlations greater than 0.13 are significant at $p < .05$, and correlations greater than 0.25 are significant at $p < .001$.

TABLE 3
Results of Random-Effects Regression Analysis Predicting Divestiture Returns^a

Variables	Model 1		Model 2		Model 3	
<i>Controls</i>						
Intercept	-0.15*	(0.07)	-0.16*	(0.07)	-0.17*	(0.07)
Sell-off	0.19**	(0.07)	0.16**	(0.06)	0.17**	(0.06)
Spin-off	0.18*	(0.07)	0.14*	(0.07)	0.16*	(0.07)
Cash deal	-0.02	(0.01)	-0.01	(0.01)	-0.02	(0.01)
Share deal	0.05	(0.06)	0.07	(0.06)	0.09	(0.06)
Hybrid deal	-0.05	(0.04)	-0.07	(0.04)	-0.05	(0.04)
Deal value	0.04	(0.03)	0.04	(0.03)	0.03	(0.03)
Divested unit relatedness	0.03	(0.02)	0.02	(0.02)	0.02	(0.02)
Firm leverage	0.00 [†]	(0.00)	0.00	(0.00)	0.00	(0.00)
Firm performance	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)
Firm diversification	0.01	(0.03)	0.01	(0.03)	0.01	(0.03)
CEO tenure	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)
CEO duality	0.01	(0.01)	0.01	(0.01)	0.01	(0.01)
Wave period I (1996–2000)	0.07	(0.03)	0.01	(0.03)	0.02	(0.05)
Wave period II (2004–07)	-0.01	(0.03)	0.02	(0.03)	0.02	(0.04)
Industry munificence	-0.02	(0.01)	-0.02	(0.01)	-0.05*	(0.03)
Industry dynamism	0.05	(0.03)	0.04	(0.03)	0.08	(0.06)
<i>Explanatory variables</i>						
Position in wave			-0.22*	(0.03)	-0.30*	(0.04)
Position in wave squared			0.25**	(0.09)	0.33**	(0.13)
Position × industry munificence					-0.19 [†]	(0.11)
Position squared × industry munificence					1.09*	(0.52)
Position × industry dynamism					0.27	(0.24)
Position squared × industry dynamism					-1.39 [†]	(0.78)
R ²	0.13		0.16		0.21	
ΔR ²			0.03*		0.05*	
F	33.04 [†]		39.37*		48.37*	
ΔF			3.70*		6.74*	

^a $n = 226$; standard errors are in parentheses. Industry dummies are included. The changes in R^2 and F for model 2 are relative to model 1, and the changes in R^2 and F for model 3 are relative to model 2.

[†] $p < .10$

* $p < .05$

** $p < .01$

As indicated by the test statistics (F s) we report, models 2 and 3 are highly significant and explain 13–21 percent of the variation in the abnormal stock returns associated with divestiture. This level is comparable to those shown in other studies examining the performance consequences of divestiture (Burch & Nanda, 2003; Clubb & Stouraitis, 2002; Datta, Datta, & Raman, 2003; Kose & Ofek, 1995; Lang et al., 1995; Vijh, 1999).

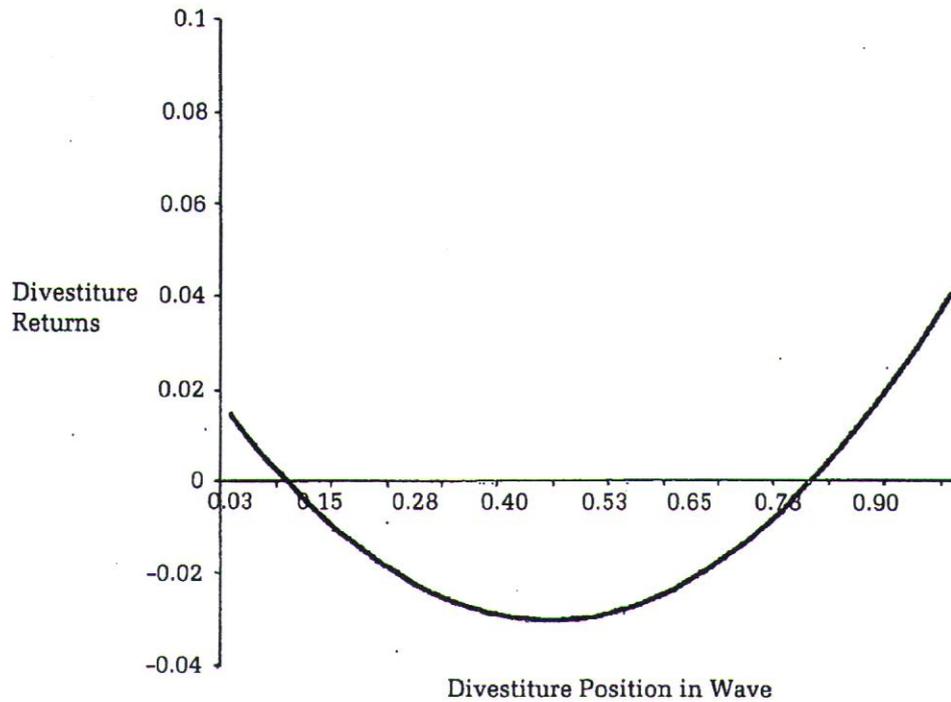
Hypothesis 1 proposes that the relationship between a divestiture's position in a divestiture wave and the divesting firm's stock market returns will be nonlinear, exhibiting a U-shaped pattern over the course of the wave. To test this, we examined both the simple and squared term of a divestiture's position in an industry divestiture wave. As shown in model 2 of Table 3, position in wave is significant and negative ($b = -0.22$, $p < .05$), and position in wave squared is significant and positive ($b = 0.25$, $p < .01$), as predicted. The results for the simple and squared term of this variable support

Hypothesis 1, in that the relationship between position in a divestiture wave and a divesting firm's stock market returns is nonlinear, with the relationship being more positive for a divestiture that occurs early or late in the wave than for one that occurs at the peak.

To demonstrate the exact nature of the relationship between a firm's divestiture's position in a divestiture wave and the stock market returns associated with the announcement of the divestiture, we plotted the relationship, as shown in Figure 1. As predicted, stock market response differs significantly dependent on the pervasiveness of divestiture activity in an industry. Firms divesting at the peak of a wave had the lowest returns, whereas firms that divested early or late in a wave had the highest returns.¹³

¹³ Consistently with these results, additional analysis of divestitures that were not part of an industry divesti-

FIGURE 1
Relationship between Divestiture Position in Wave and Divestiture Returns



Hypotheses 2 and 3 predict that industry munificence and/or industry dynamism positively moderate the U-shaped relationship between a divestiture's position in a divestiture wave and the divesting firm's stock market returns; for firms operating in a low-munificence and/or low-dynamism industry, we proposed that investors will respond more positively and the U-shaped relationship will become more pronounced. To test this, we examined the interaction of industry munificence and industry dynamism with both the simple and squared term of a divestiture's position in an industry divestiture wave. Model 3 of Table 3 shows that the interaction between industry munificence and position in wave is negative and significant ($b = -0.19, p < .10$), while the interaction term between industry munificence and squared position in wave is positive and significant ($b = 1.09, p < .05$). The results thus support Hypothesis 2. In contrast, the interaction between industry dynamism and position in wave is positive but not significant ($b = 0.27$), and the interaction between industry dynamism and squared position in wave is negative and significant ($b = -1.39, p < .10$). The

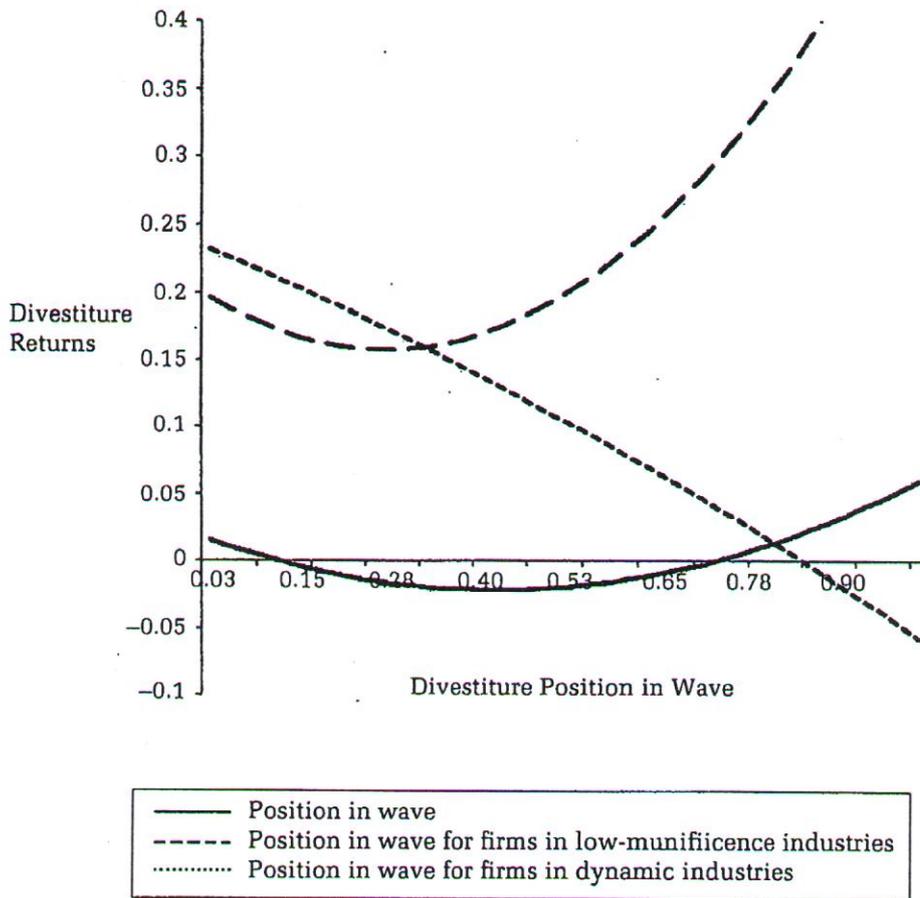
ture wave because they occurred either earlier or later than the wave period showed that these divestitures were significantly different in that they had a more positive stock market returns than divestitures that occurred at the peak of the wave.

results do not support Hypothesis 3. Figure 2 demonstrates the moderating effects of low industry munificence and high industry dynamism on the relationship between a the position of a firm's divestiture in a divestiture wave and the firm's divestiture returns.

DISCUSSION

Assessing the performance consequences of divestiture poses a challenge for investors. Divestitures are more opaque than acquisitions, because there is considerable ambiguity regarding the source of value creation in them, as well as limited operational and financial disclosure and a lack of clarity about managerial motives. Utilizing economic theories of imitative behavior (Bikhchandani et al., 1992, 1998), we propose that investor perceptions of the value consequences of a divestiture are likely to depend on whether or not it constitutes imitative behavior. Our analysis of industry divestiture waves provides strong support for the idea that investors respond differently to a firm's divestiture depending on the pervasiveness of the activity in the firm's industry. Specifically, we find that firms divesting in the early or dissipation stages of an industry divestiture wave—when divestiture activity is less pervasive—generate higher divestiture returns than firms that divest at the peak of a wave. This result is robust to controlling

FIGURE 2
Moderating Effects of Low Industry Munificence and High Industry Dynamism on the Relationship between Divestiture Position in Wave and Divestiture Returns



for a host of firm and deal characteristics that may influence investor response, providing evidence that investors are responding to the social context surrounding the managerial decision to divest.

Furthermore, our results show that investors have a more positive response to the relative position of a firm's divestiture in an industry divestiture wave when the firm operates in a low-munificence industry environment. In low-munificence industries, where firms' resources are limited, divestiture enables managers to redeploy resources into business activities with greater potential for value creation. Thus, investors respond more positively to a firm's divestiture decision, as is reflected in the upward shift of the relationship between divestiture returns and a divestiture's position in an industry divestiture wave (Figure 2). In addition, our findings suggest that investors respond more positively to firms that divest early in a wave, since managers acting on private information and facing resource constraints are perceived as having greater potential for redeploying resources into activities that will enhance firm value.

Thus, for a firm operating in a low-munificence industry environment, investors respond more positively to the information conveyed by position in a divestiture wave, leading to a more pronounced U-shaped relationship between wave position and stock market response.

In contrast, and counter to expectations, our results suggest that in a dynamic industry environment, investors respond less positively the later in an industry divestiture wave a firm divests. In dynamic industries characterized by unpredictable change and instability, investors may be less concerned about whether or not managers are imitating their peers. Extant empirical evidence in strategic decision-making process research suggests that extensive analytical decision processes are less helpful or even counterproductive under conditions of environmental dynamism (Fredrickson & Iaquinto, 1989; Fredrickson & Mitchell, 1984). Thus, whether or not managers are herding or acting independently may not be as important to investors in conveying information about the quality of decisions in dynamic industry environments. This may

provide an explanation of why investors do not react more positively to divestitures occurring in the dissipation phase of the wave relative to peak divestitures. However, given the lack of significance of the simple interaction term between position in wave and industry dynamism, we are cautious in making any claim as to whether a dynamic industry environment moderates investor response to a firm's position in the industry divestiture wave.

Although the results support our theoretical framework's point that the pervasiveness of divestitures may convey important information to investors about the quality of managerial decisions, our analysis cannot rule out alternative explanations. The variation in divestiture returns may also be due to differences in economic and market conditions. Prior research has shown that firms are more likely to divest assets in an expanding economy (Maksimovic & Phillips, 2001) and that market liquidity plays an important role in explaining divestiture activity (Schlingemann, Stulz, & Walkling, 2002). For acquisitions, differences in market demand and the economic environment can provide early movers with more favorable conditions, thus leading to more positive acquisition returns (Carow et al., 2004; McNamara et al., 2008). Similarly, given the information and auction advantages due to a lack of comparable prior transactions that exist in early stages, investors may receive firms divesting early in a divestiture wave more positively (Buchholtz, Lubatkin, & O'Neill, 1999; Krishnaswami & Subramaniam, 1999). In addition, early and late divestors may have greater bargaining power because a market contains more potential buyers than sellers (Porter, 1980). However, our analysis suggests that market conditions may be less relevant in explaining differences in returns for divestitures than they are for acquisitions. To capture shifts in market demand, we controlled for the existence of two merger and acquisition waves that occurred during the period of our study (1996–2000 and 2004–07). Our analysis indicates that the presence of a merger wave characterized by a preponderance of buyers and greater market liquidity did not affect stock market response to firm divestitures. Furthermore, market demand and liquidity conditions may be less pertinent in the case of divestitures, since these transactions typically are the result of confidential negotiations between a buyer and a seller rather than an open and public auction (Sicherman & Pettway, 1992; Slovin et al., 1995).

Another plausible explanation for the influence of the pervasiveness of divestiture activity on investor response may be limits on investor information processing capacity. Using the concept of in-

formation-processing load, Madhavan and Prescott (1995) suggested that stock market response will vary depending on the amount of information investors face in evaluating a managerial decision. In their study examining investor response to joint venture announcements, these authors found that investors were more positively inclined to joint ventures in industries with either light or heavy information-processing loads but reacted negatively when an industry had a moderate information-processing load. If we assume that at the outset and end of a wave investors face light information loads, because divestiture activity in the focal industry is lower at those times, information processing theory would predict a more favorable response to divestitures during these periods—in keeping with our results. However, it is not possible to determine whether the information-processing load at the peak of a wave represents a moderate or a heavy load on investors. As a peak represents significantly more divestiture activity (i.e., 50 percent more than at the early stage of a wave), it does appear more likely that investors face a heavy information-processing load at the peak. Accordingly, information processing theory would suggest that investors will “use simplifying assumptions and respond positively” (Madhavan & Prescott, 1995: 904). As a result, an information-processing-load explanation would result in no variation in investor response over the course of an industry divestiture wave, since investors will respond in a similar fashion (e.g., more positively) to both a heavy information-processing load (peak period) and a light one (early and late stages). In contrast, if investors face a moderate information-processing load at the peak of a wave, the predictions of information processing theory would provide an alternative explanation for our results. However, the steeper slopes at the right hand side of the curve for our moderating effect of industry munificence still indicate that the position in wave has some effect that goes over and above the effect of information-processing load. Our results, therefore, do not provide clear support for an information-processing-load perspective. Instead, our utilization of economic theories of imitative behavior seems to provide the most consistent logic for explaining the U-shaped relationship between investor response and divestitures across an industry divestiture wave.

Further explanations of what additional factors might account for how a firm's position in an industry divestiture wave influences investor response may be derived from a closer study of the nature of the firms participating at different points in a wave. If, for example, firms divesting in the

dissipation phase of a wave are in pursuit of profitable growth (Mankins, Harding, & Weddigen, 2008), this may explain the more positive investor response at the tail end of the wave. In regards to firm heterogeneity, recent evidence on acquisition waves suggests that firms that act early in a wave (i.e., leaders) tend to have a different profile than firms that act later (i.e., followers) (Haleblian, McNamara, Kolev, & Dykes, 2012). Specifically, leaders are characterized by higher levels of slack, moderate firm performance, and smaller size, and a key characteristic of followers is increased decision speed (Haleblian et al., 2012). A similar analysis of differences in the characteristics of firms acting early and late in an industry divestiture wave may further scholars' understanding of the dynamics of interfirm imitation. Applying a fashion leader model of herding (Bikhchandani et al., 1998; Rao, Greve, & Davis, 2001), one can perceive larger and more successful firms as having better information and thus perhaps leading a cascade of imitative behavior.

Implications for Research and Practice

Our study is the first to examine the performance consequences of divestiture by incorporating the role of a firm's social context. In examining the influence of social context on investor response, this study contributes to the emerging research stream that focuses on how investors may utilize attributes of firms to infer the quality of managerial decisions. By utilizing the economic theory of herd behavior called information cascades (Bikhchandani et al., 1992, 1998), our research goes beyond transaction cost economics and agency theory explanations for divestiture returns. Given the information uncertainty associated with evaluating divestiture decisions, our study provides evidence that investors may look to the divesting firms' social context, in terms of the pervasiveness of divestiture activity, to infer the potential value of these managerial decisions. Although prior research has shown that pervasiveness of an activity influences investor response to firm decisions (Carow et al., 2004; McNamara et al., 2008), these studies focus on substantive factors such as the costs and benefits that accrue to firms to explain why performance consequences may differ along the course of a wave. Our study is the first to propose that imitative behavior based on an information cascade may provide the underlying theory illuminating why pervasiveness of an activity may influence how investors perceive the activity. Thus, divestitures that occur at the peak of an industry divestiture wave are discounted not owing to substantive in-

herent differences, but rather because investors recognize that managers are ignoring their own private information and are instead deferring to the actions of their predecessors, and the investors deem this imitative behavior less likely to lead to value creation.

Examining divestiture activity from the perspective that managers may be engaging in herding also provokes new thinking about the managerial motives underlying divestiture. In extant divestiture research, these motives have largely been assumed to be analytically based, driven by economic and performance factors. Our findings instead suggest that divestitures that occur during an industry wave may be the result of information cascades—whereby managers ignore their own private information and instead defer to the action of others (Bikhchandani et al., 1992). Implications from our findings are consistent with research on organizational restructuring indicating that when observing restructuring activities of competitors, managers begin to perceive restructuring as necessary and inevitable, and thus engage in restructuring even if the consequences of the restructuring effort are unclear for their own organization (McKinley, Zhao, & Rust, 2000).

Finally, this study provides support for the argument that divestitures are not mirror images of acquisitions (Brauer, 2006; Lee & Madhavan, 2010). Both acquisitions and divestitures cluster by industry, but divestiture waves are not the flip side of acquisition waves. For acquisitions, researchers usually focus on the stock market returns accruing to the acquiring firm and the target firm to assess performance consequences. The target firm of an acquisition, however, does not represent a divestiture since these are publicly listed firms. Instead, the majority of divestitures constitute small transactions, such as the sale of assets (i.e., plants, property, product lines) or business units, that are negotiated confidentially between two parties. Thus, one cannot use acquisition returns to assess how investors evaluate firm divestiture, since no “acquisition returns” are associated with these transactions. As a result, research on the performance consequences of acquisitions or acquisition waves does not shed light on divestitures, which represent such a distinctly different phenomenon. Furthermore, as we have argued in the article, the small scale of the majority of divestitures and the confidential nature of these transactions has information consequences in that they are more opaque than acquisitions; thus, investors face greater information uncertainty in evaluating the quality and thus the performance impact of these decisions for firms. As a result, our theory and findings on in-

vestor response to divestitures differ from those proposed and found by McNamara et al. (2008) on acquisition waves. McNamara et al. (2008) proposed substantive reasons based on first mover advantages to support their findings that investor returns are higher for early movers than peak acquirers. We have argued that divestitures' greater opaqueness makes it more difficult for investors to evaluate these decisions and that as a result, a divestiture's position in an industry's divestiture wave conveys information by which to assess the quality of a firm's decision to divest.

Our findings also have practical implications for managers. Our results suggest that understanding investor cognition is an important aspect of successful divestiture execution in business practice. Given that investors appear to take into account the pervasiveness of industry divestiture activity in evaluating a firm's divestiture, our study suggests that managers need to be aware of the firm's social context and not view a divestiture decision strictly from the firm's perspective. Furthermore, given the opaqueness of divestiture transactions, investors desire more information on financial and operational consequences, the source of value creation, and the motivation for divestiture. However, when disclosing information about the specific strategic motivation for a divestiture and the exact use of proceeds, management must also struggle with the dilemma that this information may be valuable to their competitors.

This study also provides impetus for scholars to learn more about how social context influences investors' evaluations of managerial decisions. Our findings indicate that the pervasiveness of activity influences these evaluations of the managerial decision to divest. It remains uncertain, however, how investors use information about the strategic activities of the firms in an industry to infer valuation for a given firm. More generally, strategy and finance scholars still lack a thorough understanding of why investors overextrapolate some information and underreact to other information (Hirshleifer, 2001). It thus seems essential to gain a better understanding of investors' cognition and the relative importance they attribute to aspects of firms' social context in assessing the value consequences of managerial strategic decision making. Future research that integrates theories of social cognition and information processing may provide further insight in understanding how investors respond to firm actions.

Finally, the empirical design of our study precludes the analysis of divestitures undertaken by private companies. Future research might thus examine the use of alternative outcomes variables

that are also measurable for privately held companies (e.g., sales, innovation output) to more fully understand the entire set of divestitures that occur in an industry.

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