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EXAMINING THE PERFORMANCE EFFECTS OF POST SPIN-OFF LINKS TO PARENT FIRMS: SHOULD THE APRON STRINGS BE CUT?

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Little research has examined the performance implications of the parent-child relationship post spin-off. Although the parent provided oversight of the child prior to the spin-off, effects of post spin-off links to the child remain unclear. Applying transaction cost and agency theories, our study of 142 firms spun-off between 1986 and 1997 examines how oversight and ownership by the parent firm influence stock market performance post spin-off. We find that while child firms benefit from some links to the parent, having too many links is negatively related to performance. The findings suggest that there is a balance between having too much parental involvement and not enough. Our study extends understanding of post spin-off child firm performance and provides valuable insights for both parent and child firms. Copyright © 2011 John Wiley & Sons, Ltd.

INTRODUCTION

Over a decade ago, Seward and Walsh stated 'we need to know more about how the design of the governance and control mechanisms of a spun-off firm affects its future' (1996: 37). To date, however, only a few studies have addressed issues relating to parents' post spin-off[1] linkages to child firms, and fewer still have emphasized the performance of the child rather than that of the parent. This gap in research is surprising because theory predicts that post spin-off linkages are likely to have significant implications for child firm performance. For example, Woo, Willard, and Daellenbach (1992) suggest that spun-off firms may have a difficult time adapting to their new independent status due to holdover effects of the parent's routines and processes, and that a significant reorientation may need to take place before the child firm can realize performance gains. Moreover, parent firms sometimes retain a substantial block ownership in the spun-off firm, and many parent firms maintain a post spin-off oversight role through representation on the child's board of directors (with this representation relatively independent of the parent's ownership stake). But whether the child's adjustment to its new independent status is hampered or helped by continued linkages to the parent remains an open question.

Accordingly, we focus on the effect that parent ownership and monitoring linkages have on the child firm in the five years following the spin-off event. Applying agency theory and transaction cost logic, we develop predictions about how post spin-off parent-child linkages affect the child firm's market performance. We also consider the

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[1] In this study, a spin-off is defined as the separation of a subsidiary from its corporate parent via a *pro rata* distribution of the subsidiary's shares to existing parent firm shareholders (see Miles and Woolridge, 1999: 3). We use the term 'spin-off' to refer to the event itself and the terms 'child firm,' 'spun-off firm,' or simply 'child' to refer to the subunit that is divested to investors.

moderating impact of the pre spin-off relationship of the child to the parent (unrelated, vertically integrated, or horizontally related). While some have selected a knowledge-based or resource-based approach to analyzing post spin-off performance (e.g., Parhankangas and Arenius, 2003; Sapienza, Parhankangas, and Autio, 2004), we apply agency theory and transaction cost theory for several reasons. First, spin-offs are intrinsically decisions about the scope of the firm, which is the setting for transaction cost inquiry. Second, spin-offs create a new publicly traded entity, thus moving oversight from a hierarchy to a market. This is the setting agency theory was designed to address. Additionally, because we consider post spin-off linkages between parent and child, transaction cost theory, again, is widely drawn upon in studies of these 'hybrid' arrangements.

Evidence from our sample of 142 spin-off events that occurred over a 12-year period from 1986 to 1997 largely supports our proposed theory. For example, we find that while some board-level oversight by the former parent is beneficial, too much is negatively related to stock market performance. Moreover, we find that continued significant ownership by the parent firm is negatively related to the child's long-term stock market performance. Finally, we find that post spin-off linkages are more beneficial when the child firm was vertically integrated with its former parent, or was part of a related diversification strategy for the parent. Our evidence underscores the need to balance the benefits of continued linkages against constraints that parental oversight might place on the newly independent child firm.

Our study makes several contributions. First, it adds to the very limited pool of research focusing on the post spin-off performance of child firms. Most prior research, as we noted earlier, emphasizes parent firms or the spin-off event. Second, our study develops theory and gathers empirical evidence about post spin-off linkages between parent and child. While a few researchers have intimated that post spin-off ties between the parent and the child are important (e.g., Seward and Walsh, 1996), we are aware of no detailed theoretical treatments or empirical examinations. Yet there are strong (and contrasting) reasons to believe that post spin-off linkages will have important performance implications for child firms. For example, proper oversight of publicly traded corporations is critical, and the management of the parent firm has specialized knowledge that uniquely qualifies it to act in a monitoring capacity over the child. But, parent oversight may limit the autonomy of the ostensibly independent child firm and hamper its ability to adapt to its new status. Moreover, continued ownership and oversight by the parent tacitly (or perhaps even overtly) reinforces the processes and procedures the parent instilled when the child was a subsidiary, making it more difficult for the child firm to establish its unique identity and strategy independent of the parent. Finally, spun-off firms may experience shortfalls brought on by the loss of economies from dissolution of ties with the corporate parent. Retaining linkages to the parent firm may ease these losses, but at the same time hamper the child firm's attempts to establish an independent identity and strategy.

A final contribution from our study is a greater understanding of the performance implications of the governance change involved when a corporate subsidiary transitions to an independent, publicly traded firm. While spin-off debuts of child firms are often greeted with positive investor responses (Hite and Owners, 1983; Miles and Woolridge, 1999; Schipper and Smith, 1983; Seward and Walsh, 1996), the realization of improved, long-term performance has frequently not been realized (Desai and Jain, 1997; Miles and Woolridge, 1999; Woo *et al*., 1992). Our purpose is to examine post spin-off performance as a function of ties to the parent firm while considering the impact of the pre spin-off relationship between parent and child.

THEORETICAL DEVELOPMENT

Agency theory

Agency theory has a rich multidisciplinary tradition in the fields of economics, finance, and management (Eisenhardt, 1989). The general thrust of the theory centers on the misalignment of incentives, leading to differing risk preferences between principals (owners) and their agents (managers). In general, agency theory proposes that alignment of incentives and lowering of information asymmetry decreases agency problems and improves performance. Some research on spin-offs has adopted this approach, using it to explain the occurrence of spin-off events. For example, Krishnaswami and Subramaniam (1999) argue that spin-offs are more

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likely to the extent that there is higher information asymmetry between managers and investors, and they further argue that this asymmetry is lowered by spin-off events. Measuring information asymmetry as the difference between analyst projections and actual earnings, they found that the accuracy of valuations improved significantly subsequent to spin-off events, indicating lower information asymmetry in the principal-agent relationship for both the parent and the child post spin-off. In this same vein, Allen (2001) finds that child firm top managers often invested substantially in the post spin-off child, and this investment was significantly related to positive abnormal returns generated by the spin-off event. Allen's (2001) research indicates that spin-offs lead to both a decrease in the level of information asymmetry between managers and investors (given that such purchases lead to more and finer-grained information disclosure) and an increase in the alignment of incentives through increased ownership by top managers.

Finally, spin-offs potentially allow for improved managerial incentive arrangements. Because the child firm becomes publicly traded, its board of directors can create market-based performance-contingent contracts for managers. Prior to the spin-off, as part of a larger corporation, accounting performance measures typically have to be used to evaluate and reward division managers, and these do not provide as clear a link to shareholder interests as market-based performance measures. This change should further align the interests of managers and investors (McConnell and Servaes, 1990), since spin-off mangers can take an ownership stake in their specific company rather than in a larger, multidivisional parent corporation whose performance may not accurately reflect the performance of their division. In conclusion, from an overall agency theory perspective, spin-off events alter ownership and monitoring for child firms, and this will figure significantly into our hypotheses development.

Transaction cost theory

Like agency theory, transaction cost theory is well established in the field of strategic management (Williamson, 1995). While agency theory deals with the separation of ownership and control, transaction cost theory deals with costs arising from setting firm boundaries.[2] In terms of spin-offs, however, the two theories interface given that a spin-off leads to a decrease in the bureaucratic costs and constraints that are incurred when corporate managers monitor division managers (Jones and Hill, 1988; Porter, 1987). These costs are borne by shareholders of the parent corporation and are eliminated by the spin-off event, ostensibly increasing overall efficiency.

While the decision to place a subsidiary outside the boundary of the firm is beyond the scope of this paper (see Holmstrom and Roberts, 1998), we are interested in how transaction costs logic will predict performance for the child post spin-off. To begin, Grossman and Hart (1986) describe ownership as the purchase of all residual rights, allowing the purchaser to control the actions of the purchased entity. Thus, as a subsidiary, the child's actions are wholly controlled by the parent firm. But with the spin-off comes the relinquishing of residual rights to the child, allowing control of the child to pass directly to shareholders. If, however, the parent retains an ownership block in the child firm, the relinquishing of residual rights becomes much more ambiguous. The parent no longer wields unrestricted influence over the child, but an ownership stake certainly gives the parent power in dictating the course the child should follow. Therefore, the rationale behind retaining block ownership becomes very important as we describe in more detail below.

One possible rationale is that the parent believes the post spin-off performance of the child will be significantly improved, leading to an appreciation in the value of their block shares and potentially allowing the parent to sell the shares at a premium (Barclay and Holderness, 1989; 1991; 1992). In this context, the parent would benefit from its private information that the child is undervalued by investors. Under this scenario, the parent would want the child to take whatever actions necessary to perform well (to increase the value of the child), and we expect that this would lead the parent to give the child the autonomy needed to achieve superior performance.

Another rationale, put forward by Kang and Sorensen (1999), is that block shareholders (in this

[2] Essentially, when market costs outweigh bureaucratic costs, the firm internalizes the processes or production, and when bureaucratic costs outweigh market costs, the firm will externalize the processes or production.

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case, the former parent) wish to retain influence over the firm. Stated differently, although the parent has relinquished full residual rights to the child, it may wish to influence how the child operates post spin-off. Under this scenario, the parent may be loathe to allow the child to find its own path and establish independence from its parent. This approach may also be taken to ensure that the child firm does not outshine or overshadow the parent, or even become a competitor of the parent firm. Herein we might expect the parent to be ambivalent, or even averse, to the child's success and we expect that this constraint would deprive the child of the autonomy needed to succeed.

We now turn from block ownership to the relationship of the parent and the child prior to the spin-off. It is essential to understand this relationship to determine the transaction cost implications of parental monitoring subsequent to the spin-off. In their discussion of corporate strategy, Jones and Hill (1988) use a transaction cost approach to argue that firms must trade off the economic benefits made possible by different corporate strategies against the bureaucratic costs associated with implementing those strategies. For example, vertical integration can yield economies of integration, related diversification yields economies of scope, and unrelated diversification yields economies of internal capital markets (although each of these comes with associated costs). Jones and Hill (1988) propose, building on Thompson (1967), that another aspect to consider is the interdependence effects of corporate strategies, and they describe how these interdependence effects vary according to the strategy chosen, stating, 'each level of interdependence can be viewed as being of a higher order, encompassing lower orders within it' (Jones and Hill, 1988: 163). Following this logic, unrelated diversified firms have pooled interdependence of internal capital where each division contributes to the overall pool of capital that is subsequently redistributed by the corporation. Vertically integrated firms have sequentially pooled interdependence, where the outputs of one division become the inputs of another, sequentially linking the divisions in addition to their pooling of internal capital. Related diversified firms have reciprocal sequential pooled interdependence, as the divisions are able to share resources in addition to sequential linkages and pooled internal capital.

Combining the two perspectives (economies and interdependence) suggests that unrelated strategies can yield benefits from internal capital markets, vertical integration strategies can yield benefits from economies of integration and internal capital markets, and related strategies can yield benefits from economies of scope, economies of integration, and from internal capital markets. Hence there is a nesting effect of the economies by the degree of interdependence among the divisions of the diversified firm.

Applying this logic to the spin-off context leads to the conclusion that in exiting the corporate structure of the parent, the child will suffer losses of economies that derive from its relationship with its former parent. In other words, a child firm that was part of its parent's unrelated diversification strategy will suffer the loss of economies of internal capital markets. A child firm that was vertically integrated with its parent will suffer losses of economies of internal capital markets and economies of integration. A child firm that was part of its parent's related diversification strategy will suffer losses of economies of internal capital markets, economies of integration, and economies of scope. We argue further that these losses are likely to be lessened by continued linkages to the parent firm.

For example, the spin-off event can alter relationships with buyers, suppliers, the government, and others, requiring the child firm to negotiate contracts that were previously negotiated at the corporate level or renegotiate contracts that were severed due to the exit from the parent's governance structure. This effect would be most pronounced among child firms that were originally vertically integrated with their parents or were horizontally related to the businesses of their parents. Although some of these contract negotiations may favor the child firm (e.g., new agreements to purchase raw materials at a price lower than the previous contract price or the breaking of an onerous labor contract), others may be less favorable (e.g., renegotiating with a supplier, but as a smaller entity). Hence, at least some contracts between the child firm and its buyers and suppliers are likely to be affected by severance from the parent firm. Yet these severance effects may be eased if the child firm maintains ties to its former parent.

Thus, the spin-off event brings on several important changes that will affect the child firm's future performance prospects. First, all child firms, as subsidiaries, generate revenue that is then surrendered to the parent for redistribution internally

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(Scharfstein and Stein, 2000), so as a subsidiary, the child firm generally requests and obtains financing from its parent rather than external sources. Post spin-off, all funding presumably comes from external sources (i.e., capital markets). Second, as a subsidiary, the child firm does not widely interface with external constituencies such as shareholders or securities analysts, and although the subsidiary may have negotiated some of its own contracts with suppliers, such contracts may often have been negotiated through the corporate office to obtain better terms (e.g., volume discounts). Finally, for child firms that are more closely tied to their parents or other subsidiaries there may be ongoing transfer pricing agreements, or knowledge/technology sharing that will be placed at risk subsequent to the spin-off event.

THE CONTEXT OF SPIN-OFFS

It is important to understand the context within which spin-offs occur and some of the implications of the event for the various parties involved. Tax implications are a prominent criterion governing the distribution of shares to investors through spin-offs (Miles and Woolridge, 1999). The distribution is deemed tax free to both the parent organization and its shareholders if the spin-off meets certain conditions. For example, the parent must divest 80 percent or more of the subsidiary, the parent and subsidiary must have been engaged in active business for at least five years before the spin-off, and the transaction must have a legitimate business purpose (e.g., to address antitrust issues, to increase focus on core businesses by the parent, or to enhance capital market access). For this reason, it is quite unusual (and costly) for a parent firm to retain more than a 20 percent stake in the child firm post spin-off.

Although the motivations for undertaking a spin-off are varied and diverse, it is important to note our assumption that all motivations derive from the parent firms' best interests. This is not surprising given that corporate managers from the parent control the fates of their subsidiaries and make decisions based on what is best for the parent corporation (or its managers) rather than what might be best for the individual subsidiaries (Golden and Ma, 2003; Ma 1999). For example, Powers (1999) argues that spin-offs are generally motivated by a desire to eliminate structural inefficiencies for parent firms rather than to benefit child firms. Given that spin-offs generally occur to advance the parent's interests, it is important to study the performance effects of any post spin-off links to the parent firm to determine their effect on the child firm.[3]

Post spin-off parent-child linkages

While a considerable amount is known about spin-offs as events and the performance of the parent firm after the spin-off, little is known about linkages between the two firms subsequent to the spin-off event, or how those linkages might affect the child firm's performance. Woo and colleagues (1992) conclude that child firms that had been part of their parent's related diversification strategy fared no better than those who had been part of their parent's unrelated diversification strategy during the three years subsequent to spin-off. They suggest that child firms from related diversification strategies may have a difficult time adapting to their new independent status due to the holdover effects of the parent's routines and processes, and that a significant reorientation may need to take place to realize performance gains. Theory suggests that child firms that had been part of unrelated strategies would face fewer constraints to adaptation. But there is no specific research, of which we are aware, that examines how any post spin-off linkages between parent and child might affect the child's subsequent performance.

A few studies have indirectly considered child firm performance. For example, Daley, Mehrotra, and Sivakumar (1997) find that post spin-off operating performance tends to improve for parent firms, but not for child firms. They reconcile this evidence with the positive abnormal returns that mark spin-off announcements by proposing that spin-offs are a focus-increasing event for parent firms, but are frequently not in the best interest of child firms, since they are severed from the corporate resource base. Along the same lines, Silberman (1995) concludes that the operating performance of both parent and child, taken together, does not significantly increase post spin-off, and the operating performance of the child tends to

[3] While acknowledging that spin-offs are taken in the best interests of parent firms, child firms frequently derive benefits as well, such as greater autonomy to pursue markets, increased incentive contract efficacy, and independent access to capital markets.

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decrease post spin-off. Examining a cross-industry sample of 51 spin-offs made between 1975 and 1986, Woo and colleagues (1992) note that none of their sample child firms showed post spin-off improvements in operating performance, and some, particularly those that were part of unrelated diversification strategies pre spin-off, were characterized by declines in operating performance. Finally, applying a knowledge-based and learning approach, Sapienza and colleagues (2004) find that when the knowledge overlap between parent and child is partial, the growth of the child firm is enhanced. Too much or too little knowledge overlap hamper child firm growth.

Our review of the brief literature on child firm post spin-off performance indicates that while a few researchers have considered child firms (e.g., Daley *et al*., 1997; Silberman 1995), none have delved deeply into what drives child firm performance. Most work in this area relies on anecdotal accounts of what seemed to work and not to work (see Miles and Woolridge, 1999). Karen Wruck, while an associate professor at Harvard Business School, summarized these accounts stating, 'The [child firms] that tend to be successful are those that have strong management teams and understand that adapting to life as a freestanding company requires them basically to break out of the box, and adopt a new, more entrepreneurial set of management practices' (Miles and Woolridge, 1999: 17). This logic leads to the conclusion that significant adaptation is often needed for child firms to be successful post spin-off.

There are good reasons to believe that spin-offs have at least the potential to spark increased entrepreneurship and adaptation among child firms (Hambrick and Stucker, 1999; Miles and Woolridge, 1999; Wruck and Wruck, 2002). Child firms have relatively few liabilities of newness or smallness (Singh, Tucker, and House, 1986; Stinchcombe, 1965), have established technologies (Galbraith, 1973), operating procedures (Nelson and Winter, 1982), and existing infrastructure (Scott, 2003). Further, the belief that child firms will act entrepreneurially is tacitly signaled by the positive abnormal investor returns provoked by spin-off events (Hite and Owners, 1983; Miles and Woolridge, 1999; Schipper and Smith, 1983) and by the fact that post spin-off, child firms are followed by stock analysts looking for investment opportunities (Krishnaswami and Subramaniam, 1999). Hence, the spin-off context is one that should motivate child firms to reevaluate their opportunities and threats and make significant reorientations in their strategies.

In contrast, other theory suggests that child firms are subject to structural inertia (Hannan and Freeman, 1984), influencing both internal (Nelson and Winter, 1982) and external (Pfeffer and Salancik, 1978) actions, making change difficult and risky (Amburgey and Kelly, 1993). Routines provide a form of organizational memory that projects the shadow of past actions and results into the future, and this organizational memory has strong inertial tendencies (Walsh and Ungson, 1991). Hence, although the child firm does not suffer from a lack of crucial organizational routines or procedures (i.e., liability of newness), it may suffer from both structural inertia and core rigidities (Leonard-Barton, 1992) that lock it into past courses of action. Any core rigidities will be reinforced by dominant organizational logics (Prahalad and Bettis, 1986) as well as psychological commitments among organizational members (Rousseau, 1995).

Given the divergent perspectives on the child firm's ability to make its way as an independent company, it is crucial to understand any linkages between the parent and the child after the spin-off to understand the sources of post spin-off performance. While it is certain the child firm must adapt to its new environment (e.g., responding to opportunities enabled by independence, mitigating losses from leaving the parent, etc.), how that adaptation will be affected by links to the parent firm is uncertain. As an independent firm, the child needs oversight, access to resources, and the ability to adapt, and in the following section we examine each of these in greater detail.

HYPOTHESES

Ownership

While many studies have examined the link between block ownership and firm performance, the evidence is equivocal, and block ownership of spin-offs by their former parents has not, to our knowledge, been studied before. Several studies on the broad topic of share ownership provide some evidence that ownership blocks in excess of five percent often negatively affect profitability (McConnell and Servaes, 1990; Morck, Shleifer, and Vishny, 1988; Wruck, 1989). Block ownership

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often (but not always) provides the owner a seat on the board of directors (Kang and Sorensen, 1999). In addition, block owners often receive preferential treatment vis-à-vis other shareholders, and this is evidenced by a premium on sales of share blocks (Barclay and Holderness, 1989; 1991; 1992). Beyond this, Kang and Sorensen (1999) argue that a block shareholder may wish to maintain social influence over the firm or may seek power over the firm by providing expertise in a particular area.

We argue that in the post spin-off context, two dominant rationales exist for parent retention of block ownership. First, for child firms that were closely tied to their parents (i.e., part of related diversification or vertical integration strategies), the parent has the best information about the future prospects of the child firm, and if that information leads the parent to the conclusion that the child has substantial strengths, and if this information is not publicly known, the parent may wish to retain a block ownership stake that will yield returns when investors ultimately come to recognize the strengths, leading to an appreciation of the parent's stake. Moreover, parent ownership post spin-off sends an unambiguous signal to investors regarding the parent's belief about the future of the child, given that the parent has complete discretion at the spin-off event to keep or divest ownership. In other words, it is unlikely the parent would retain a substantial ownership share if it anticipated that the investment will decline in value post spin-off. We argue that investors will positively interpret this signal, given that the parent firm has specialized information about the child firm, and therefore would not choose to retain ownership if it expected performance to decline. Moreover, ownership by the parent suggests that it has an interest in the child's viability and success, and it intends to provide the child the resources it needs to succeed as a newly independent firm. Finally, a parent retaining block ownership of a child firm that was part of an unrelated diversification strategy pre spin-off may perceive the ownership as a way to obtain a premium on their investment if the stock appreciates subsequent to the spin-off (Barclay and Holderness, 1989; 1991; 1992).

Hypothesis 1a: Continued substantial ownership by the parent firm is positively related to child firm post spin-off market performance.

But there is a clear second rationale as well. Block ownership may be intended to facilitate the exercise of influence or control over the child firm (Kang and Sorensen, 1999). This rationale is more problematic than the first because it suggests that the parent would retain an interest in the affairs of the child for reasons other than to further the child's performance. Under this scenario, the parent may meddle with the adaptation of the child, not allowing it to fully exercise its newly independent status. Conceptualizing this situation is not difficult, given that the child firm also has knowledge of the parent's operations and technology, and may use that information to its own advantage as an independent (and potentially rival) firm. For example, the child may ally with a competitor of the parent, putting the parent at a competitive disadvantage. Or, the child may have technology or relationships that, if developed, could allow it to compete directly with the parent firm. Hence, parent block ownership driven by nonperformance criteria suggest that the ownership link would hamper adaptation, and that in turn would negatively affect the performance of the newly independent firm.

Hypothesis 1b: Continued substantial ownership by the parent firm is negatively related to child firm post spin-off market performance.

Board oversight

As the child reorients itself to the new environment as an independent firm, we argue that, overall, oversight from the parent will benefit the child by providing important guidance that is tailored to its unique situation. From a governance perspective, managers from the former parent are uniquely qualified to oversee the child due to their depth of knowledge about its operations (Miles and Woolridge, 1999). In addition, the child's board of directors is established by the corporate parent, and Seward and Walsh (1996) found that these boards were generally set up according to established principles of sound corporate governance, and this should lead to strong performance. Furthermore, oversight by the parent reduces the information asymmetry inherent to most corporate governance situations due to the specialized knowledge the parent has about the child's operations. We argue that this will be positively interpreted by external constituencies as the desire of the parent to see the

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child succeed as an independent entity and will subsequently yield higher market performance.

Hypothesis 2a: Board-level monitoring by a representative from the parent firm is positively related to child firm post spin-off market performance.

While we have argued that monitoring by a representative of the parent firm will benefit the child firm, we also argue that too much parent monitoring will constrain the spin-off firm and will lead to lower performance. In other words, the potential for entrepreneurial adaptation (Hambrick and Stucker, 1999; Miles and Woolridge, 1999; Wruck and Wruck, 2002) surrounding the spin-off event will be hampered if the newly independent firm's identity continues to derive from the parent, as evidenced by continued substantial parental oversight. Wruck and Wruck (2002) report that spin-off firm boards are relatively small, with an average of six to seven members (in contrast, the average board size for the Fortune 1000 is 11). Thus, having more than one representative on the board would indicate that parent firm votes comprise (on average) roughly a third the governance of the child firm (compared to roughly 15% if only one board member from the parent is present). We argue that this represents a disproportionate amount of control concentrated into the hands of the parent firm. This control may constrain the child firm from making the changes necessary to adapt to its new independent status, tacitly endorsing the parent's processes, routines, and management style, making adaptation difficult. As we noted earlier, the child firm already likely endures some inertia in the systems and processes it acquired when it was connected to the parent. More monitoring by the parent is likely to increase the structural inertia associated with these systems and processes.

Hypothesis 2b: Disproportionate monitoring by the parent firm is negatively related to child firm post spin-off market performance.

Prior relationship

We turn now to a discussion of the moderating effects of the prior strategic relationship between parent and child. Building on the previously presented transaction cost theory, we argue that the relationship between the parent and child firm will affect the benefits derived from monitoring by the parent firm post spin-off. While Woo and colleagues (1992) found no operating performance differences post spin-off between firms that were related or unrelated to their corporate parent, they did suggest that the severance effects from the spin-off varied according to the relationship to the parent prior to the spin-off. This implies that firms that were related to or vertically integrated with the parent firm will have different needs than those that were unrelated to the parent. In other words, a spin-off that was unrelated to the parent corporation will suffer only the loss of economies of internal capital markets. In contrast, a spin-off that was vertically integrated with the former parent corporation will suffer losses of economies of internal capital markets and economies of integration, and a spin-off that was related to the former parent will suffer losses of economies of internal capital markets, economies of integration, and economies of scope. We argue that the losses of these economies alter the benefits and costs of continued linkages to the parent firm. Specifically, unrelated firms must simply replace the capital funding that came from the parent prior to the spin-off, while vertically integrated and related child firms have greater separation obstacles to overcome. We argue, then, that having a continued link to the parent firm through the board of directors will help to overcome these severance effects for spin-offs that were related to or vertically integrated with their parents, but that no such link is needed for spin-off firms that were unrelated to their parents.

Hypothesis 3: Child firms related to or vertically integrated with their former parent will benefit more from post spin-off board ties to the parent firm than those that were unrelated to their parent prior to spin-off.

METHODS

Sample

The base sample for this research includes all spin-offs announced by companies listed on the New York Stock Exchange (NYSE), American Stock Exchange (AMEX), or the NASDAQ between 1986 and 1997. There are several reasons for selecting a sample of this type. First, the dynamics described in the theory development section

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(e.g., monitoring and incentives, severance effects, etc.) best correspond to large, publicly traded firms, such as those listed on the NYSE, AMEX, or NASDAQ. Second, research to date on spin-offs has used similar samples, increasing the comparability of our study with previous studies. Third, the sample period (1986–1997) covers periods of economic decline as well as growth, thereby increasing the generalizability of the research. Finally, the data for a sample of this type is publicly available from archival sources, enabling the collection of the data necessary to empirically test the hypothesized relationships.

The initial sample was identified through two primary sources. First, spin-offs are considered a special form of dividend, and dividend payments to shareholders are tracked in the Center for Research on Security Prices (CRSP) tapes. Second, the Securities Data Corporation (SDC) Mergers and Acquisitions database provides information on corporate spin-offs. The information from these two data sources was combined to form the base sample. From this base sample, spin-off announcement and completion dates were identified from data sources such as *The Wall Street Journal, Lexis/Nexis*, and *Commerce Clearing House* (CCH) *Capital Changes Reporter.*

To be included in the sample, the spin-off must comply with several conditions. First, announcement and completion dates must be certain. This condition ensures that only actual spin-offs are included in the sample (Seward and Walsh, 1996) and permits us to identify the appropriate observation periods for capturing post spin-off performance. Second, the parent firm must distribute at least 80 percent of the child firm's outstanding shares. This condition increases the independence of the spin-off from the parent firm (Gilson, 2001) and improves the homogeneity of the context for the sample population. Third, the spin-off must be voluntary rather than compelled by government regulation or judicial ruling. Compelled spin-offs often have different contexts, motivations, and performance implications (Boudreaux, 1975; Kudla and McInish 1981), so excluding them increases the internal validity of the empirical results. Finally, the child and parent firm must both be listed on one of the major exchanges (NYSE, AMEX, or NASDAQ) and proxy statement information must exist for both firms. Up to a five-year panel of data is collected for each spin-off meeting these four criteria, with the firm year being the unit of analysis for the study. In the end, 142 spin-off events that met the criteria were identified, with 644 firm-year observations.[4]

Dependent variable

Market performance refers to shareholder return. We calculated shareholder return by compounding the daily returns to shareholders from the CRSP tapes over each fiscal year. The CRSP returns are adjusted for stock splits and dividends, so our measure represents shareholder returns at the end of the fiscal year from a $1.00 investment made on the first day of the fiscal year. This variable is then standardized at the four-digit standard industrial classification (SIC) code of the spin-off firm (i.e., the market performance of the firm is divided by the average market performance of all firms at that four-digit SIC for that year). Standardizing removes industry-specific performance effects (Dess, Ireland, and Hitt 1990; McGahan and Porter, 1997). As would be expected, the median of the dependent variable is zero and it is normally distributed (skewness = 0.266).

Independent variables

Monitoring

Two monitoring variables are important for this research. First, proxy statements were examined to determine if the chairman of the board is affiliated with the parent firm (i.e., CEO of the parent, top manager, etc.). The chairman of the board variable is coded 1 if this is the case and 0 otherwise. Second, the list of directors from the proxy statement for the child was examined to determine if the parent organization retained any seats on the board. If the parent organization retained at least one seat on the board (other than the chairman) the value of board of directors variable is coded as 1 and 0 otherwise. To test our hypothesis about excessive monitoring, we include the interaction between board representation and board chair variables. Thus, we consider monitoring to be disproportionately high when the parent firm retains both

[4] During the study window, it is possible that firms may exit due to bankruptcy or acquisition, and this reduced the number of firm-year observations.

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the chair of the child firm's board and at least one other regular board seat.[5]

Ownership

The ownership of the parent firm in the child after the spin-off event is an important variable, given that higher levels of ownership denote less autonomy for the child. This variable represents the percentage of ownership retained by the parent post spin-off. It varies from zero to 20 percent, with only eight percent of parent firms retaining an ownership stake in the child.

Prior parent-child relationship

The relationship between the parent and the child (pre spin-off) was established by three expert raters who classified each relationship according to business descriptions, SIC codes, and buyer/supplier relationships. After evaluating this data, each rater categorized the firm as one of the following: unrelated, vertically integrated, or horizontally related. The unrelated variable was set to 1 if the relationship was determined to be unrelated and 0 otherwise. The vertically integrated variable was set to 1 if the relationship was determined to be vertically integrated and 0 otherwise. The horizontal related variable was set to 1 if the relationship was determined to be related and 0 otherwise. Initial interrater reliability for the initial pass on these three categories was 0.75, and any discrepancies were resolved by discussion and mutual agreement.

Control variables

Several control variables are necessary for correct model specification (Greene, 2000). First, dummy variables are entered to control for the time periods (i.e., relative year) after the spin-off, with the first year omitted as the base category. These dummy variables control for differences among the years post spin-off as a brand new child firm most probably will act differently than one that has been separated from its parent for several years. Second, year dummies are included to remove potential biases from contemporaneous correlation (Certo and Semadeni, 2006). Finally, the size of the child relative to the parent was used as a control. Researchers have found that the size of the child relative to the parent has an important effect on share prices (J.P. Morgan, 1995; 1999).

Statistical method

The statistical method used is a hierarchical generalized least squares (GLS) time-series, cross-sectional (TSCS) model (Greene, 2000; Maddala, 1992). This modeling takes into account the TSCS nature of the data, controlling for serial correlation and unobserved heterogeneity, and is commonly used in econometric analyses (Greene, 2000). There are several potential sources of bias in analyses of this type, such as serial and contemporaneous correlation of the residuals, as well as unobserved heterogeneity.

The possibility of these biases suggests the need for a TSCS GLS approach (Maddala, 1992). The approach best suited to the data is a modified GLS estimation technique discussed by Parks (1967). Thus, a TSCS GLS model is used in the statistical analysis of the effect of action on performance. In addition, the Baltagi test for autocorrelation (see Baltagi *et al*., 2007) indicated the presence of autocorrelation, which was corrected within the GLS estimation (Stata Corporation, 2005). Furthermore, a likelihood ratio test indicated the presence of cross-sectional heteroskedasticity among the residuals, and this was also corrected within the GLS estimation (Stata Corporation, 2005).

RESULTS

Means, standard deviations and correlations are provided in Table 1. A few items are noteworthy. First, the majority of child firms were horizontally related to their parents (47%), followed by unrelated (43%), and vertically integrated (10%). Second, eight percent of child firms have parents that retained an ownership stake post spin-off. One in three child firms have board members from their former parent, but only one in five have a chairman of the board from the parent firm. Finally, Table 1 indicates the relative independence of ownership and board representation, as the correlations between ownership percentage

[5] While the situation could arise where the parent has multiple individuals on the child's board of directors (in addition to potentially having a chairman from the parent), we found only a few cases of this in our data, and excluding them from the analysis did not change our results.

Table 1. Summary statistics

#	Variable	Mean	SD	1	2	3	4	5	6	7
1	Market performance (ind. adj.)	0.014	0.479							
2	Board member from parent	0.328	0.470	0.019						
3	Chair from parent	0.192	0.394	−0.006	0.382					
4	Ownership % held by parent	0.008	0.036	0.012	0.034	0.062				
5	Child-parent relative size	0.080	0.230	−0.038	−0.119	−0.049	−0.038			
6	Vertically integrated	0.104	0.306	−0.042	−0.057	0.025	−0.068	−0.061		
7	Horizontally related	0.467	0.499	0.056	−0.065	−0.035	0.004	−0.003	−0.320	
8	Unrelated	0.429	0.495	−0.030	0.100	0.020	0.038	0.040	−0.296	−0.811

and board representation and board chair by the parent are only 0.090 and 0.137, respectively.

Table 2 presents the results of our TSCS analyses. The first hypotheses dealt with ownership by the parent firm. Hypothesis 1a proposes that the parent retains ownership because it believes the child stock will appreciate and therefore it has an interest in the child's success, leading to a positive relationship between parent ownership and performance. In contrast, Hypothesis 1b, proposes that the parent retains the ownership to exert continued control over the child, and that this continued control would negatively affect performance. To test this, a variable representing the percent owned by the parent firm was entered into Model 4 of Table 2, with the resulting coefficient negative and significant (-0.057; $p < 0.05$). Thus, Hypothesis 1b is supported: continued ownership by the parent firm has a *negative* effect on child firm market performance.

Hypothesis 2a predicted that modest oversight by the parent firm will be positively related to child firm market performance. This is tested by entering the dummy variables for both *board member from the parent* and *chairman of the board from the parent* into the models. The coefficients for both in Model 4 of Table 2 are positive and significant (0.104 [$p < 0.01$] and 0.079 [$p < 0.05$], respectively). Hypothesis 2a is therefore supported. In post-estimation Wald tests, the two coefficients were tested to determine if one was statistically different from the other, and they were not. This suggests that having either a board member or a chairman of the board from the parent firm has essentially the same positive effect on the child firm's market performance.

Hypothesis 2b predicted that although some monitoring by the parent firm would be beneficial, too much monitoring would be negatively related to child firm market performance, given that the child would be encumbered by links to its parent and would not adapt to its status as an independent firm. We tested this with an interaction of the *board member* and *chairman of the board* variables in Model 5 of Table 2. This approach effectively divides the firms into one of four groups: board member from the parent, chairman of the board from the parent, both, and neither (with neither being the omitted base category). The coefficients are all interpreted relative to the omitted base category, indicating that having either a board member from the parent or a chairman of the board from the parent is more positively related to spin-off market performance than having neither (0.15 and 0.158 respectively, $p < 0.001$), but that having both is less positively related than having neither (-0.135, $p < 0.05$). Post estimation Wald tests (see Table 3) reveal that, again, there is no statistical difference between having either a board member or a chairman of the board from the parent firm, but that there is a significant difference between having either a board member or a chairman of the board from the parent and having both from the parent, with having both from the parent being negatively related to spin-off market performance. We therefore find support for Hypothesis 2b.

The final hypothesis (Hypothesis 3) deals with the relationship between the parent and child firms prior to the spin-off, asserting child firms that were horizontally related or vertically integrated with their parent firms will benefit more from board ties to the parents relative to those that were unrelated to their parents. To test this prediction, we ran Model 5 of Table 2 independently for each of the three subsamples (horizontally related, vertically integrated, and unrelated). The models are reported in Table 2 (Models 6, 7, and 8). For the 66 child firms (representing 308 firm-year observations) that were horizontally related to their parents, we found that having a chairman of the board

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Table 2. Time-series cross-sectional GLS models (DV: industry-adjusted market performance)

						Horizontal	Vertical	Unrelated
	1	2	3	4	5	6	7	8
Constant	0.379**	0.023	0.044	0.014	0.027	−0.011	−0.187	0.054
	(0.145)	(0.083)	(0.122)	(0.101)	(0.107)	(0.145)	(0.286)	(0.170)
Size relative to parent	−0.049***	−0.045**	−0.138	−0.089	−0.088	−0.135*	0.079	−0.022
	(0.024)	(0.032)	(0.240)	(0.162)	(0.166)	(0.148)	(0.248)	(0.035)
Vertically integrated	−0.017	−0.004	0.007	0.008	0.024			
	(0.020)	(0.024)	(0.145)	(0.099)	(0.104)			
Horizontally related	0.033**	0.016	0.044	0.028	0.045			
	(0.011)	(0.014)	(0.087)	(0.059)	(0.060)			
Ownership % held by parent		−0.051*	−0.060*	−0.057*	−0.058*	−0.049*	0.000	0.030
		(0.255)	(0.306)	(0.287)	(0.298)	(0.345)	(0.000)	(0.358)
Parent has board rep (BM)			0.153***	0.104**	0.150***	0.037	0.016	−0.003
			(0.040)	(0.033)	(0.038)	(0.042)	(0.121)	(0.015)
Parent has board chair (COB)				0.079*	0.158***	0.287***	−0.293***	0.000
				(0.037)	(0.054)	(0.118)	(0.100)	(0.026)
COB × BM					−0.135*	−0.245**	0.094	0.014
					(0.074)	(0.127)	(0.203)	(0.039)
Number of spin-offs	142	142	142	142	142	66	14	62
N	644	644	644	644	644	308	67	269
X^2	124.09	44.978	60.711	187.011	87.392	56.77	70.918	29.772
Significance of X^2	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.21$

Actual and relative year dummies are included in the analyses, but omitted from these results for the sake of parsimony
Standard errors listed in parentheses below standardized betas
*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

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Table 3. Post-estimation Wald test comparison results

Comparison	X^2	P	Statistically higher	Interpretation
All (Model 5)				
Board member v. chairman	0.59	0.445		It is better to have either a board member or a chairman from the parent, but not both
Board member v. both	11.32	0.001	Board member	
Chairman v. both	9.75	0.002	Chairman	
Related (Model 6)				
Board member v. chairman	10.04	0.002	Chairman	Having a chairman from the parent firm is better than having either a board member or having both, and having a board member is better than having both
Board member v. both	8.53	0.004	Board member	
Chairman v. both	11.28	0.001	Chairman	
Vertically integrated (Model 7)				
Board member v. chairman	4.71	0.030	Board member	Having a board member from the parent is better than having a chairman from the parent, and having both is better than having a chairman
Board member v. both	0.18	0.673		
Chairman v. both	3.08	0.079	Both	
Unrelated (Model 8)				
Board member v. chairman	0.01	0.920		
Board member v. both	0.18	0.709		
Chairman v. both	0.06	0.801		

was more positively related to child firm market performance than not having one and that having either a board member or having neither was more positively related to child firm market performance than having both. In contrast, for the 14 child firms (representing 67 firm-year observations) that were vertically integrated with their parents, we found that having the parent retain a board seat was more positively related to child market performance than having a chairman of the board, and having both or having neither was more positively related to market performance than having a chairman of the board. Finally, we found no statistical differences between the four categories for the 62 child firms (representing 269 firm-year observations) that were unrelated to their parent. Therefore, we find that horizontally related and vertically integrated child firms benefit more from continued ties to the parent, providing support for Hypothesis 3.

DISCUSSION

Our purpose was to examine the effects of continued ties to the parent firm on post spin-off market performance. Using agency theory and transaction cost arguments, we proposed and found that ownership and governance ties to the parent firm have important implications for the market performance of the newly independent child firm.

Perhaps the most dramatic finding of this study is that since the parent firm establishes the governance structure of the child's board (Seward and Walsh, 1996) and decides how much ownership of the child firm to retain (Miles and Woolridge, 1999), the parent firm has a central role in setting the performance trajectory of the child firm. We also argued and found that different relationships prior to the spin-off call for different relationships post spin-off, and that having too few or too many ties to the parent firm has significant performance implications for the child. In particular, child firms that were horizontally related to or vertically integrated with their parents have needs that the parent firms can address, perhaps providing a buffering effect against the losses of economies of scope or economies of integration. It is also interesting that the value of ties to the parent varies by the relationship with the parent prior to the spin-off, with those child firms that were horizontally related to their parents benefiting most from having a chairman of the board from the parent, while those that were vertically integrated did poorly with a chairman from the parent firm, but benefited from parent representation on their boards.

It is also noteworthy that continued ownership by the parent firm had a negative effect on child firm performance, supporting the control rationale over the investment rationale. This suggests that any positive investor perceptions arising from observing the parent maintaining ownership in the

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child may be misleading, at least from the perspective of the child firm. It appears that continued substantial ownership by the parent firm acts to constrain the child, preventing it from adapting and establishing itself as an independent entity. In other words, substantial ownership tacitly validates the processes, procedures, and technologies of the parent and limits the degree to which the child firm's management can diverge from what is already in place. This lack of adaptation ultimately leads to lower market performance while the parent benefits from retaining limited residual control over the child (Grossman and Hart, 1986).

It is also interesting that we found no cases in which the parent firm retained an ownership stake in the child firm when the child had been vertically integrated with the parent. This observation makes intuitive sense because without an ownership stake, the parent can bargain more aggressively with the child firm post spin-off. This bargaining might include contracts for supplies or sales with competitors of the child firm.

Our approach drew on transaction cost theory and agency theory to provide explanations for the performance implications of post spin-off linkages to parent firms. Others, as we noted, have adopted knowledge-based or resource-based approaches (Parhankangas and Arenius, 2003; Sapienza *et al*., 2004). Our adoption of transaction cost and agency theory should not be interpreted as a rejection of other alternatives. Indeed, in some rapidly evolving contexts, the resource- or knowledge-based approach may provide a better explanation of child firm growth or innovation. However, in more mainstream contexts where the emphasis is on adaptation as a standalone entity, the agency and transaction cost logics seem more appropriate. Further, because any post spin-off linkages are entirely at the discretion of the parent, it is important to analyze these choices in the context of what is best for the parent—again, something that agency theory and transaction cost theories are designed to examine.

Implication for practice

A key implication of our study is that while maintaining ties to the parent appears to be beneficial, allowing the parent to exert undue influence over the child post spin-off leads to a 'business as usual' mindset rather than allowing the child the autonomy and motivation to pursue its own course. In this vein, managers from the parent firm should realize as they are structuring the spin-off that their decisions will have very real performance implications for the child firm.

It is also quite interesting that parent firm ownership appears to have a negative effect on spin-off market performance. As we have argued, it does not seem logical for a parent to retain an ownership stake in the child if it believed that the child's value would decline post spin-off. However, our results show that by holding a stake in the child firm, child performance is negatively affected. This should prompt corporate managers to seriously consider whether or not to retain continued ownership stakes in child firms, and perhaps will give potential shareholders pause when considering investing in the newly spun-off firm.

Limitations

As is the case with all empirical research, our study has limitations. First, other research has used accounting measures to assess spin-off performance, while in this research we have focused solely on market-based measures. We feel that this is acceptable given that market-based measures are less subject to managerial manipulation and provide a more immediate sense of firm performance. Second, while we did not control for managerial ownership in the spin-off firms, over 95 percent of our spin-off firms have managerial ownership to some degree, and excluding the less than five percent that do not does not significantly change our results. Third, while we categorized each sample firm as horizontally related, vertically integrated, or unrelated and ascribed characteristics to each, the relationship between the parent and child is clearly more nuanced than this. Yet, the results do confirm our predictions and demonstrate that although the categories may be rough, they do adequately approximate the relationship between parent and child firms. Finally, our theory relies on the notion that adaptation is needed to transition the spin-off to an independent firm. However, we were unable to measure adaptation directly, and instead had to rely on investors' judgments as to the success of adaptation. Future studies should endeavor to capture structural adaptations in child firms more directly.

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