We investigate the impact of outsourcing on the long-term market performance of the firm. Outsourcing initiatives vary in terms of uncertainty in business requirements, complexity of coordination between the outsourcing firm and provider, and the consequent choice of the governing contract (fixed or variable price). Using theories from institutional economics, strategy, and information systems, we argue that firms pursuing large-scale, fixed price outsourcing, which are characterized by lower business uncertainty and simpler coordination requirements, will realize higher market returns relative to similar firms in the same industry who did not outsource. In contrast, variable price contracts that proxy for higher business uncertainty and coordination complexity may have a higher risk of failure and loss of shareholder value; however, prior outsourcing experience and prior association with the vendor may reduce uncertainty in the outsourcing relationship to help the outsourcing firm better manage challenges associated with complex, variable price engagements. We posit that financial markets are either not privy to or unlikely to accurately interpret such intangible information on the antecedents of outsourcing success during the announcement period. The delay in incorporation of this information in market prices results in positive long-term abnormal returns to fixed price contracts. Variable price contracts characterized by prior association between participant firms and greater outsourcing experience also realize positive long-term abnormal returns. Data on the hundred largest outsourcing initiatives implemented between 1996 and 2005 strongly support our hypotheses. The results imply that firms who retain simple functions and tasks in-house as well as those who outsource complex functions without pertinent experience or association with the vendor experience significant loss of shareholder value.

Key words: stock return; event study; business value of IT; outsourcing

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1. Outsourcing Contracts and Equity Prices

The outsourcing decision is fundamental to management of the modern firm. Core business functions such as R&D, product development, and marketing are being externalized across a wide range of industries to achieve strategic objectives that shape a firm’s competitive position. Global outsourcing of IT and IT-enabled business processes is projected to grow in excess of $US650 billion by the end of 2011. By 2012, over 50% of the average firm’s IT budget will be expended on outsourcing providers (Willcocks and Craig 2007). Despite its broad scope and appeal, researchers and practitioners have highlighted a high failure rate of outsourcing,\(^1\) with adverse impacts on critical performance metrics. Thus an important research question involves what type(s) of outsourcing engagements create(s) market value and under what conditions. What are some of the factors that help manage uncertainty and complexity of the outsourcing initiative? Are such factors equally important in all types of outsourcing initiatives? In pricing outsourcing events, are capital markets efficient or slow to incorporate information about the complexity of the outsourcing engagement and mitigating factors?

An important managerial choice in outsourcing is that of the governing contract. The latter is generally categorized as either fixed price or variable price.\(^2\)

\(^1\) Seventy percent of the respondents in a 2005 survey by Deloitte Consulting expressed significant dissatisfaction with their outsourcing projects. According to SAP INFO Solutions, four out of five inked outsourcing contracts will need to be renegotiated within two years. Further, 20% of all such contracts will collapse (“Successful Business Process Outsourcing,” Intelligence Section, Sloan Management Review, Winter 2006, Vol. 47, No. 2, pp. 5–6).

\(^2\) Although there are variations of fixed and variable price contracts, our thesis is that the market may be slow to incorporate even the coarse information implied by a partition of the contract space into fixed and variable prices.
Empirical research in economics posits that firms choose the contract to minimize economic trade-offs between ex ante provision of incentives and ex post renegotiation of contractual specifications (Bajari and Tadelis 2001), or ex ante contractual specification of the outsourced task and ex post inefficiencies of costly bargaining and privately favorable redistribution of surplus (Crocker and Reynolds 1993), or contractual completeness and coordination failures (Yang 2001). Outsourcing initiatives characterized by greater uncertainty in business requirements and coordination between participant firms are more likely to be governed by variable price contracts accompanied by lower levels of completeness in task specification and a higher probability that adaptations are needed than in fixed price contracts; the latter are associated with higher levels of completeness and a lower probability that adaptations are needed (Bajari and Tadelis 2001). Thus, the outsourcing contract is a proxy for the uncertainty in business requirements and coordination complexity—fixed price contracts are indicative of a relatively stable business environment and simple coordination requirements, whereas variable price contracts indicate higher business uncertainty and complexity in coordination.

We posit that it is easier to realize performance gains from outsourcing in fixed price engagements than in variable price contracts. The underlying task is more measurable and verifiable in fixed price contracts, and hence, its ownership and control can be easily transferred to the vendor. Thus, an arms-length relationship without significant investments in coordination or relationship management is generally sufficient to ensure success in fixed price outsourcing initiatives (Mani et al. 2012, Yang 2001).

However, in variable price engagements involving higher uncertainty in business requirements and complex coordination, it is difficult and costly to specify ex ante potential contingencies and responses thereof. Thus, in these dynamic, complex engagements, the contract alone is inherently limited in its ability to protect the outsourcing firm; success may hinge on relational norms and procedures that foster trust to address incentive conflicts as well as appropriate coordination mechanisms that cultivate a shared understanding of the outsourced task to address cognitive conflicts (Barua et al. 2010, Gulati et al. 2005). Thus, while complex outsourcing initiatives may involve large payoffs, they also involve a significantly higher risk of failure and performance losses. We draw on extant research (Mayer and Argyres 2004, Gulati 1995) to argue that relational learning, which occurs through repeated interactions with an exchange partner, helps reduce the risk of failure in complex outsourcing engagements. In particular, prior association with the provider helps foster trust, formalize responses to the provider’s behavior, and ease transacting through familiarity with the provider’s structures and processes. Similarly, experiential learning of the outsourcing firm, through repeated exposure to similar alliances, allows for wider specification of contingencies and responses thereof, and enhances ex post adaptation by facilitating interpretation and response to unforeseen contingencies. Better knowledge of outsourcing procedures through experience also helps the outsourcing firm identify appropriate relational processes and technologies that enhance coordination with the provider. Thus, prior association with the vendor and experience in managing outsourcing relationships reduces the risk of failure in complex variable price initiatives to positively influence the financial outcomes thereof.

Because large-scale outsourcing decisions involve major changes in the structure and governance of the value chain, we seek to investigate the impact of such decisions on shareholder value. We also posit that the market value resulting from outsourcing initiatives is associated with operational efficiency changes due to the initiative. Thus, our study includes both shareholder returns and operational efficiency impacts of outsourcing practices. Although the IS literature has generally focused on announcement period returns for assessing the value of outsourcing decisions, we note that information on the context and management of the initiative, including business uncertainty, coordination requirements, the firm’s relationship with the vendor, its prior experience in managing outsourcing relationships, or governance mechanisms, is rarely described in the outsourcing firm’s accounting statements or the outsourcing announcement. Yet, these factors may be critical antecedents to outsourcing success. Such information, referred to as intangible information in the finance literature (Daniel and Titman 2006), involves acquisition costs and learning costs of interpretation to predict payoffs. The market is slow to incorporate such intangible information in the stock price of the outsourcing firm. Consequently, we adopt a long-term approach to computing abnormal returns following the implementation of the outsourcing contract. Based on theories of institutional economics, strategy, organizational learning, and finance, we develop and test three hypotheses involving the long-term market reactions to outsourcing initiatives characterized by (i) low uncertainty and coordination requirements; (ii) high uncertainty and coordination requirements, where the outsourcing firm shares prior association with the provider; and (iii) high uncertainty and coordination requirements, where the outsourcing firm has prior experience in outsourcing management.

Our data, comprising the hundred largest outsourcing initiatives announced between 1996 and
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to a risk matched sample of control firms in the
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17.5% (p < 0.05). Similarly, after performance attrib-
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Our study contributes to both the theory and prac-
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ket efficiency in pricing large outsourcing decisions.
Our results provide empirical evidence of potential
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of large outsourcing decisions in future research.
Further, prior research has largely focused on tan-
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undertaking complex initiatives without the capabili-
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less of how the market may price a large, complex
event during the announcement period, the long-term
shareholder value depends on whether the firm has
the capabilities to handle the ensuing challenges.

The balance of the paper is organized as follows.
Section 2 surveys the extant literature on market
reactions to outsourcing announcements. The theory
and hypotheses are developed in 3, and §4 describes
the data collection and analyses. Results are pre-
sent in 5, and discussions and conclusion are pro-
vided in §6.

2. Market Reaction to Outsourcing
Announcements: Prior Literature
The extant literature, summarized in Table 1, has
investigated market reactions to characteristics of the

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returns to an event as evidence of mispricing or market inefficiency
(Daniel and Titman 2006).

4The IS literature on outsourcing is rich and varied. However,
because we are focused on contract type and market efficiency, we

2005, are primarily obtained from International Data
Corporation’s (IDC) annual reports on the largest out-
sourcing contracts signed each year in the sample
time period. Company data from COMPUSTAT and
SDC Platinum, and stock price data from the Center
for Research in Security Prices (CRSP) complements
contract data. Consistent with prescriptions of the
finance literature, we calculate three-year abnormal
returns for portfolios of fixed and variable price con-
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Table 1  Studies of Market Reactions to Outsourcing Announcements

<table>
<thead>
<tr>
<th>Study</th>
<th>Time period of abnormal returns</th>
<th>Independent or control variables</th>
<th>Key results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loh and Venkatraman (1992)</td>
<td>Announcement period</td>
<td>Prior cost structure, prior performance</td>
<td>Overall CAR 0.08% to 1.78%; higher for firms with high cost structure and low business performance.</td>
</tr>
<tr>
<td>Hayes et al. (2000)</td>
<td>Announcement period</td>
<td>Firm size, industry</td>
<td>Insignificant overall CAR, positive for small firms.</td>
</tr>
<tr>
<td>Farag and Krishnan (2003)</td>
<td>Announcement period</td>
<td>Objective, industry</td>
<td>1.72% overall CAR, positive for strategic objectives, negative for cost reduction focus.</td>
</tr>
<tr>
<td>Gurbaxani (2005)</td>
<td>Announcement period</td>
<td>Contract size, duration, business vs. IS impact, labor intensity</td>
<td>0.53% overall CAR, increases with contract size, strategic business focus, and high labor intensity; duration has no effect.</td>
</tr>
<tr>
<td>Florin et al. (2005)</td>
<td>Announcement period</td>
<td>Whether significant restructuring is required</td>
<td>0.019% CAR for (0, +1), insignificant for long-term (+2, +250), negative where large restructuring was needed.</td>
</tr>
<tr>
<td>Oh et al. (2006)</td>
<td>Announcement period</td>
<td>Contract size, performance monitoring, asset specificity, vendor size</td>
<td>0.31% CAR on announcement day, but insignificant for 11-day window, negatively related to contract size, favorable for cost reduction initiatives.</td>
</tr>
<tr>
<td>Gao (2006)</td>
<td>Announcement period</td>
<td>Client size, contract size, relative size of vendor to client, opacity, flexibility</td>
<td>Insignificant overall short-term CAR, no effect of contract size, positive for smaller firms, mixed support for relative vendor size, positive for opacity and flexibility, large positive long-term BHAR.</td>
</tr>
<tr>
<td>Wang et al. (2008)</td>
<td>Long term</td>
<td>IT capability</td>
<td>Insignificant impact at firm level, does not use standard event study methods.</td>
</tr>
<tr>
<td>Beasley et al. (2009)</td>
<td>Announcement period</td>
<td>Client size, early/late adoption, prior efficiency, industry</td>
<td>Insignificant overall CAR, positive for (i) short-term operational focus, (ii) high prior efficiency, and (iii) service sector.</td>
</tr>
</tbody>
</table>

(i) outsourced contract (size and duration); (ii) task (labor intensity, restructuring requirements); (iii) firm (size, opacity, flexibility, prior performance); (iv) vendor (relative size); and (v) outsourcing objective (e.g., strategic or cost cutting). All but three market reaction studies (Peak et al. 2002, Florin et al. 2005, Gao 2006) have investigated announcement period cumulative abnormal returns (CAR). The overall findings are mixed, ranging from negative to positive impacts, and are often not in agreement with each other. For example, in analyzing market reactions to contract size, Gurbaxani (2005), Oh et al. (2006), and Gao (2006) report significant positive, negative, and no association, respectively. Whereas Farag and Krishnan (2003) find negative returns to cost cutting initiatives, Oh et al. (2006) and Beasley et al. (2009) report that cost reduction or efficiency focused outsourcing initiatives had a positive market response. Similarly, conflicting market reactions to prior efficiency and financial weakness are reported in Loh and Venkatraman (1992), Beasley et al. (2009), and Peak et al. (2002).

There has been little research to theoretically reconcile these conflicting findings regarding short-term market reactions. Could these opposing results be indicative of market inefficiency? In using announcement period returns to provide evidence of creation or loss of shareholder value, these studies implicitly assume the efficient markets hypothesis (EMH), which posits that at any given time, the stock price of a firm reflects all publicly available information, and, in turn, the collective belief of investors regarding future prospects of the firm. However, we argue that the market may not be efficient in pricing large outsourcing events that involve major changes to the firm’s value chain.

The literature on market myopia (Daniel and Titman 1997, 2006; Eberhart et al. 2004) distinguishes between tangible and intangible information, which is described as the difference between explicit measures of past performance such as sales or cash flow information that can be observed from the firm’s accounting statements and the “orthogonal” component of information about future performance, which is unrelated to past accounting performance. Daniel and Titman (2006) demonstrate that there is no discernible relation between a firm’s future stock returns and tangible performance information.
Rather, returns are related to realizations of intangible information. Investors’ private signals in interpreting intangible information on future cash flows are imprecise, resulting in long-term stock returns (Daniel and Titman 2006). We suggest that although outsourcing announcements are explicit about direct costs, the benefits of an outsourcing decision reflect intangible information on future cash flows. As a consequence, markets will be imprecise in interpreting and pricing major outsourcing events.

Inefficient pricing of intangible information on outsourcing initiatives stems from costs of acquiring and learning such information. The outsourcing firm may not have the incentive to disclose detailed information about the event for competitive reasons. Further, outsourcing initiatives involve significant uncertainty in payoffs. Disclosure of revision to payoffs communicated ex ante may result in an adverse reaction from the markets, thereby providing disincentive for disclosure about expected challenges or benefits. Finally, the outsourcing firm itself may not initially recognize the scope of changes and managerial challenges involved in ensuring success of the event (Barua et al. 2010). Not surprisingly, information such as complexity of coordination requirements, volatility in business requirements, prior association with the vendor, experience and expertise of the client firm in managing large outsourcing initiatives, etc., is seldom disclosed in the outsourcing announcement or available in accounting statements. Yet, these factors may significantly impact the realization of expected payoffs. In the absence of detailed disclosure, the market incurs a high cost of acquiring such information.

Further, even if such information is acquired, the market incurs learning costs to interpret the information and infer possible outcomes for the outsourcing decision (Daniel and Titman 2006). For example, what are the coordination requirements of the outsourcing engagement? Will the client succeed in assessing and implementing the coordination needs involving technological and process changes both within its own organization as well as in the vendor firm? Given that the challenges may not be fully discernible in the early stages of the engagement, the response of financial markets to outsourcing decisions may be slow, incomplete, or even biased.

Over time, the market incorporates information on complexity of the BPO relationship and governance capabilities into the stock price of the outsourcing firm in two ways. First, markets may learn to discern complexity of the outsourcing initiative and recognize capabilities that drive value (e.g., prior association between the client and vendor, and prior experience in managing outsourcing relationships, among others). Second, the market may price only the observed operational performance gains that result from having the right governance capabilities in place. To that extent, the market underestimates the value of these capabilities when the outsourcing contract is announced; the market is inefficient in pricing these capabilities, resulting in long-term BHAR to the outsourcing contracts. For these reasons, in contrast to short horizon studies that assume market efficiency, we adopt a long-term approach to estimating the market value of outsourcing that tests market efficiency (Kothari and Warner 2007).

The three long-term returns studies by Peak et al. (2002), Florin et al. (2005), and Gao (2006) represent important advances in our understanding of market reactions to outsourcing events. Gao (2006) finds large positive long-term BHAR (27.84% \( p < 0.01 \)) from outsourcing, and Peak et al. (2002) also report positive long-term abnormal returns. These results open up a vista of opportunities for additional research. Given that these studies deployed variables such as client size, contract size, relative size of vendor to client, opacity, flexibility, and financial weakness—which are available either from the outsourcing announcement itself or prior accounting statements—why did the market price the same event differently in the long run? That is, could there be other factors that the market did not know of or consider in the short run? For example, Florin et al. (2005) find insignificant overall long-term CAR, but observe a significant negative reaction for announcements followed by large organizational restructuring initiatives. However, they do not consider whether some firms are able to better manage such restructuring efforts than others, and still realize a positive reaction from the market. Thus the sparse literature on long-term reactions to outsourcing events provides many interesting research avenues.

Contract choice has long been considered in institutional economics and strategy as a key element of governance that drives outsourcing success (see Dibbern et al. 2004 for a review of the literature). Yet, none of the studies on market value of outsourcing have considered this important factor in their analyses. Further, although many of the factors used in the market reactions literature—contract size, duration, labor intensity, firm size, etc.—are directly observable from the announcement and/or accounting statements, prior research in outsourcing has not

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5 Research in finance (Lo 2009) argues that the use of CAR as a measure of long-term market performance instead of BHAR may be inappropriate because the former do not measure investors’ actual buying experience and often inflate the long-term performance.

6 A notable exception is outsourcing objective, which may be related to contract choice. An outsourcing decision related to strategic objectives may lead to variable price contracts, whereas fixed price contracts may be suitable for cost cutting initiatives. However, as noted above, the announcement period results involving strategic focus and cost cutting are conflicting, which pose questions regarding the efficiency of the market, and call for additional research.
considered them as antecedents of contract choice or performance thereof. For example, there is no theoretical basis to link the size of a contract to its type. Thus, although the extant literature provides a valuable starting point, there is a need to understand both short- and long-term value created by outsourcing, including the drivers of such value as theorized by prior research in outsourcing. Our study attempts to fill this gap by adopting a long-term perspective to estimating shareholder value created by outsourcing that takes into account governance considerations.

3. Theory and Hypotheses

Development

3.1. A Business Uncertainty, Coordination Requirements, and Contract Choice

Research on outsourcing has focused on choosing the right contract structure, which is largely categorized as either fixed or variable price (e.g., Lacity and Willcocks 1998, Banerjee and Duflo 2000, Gopal et al. 2003). Fixed price contracts involve payment of a fixed price either per billing cycle when the outsourced output is indivisible (e.g., software development) or per transaction per billing cycle when the output comprises a variable number of transactions (e.g., claims processed, calls fielded). Variable price contracts, also known as time and materials or cost plus contracts, involve payment based on variable factors, often the time and effort expended in task execution.

Early empirical research in contract choice (e.g., Crocker and Reynolds 1993) finds that intrinsic to the choice of a fixed or variable price contract is the selection of the degree of completeness. Fixed price contracts are more complete than variable price contracts, with compensation being independent of future contingencies, and not subject to ex post revisions based on the provider’s cost experience. Crocker and Reynolds (1993) find that firms self-select contractual completeness to minimize the trade-off between ex ante costs of contract design and ex post inefficiencies of contractual incompleteness such as investment distortions, costly bargaining, or private favorable distribution of ex post surplus. Thus, they conclude that attributes of the outsourcing initiative that increase uncertainty in the contracting environment and allied costs of contract design should result in efficient contracts being less complete. However, attributes of the engagement that exacerbate the likelihood of opportunistic behavior and the potential for ex post inefficiencies should result in efficient contracts being more complete.

Crocker and Reynolds (1993) assume that fixed price contracts are truly complete agreements with no ex post costs in task execution for the vendor. By contrast, Banerjee and Duflo (2000) find that fixed price contracts are never truly complete; overruns occur in both fixed and variable price contracts with the central trade-off involving containment of subsequent opportunism by participant firms. This finding is consistent with Bajari and Tadelis (2001), who note that the firm incurs a cost of contractually specifying the outsourced task, and is faced with the trade-off between providing incentives and reducing ex post costs of costly renegotiation. Thus when the outsourced engagement is more complex or when there is high uncertainty in the business environment leading to unforeseen contingencies and difficulty in specification and measurement of outsourced activities, variable price is preferred to fixed price contracts.

Although the above school of studies largely focuses on incentive conflicts in the relationship, later research on contract choice extends this focus to emphasize cognitive conflict and issues of coordination between firms. Yang (2001) recognizes the trade-off between coordination failures in networks of division of labor and costs of contractual specification and concludes that more complex engagements involving greater coordination are more likely to be governed by variable price contracts. Similarly, Gulati and Singh (1998) argue that the level of interdependence anticipated between the participant firms determines the coordination levels in the outsourcing initiative. At higher levels of interdependence, contingencies are hypothetical and often depend on the action of the provider and the latter’s accurate interpretation and timely responsiveness to the outsourcing firm’s own actions. In such a case, it is costly to contractually specify a precise division of labor and responsibilities. Therefore, complexity of coordination associated with higher levels of interdependence will result in more incomplete variable price contracts.

In relatively simple, stable environments that underlie fixed price contracts, the ownership and control of the outsourced task may be transferred to the

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7 Informal or relational contracting based on trust has been found to be complementary to formal contracting (Poppo and Zenger 2002). We find a similar result in our study with market reaction as the dependent variable.

8 Following Thompson (1967), Gulati and Singh (1998) distinguish between three types of interdependence in increasing order—pooled, sequential, and reciprocal. They argue that the objective of an interfirm alliance leads to distinct levels and types of interaction between participant firms that indicate the level of interdependence between them. Reciprocal interdependence involves extensive coordination across the partners and highest coordination costs. Coordination is lower in sequential interdependence and lowest in pooled interdependence, where coordination demands are limited to broadly aligning the activities of the partners toward joint success.
vendor through an arms length contract that also serves as the primary instrument of coordination. However, complex outsourcing engagements that are associated with the choice of variable price contracts involve greater risks of cost overruns, opportunistic behavior, and coordination failures. There are limits to mitigate these risks through contracting (Banerjee and Duflo 2000), and outsourcing firms must often invest in appropriate coordination mechanisms that complement the contract to foster trust and counteract the problems created by the limitations of contracting (Poppo and Zenger 2002). Mani et al. (2012) note that the allocation of risks and incentives in variable price contracts requires high levels of information exchange and coordination between the outsourcing firm and the provider. They demonstrate that such contractual structure must be accompanied by joint action, relational emphasis on coordination, and investment in technological capabilities to be successful. Organizations outsourcing complex business functions often underinvest in structures, processes and technologies for communication, coordination, and collaboration, resulting in lower client satisfaction and operational efficiency (Mani et al. 2010).

Given the above differences in incompleteness, risks, and incentives between fixed and variable price contracts, we expect that these two contract choices involve different capabilities and have different performance impacts. In particular, we theorize that familiarity with the vendor and learning associated with prior experience render it easier to handle higher levels of information exchange and coordination associated with variable price contracts. However, in fixed price contracts, the allocation of risks and incentives requires lower levels of coordination between the outsourcing firm and the provider. Further, given the relatively simpler nature of the underlying task and the relatively greater completeness of the contract, the fixed price contract serves as the primary coordination mechanism in fixed price engagements. Therefore, in this case, we expect prior association and experience to have little impact on value created through outsourcing; we only theorize about the overall value created in fixed price contracts relative to firms that did not outsource.

It is important to note that the contract itself is not a driver of the value created through outsourcing; rather, different contract choices in our model are indicative of different levels of complexity and coordination requirements of the underlying task, and in turn, different management capabilities required for value creation through outsourcing. For this reason, through the study, we focus on the value created by outsourcing firms relative to risk adjusted competition that did not outsource rather than on the difference in value created for the same outsourced task under different contractual regimes.

The above thesis of our study is summarized in Figure 1. Our hypotheses regarding the performance impacts of outsourcing and the drivers of such performance gains are outlined below.

### 3.2. Fixed Price Contracts and Long-Term Abnormal Returns

Investments in coordination mechanisms, processes, and technologies are necessary only in the presence of significant hazards (Poppo and Zenger 2002). Given high-powered incentives, relatively stable business requirements, and lower levels of interdependence between the outsourcing firm and the provider, the execution of the outsourced task is specified more easily in the fixed price outsourcing contract and its performance more easily measured (Mani et al. 2012). As a consequence, in fixed price engagements, the ownership and control of the outsourced task are often transferred to the vendor, and the need for coordination between the outsourcing firm and the provider is limited. To the contrary, investments and commitment of resources to extensive coordination and relationship management are often detrimental to efficiency gains in these contracts (Mani et al. 2012). The contract serves, not only as an effective mode of control to align incentives, but also as an effective coordination mechanism to facilitate shared understanding and align actions. Given the relatively lower transaction costs that characterize fixed price contracts, we expect that firms, in not outsourcing simple tasks in relatively stable environments, are likely to forgo an opportunity to derive significant efficiency gains. However, the market is unlikely to incorporate

---

**Figure 1** The Impact of Prior Association with Vendor and Outsourcing Experience on Market Reactions to Fixed and Variable Price Outsourcing

<table>
<thead>
<tr>
<th>Prior association with the vendor and high levels of experience</th>
<th>No prior association with the vendor and low levels of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed price contracts (low business uncertainty and coordination complexity)</td>
<td>Easiest to manage: Positive long-term abnormal returns</td>
</tr>
<tr>
<td>Variable price contracts (low business uncertainty and coordination complexity)</td>
<td>Challenging but manageable: Positive long-term abnormal returns</td>
</tr>
</tbody>
</table>
this intangible information in the stock price of the outsourcing firm at the time of announcement of the initiative, resulting in a delayed response to the event. Hence, we hypothesize the following:

**Hypothesis (H1).** Outsourcing engagements governed by a fixed price contract are associated with positive long-term abnormal returns relative to similar firms that did not outsource.

3.3. The Role of Prior Association in Variable Price Contracts

We noted earlier that outsourcing engagements governed by variable price contracts are dynamic and involve more complex coordination requirements relative to engagements governed by fixed price contracts. Dynamic business requirements render it difficult to contractually specify the outsourced task and performance, engendering appropriation concerns and the frequent need to deal with risky, unforeseen contingencies. Further, anticipated interdependence between the firms is also high in variable price contracts, necessitating higher levels of coordination between participant firms to develop a shared understanding of the outsourced task and facilitate task execution.

We argue that prior association between the outsourcing firm and the vendor helps address the above appropriation and coordination concerns in the outsourcing relationship. Social exchange theory (e.g., Blau 1964) emphasizes that trust plays a vital role in social exchanges because of the risk of free riding, and helps engender reciprocity in actions over time (Das and Teng 2002). Das and Teng (2002) argue that “social exchanges play a central role in inter-firm alliances, which are characterized by incomplete contracts and reciprocal exchanges of resources,” (p. 448). Barua and Ravindran (1996) demonstrate how reciprocal and cooperative behavior in information sharing between different groups emerges in a scenario characterized by continuity of the relationship and a long-term focus. In the context of an outsourcing relationship, we can therefore expect higher levels of cooperation and trust in settings where a client and a vendor have prior association. Relational capital and allied trust that stems from prior association mitigates concerns of moral hazard and privately favoring alliances, which are characterized by incomplete contracts and reciprocal exchanges of resources. Hence, we posit the following:

**Hypothesis (H2).** Prior association with the vendor has a positive impact on long-term abnormal returns in outsourcing engagements governed by variable price contracts.

3.4. The Role of Experience in Variable Price Contracts

Another form of learning that may also be pertinent to managing appropriation and coordination concerns in variable price contracts is experiential learning or “learning by doing.” Mayer and Argyres (2004) emphasize the importance of experience in managing outsourcing relationships, which results in modifications to the contractual structure that are not fully explained by changes in the task or allied risks. They conclude that firms learn about contingencies and hazards slowly and incrementally as they experience them, and are thus able to better foresee contingencies and their performance implications in future contractual relationships. Learning through experience is not just limited to a dyadic relationship. A client firm may learn to better manage complex engagements from the experience of managing a portfolio of similar interfirm strategic alliances. Cohen and Levinthal (1990) observe that a diverse background characterized by a repertoire of experiences provides a robust basis for learning because it increases the likelihood that the information encountered by the firm relates to what is already known, and in turn, the likelihood of finding a potentially useful solution. Similarly, Bower and Hilgard (1981) suggest that the greater the number of stored instances in an individual’s memory, the easier it is to learn from new experiences. Thus, the greater the prior experience of the outsourcing firm, the easier it may be to interpret and respond to unforeseen contingencies in subsequent outsourcing engagements. Anand and Khanna (2000) also find
that firms learn to manage interfirm alliances as experience accumulates with these learning effects being more pronounced in the case of joint ventures versus licensing contracts.

Repeated exposure to similar alliances and exchanges allows for wider specification of contingencies and responses, and enhances ex post adaptation by facilitating interpretation and response to unforeseen contingencies. Better knowledge of outsourcing procedures through experience also helps the outsourcing firm identify appropriate relational processes and technologies that enhance its information processing capabilities to better coordinate actions with the provider. Hence we hypothesize the following:

**Hypothesis (H3).** Experience in outsourcing management has a positive impact on long-term abnormal returns in outsourcing engagements governed by variable price contracts.

### 4. Empirical Analyses

#### 4.1. Data Collection

Our empirical analysis is based on the 100 largest outsourcing initiatives (by total contract value) implemented between 1996 and 2005. The largest outsourcing contracts have important advantages over a similar random sample. First, the firm-level economic impact of outsourcing is more likely to be detected when the contract value is large. The average lifetime contract value in our sample is $922 million. The aggregate contract value of $83 billion represents approximately 18% of the total outsourcing contract value for the sample period. Second, our focus on large deals reduces the probability of confounding events; firms are less likely to sign as large contracts immediately prior or subsequent to the outsourcing agreement. Our approach to sample selection follows prior research in financial economics (e.g., Healy et al. 1992) that examines the performance impact of outsourcing initiatives. We begin with a sample of 1,000 outsourcing contracts spanning the period 1996–2005. This initial sample comprises public, private, and government contracts signed in nearly 30 countries. Our final sample comprises the 100 largest outsourcing contracts that satisfy two requirements. First, the firm must be publicly traded on a major U.S. stock exchange. Second, information on the contract used to govern the outsourcing initiative must be available. Our final sample of 100 contracts includes 66 firms.

#### 4.2. Measurement of Variables

**4.2.1. Announcement Period Returns and Wealth Effects.** Daily abnormal returns are estimated as

\[
e_{it} = \gamma_i + \beta\gamma_{mt} + \epsilon_{it},
\]

where \(e_{it}\) are firm specific abnormal returns. Here, \(\gamma_i\) denotes the daily returns for firm \(i\) on day \(t\) and \(\hat{\gamma}_i\) are the predicted daily returns. Following prior research on strategic alliances (e.g., McGahan and Villalonga 2003), we estimate the following market model:

\[
\gamma_{it} = \alpha_i + \beta\gamma_{mt} + \epsilon_{it},
\]

where \(\gamma_{mt}\) denotes the corresponding daily returns to the value weighted S&P 500. An estimation period of 150 days [−170, −21] prior to the announcement date is used to estimate the market model. Significance of the returns is based on the market model standardized residual method with Scholes-Williams betas (Scholes and Williams 1977). The estimates from this model are then used to predict daily returns for each firm \(i\) over a two day period [−1, 0] surrounding the announcement of the outsourcing initiative.

**4.2.2. Event-Time Abnormal Stock Returns.** The firm’s decision to outsource is often followed by selection of potential vendors, competitive bidding among vendors and evaluation of submitted proposals, and choice of the vendor. Thus, information on the outsourcing initiative is likely incorporated into the stock price ahead of the announcement date. We begin measuring long-term abnormal stock returns at the beginning of the month following the effective date of the contract. We use the month lag to allow the market to be informed of contract characteristics and other accounting data.
We use two main methods for estimating post-event risk adjusted returns—characteristic based matching approach, also known as the event-time portfolio approach, and the Jensen’s alpha approach, also known as the calendar-time portfolio approach. Mitchell and Stafford (2000) describe event-time buy-and-hold abnormal return as “the average multi-year return from a strategy of investing in all firms that complete an event and selling at the end of a pre-specified holding period versus a comparable strategy using otherwise similar nonevent firms,” (p. 296).

Thus, the BHAR for stock \( i \) over holding period \( T \) is

\[
\text{BHAR}_{i,T} = \text{BHR}_{i,T} - \text{BHR}_{m,T},
\]

where \( \text{BHR}_{i,T} \) is the buy-and-hold return of the sample firm and \( \text{BHR}_{m,T} \) is the buy-and-hold return of the matching control firm over the same period. Here, the buy-and-hold return for holding period \( T \) beginning time \( a \) through time \( b \) is

\[
\text{BHR}_{i,T} = \left[ \prod_{t=a+1}^{b} (1 + r_{it}) \right] - 1,
\]

where \( r_{it} \) is the return for firm \( i \) in month \( t \); in this study, period \( a \) is the month after the contract effective month and period \( b \) is the earlier of the firm’s delisting date, the end of the three-year period following the contract effective date or December 31, 2006.

Following Barber and Lyon (1997), we consider an industry-, size- and book-to-market matched sample as a benchmark of returns post implementation of the outsourcing contract. We begin with a group of firms in the same two-digit standard industrial classification (SIC) code as the sample that do not engage in a strategically significant outsourcing initiative as of the beginning of the contract effective year. From this initial screen, a matched firm is defined as the firm that has the lowest absolute value of the joint difference in size (equity capitalization) and market-to-book ratio (equity capitalization divided by book value of equity).

4.2.3. Calendar-Time Abnormal Returns. Certain studies (Fama 1998, Mitchell and Stafford 2000) argue that measures of BHAR are more likely to spuriously reject market efficiency because they magnify underperformance through compounding single-period returns. Further, the use of BHARs does not adequately account for potential cross-sectional dependence in returns, thereby resulting in biased estimates. To address these possibilities with event-time BHARs, we also estimate abnormal returns using the Fama and French (1993) three factor model:

\[
R_{pt} - R_{ft} = \alpha + \beta_m (R_m - R_f) + \beta_s \text{SMB}_t + \beta_h \text{HML}_t + \epsilon_t,
\]

where \( R_m \) is the excess return to a stock \( p \) in calendar month \( t \), \( R_f \) is the risk-free interest rate, \( R_{mt} \) is the CRSP value-weighted market index return, \( \text{SMB}_t \) is the difference in returns between a portfolio of “small” and “big” stocks, and \( \text{HML}_t \) is the difference in returns between a portfolio of “high” and “low” book-to-market stocks. A sample stock is included in calendar month \( t \) if \( t \) is within the 36-month period following the implementation of its contract. The expected value of the intercept (\( \alpha \)) in the above equation measures the monthly abnormal return in excess of that achieved by passive investments in the factors; it is zero under the null hypothesis of market efficiency. Heteroskedasticity corrected standard errors are reported in parentheses.

4.2.4. Operational Performance. We measure abnormal operating performance as the sample firm’s raw operating performance minus its industry, size, and book-to-market matched firm’s raw operating performance. Our measures of raw operating performance include sales efficiency (sales divided by number of employees) and income efficiency (earnings before interest and taxes divided by number of employees). We estimate abnormal operating performance of the sample firms in event- and calendar time. Further, we estimate the sample firms’ abnormal operating performance for the year prior to the contract effective year and for each of the three years following the effective year. Comparing the post-outsourcing performance to the pre-outsourcing benchmark provides a measure of change in abnormal operating performance.

4.2.5. Contract Choice. IDC classifies outsourcing contracts as one of fixed price or transactional, time and materials, or a combination of variable and fixed price components. For instance, in a custom application development project, the outsourcing firm may negotiate a fixed price contract during the assessment of project requirements and shift to a variable price contract such as time and materials during the actual development phase. We do not consider equity arrangements such as joint ventures, the outsourcing firm’s wholly owned captive operation, or the establishment of a venture by a consortium of vendors. We refer to the set of combination and time and materials contracts as variable price contracts.\(^9\)

4.3. Summary Statistics

Table 2, panel A, lists the distribution of our sample across primary SIC codes. The distribution indicates some clustering; to address potential bias arising...
Table 2  Sample Characteristics of Outsourcing Announcements, 1996–2005

Panel A: Distribution of sample firms across primary SIC codes

<table>
<thead>
<tr>
<th>SIC Sector</th>
<th>IS outsourcing</th>
<th>BPO and processing services</th>
<th>Application, network and desktop mgt.</th>
<th>All deals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percentage of all deals</td>
<td>Number</td>
<td>Percentage of all deals</td>
</tr>
<tr>
<td>0 Agriculture, forestry, and fishing</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1 Mining and construction</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>100</td>
</tr>
</tbody>
</table>

Panel B: Sample characteristics of outsourcing initiatives

<table>
<thead>
<tr>
<th>Outsourcing firm characteristics</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market value of equity ($M)</td>
<td>100</td>
<td>37,331</td>
<td>23,802</td>
</tr>
<tr>
<td>Market to book ratio</td>
<td>100</td>
<td>2.37</td>
<td>0.99</td>
</tr>
<tr>
<td>Tobin’s Q</td>
<td>100</td>
<td>0.18</td>
<td>0.09</td>
</tr>
<tr>
<td>Announcement period abnormal returns: days-1 to 0</td>
<td>88</td>
<td>-0.11</td>
<td>-0.01</td>
</tr>
<tr>
<td>Announcement period abnormal returns: fixed price</td>
<td>38</td>
<td>-0.86**</td>
<td>-0.60**</td>
</tr>
<tr>
<td>Announcement period abnormal returns: variable price</td>
<td>50</td>
<td>0.43</td>
<td>0.38</td>
</tr>
<tr>
<td>Wealth effects ($M)</td>
<td>88</td>
<td>-10.07</td>
<td>-1.41</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract characteristics</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract value—all deals ($M)</td>
<td>100</td>
<td>922</td>
<td>563</td>
</tr>
<tr>
<td>Contract value—IS outsourcing ($M)</td>
<td>53</td>
<td>1,100</td>
<td>645</td>
</tr>
<tr>
<td>Contract value—BPO and processing services ($M)</td>
<td>27</td>
<td>703</td>
<td>517</td>
</tr>
<tr>
<td>Contract value—application, network and desktop management ($M)</td>
<td>20</td>
<td>747</td>
<td>425</td>
</tr>
<tr>
<td>Contract length (months)</td>
<td>100</td>
<td>93</td>
<td>84</td>
</tr>
</tbody>
</table>

Notes: Panel A reports the distribution of sample firms across primary SIC codes, and Panel B reports various characteristics of the sample outsourcing contracts and user firms. All accounting data are obtained one year prior to the contract effective year. Further, such data are adjusted by the CPI to reflect 2005 dollars. Following prior research on strategic alliances (e.g., McGahan and Villalonga 2003), announcement period abnormal returns are calculated using an estimation period of $[-170, -21]$ days prior to the announcement data. Significance of the returns is based on the market model standardized residual method with Scholes-Williams (1977) betas. Wealth effects or the dollar change in wealth is computed by multiplying each user firm’s market value of equity by its announcement period abnormal return and then averaging the product across the user firms in the sample.
the contract implementation year, the mean (median) market value of equity of our sample firms is $37.3 ($23.8) billion. The mean (median) market to book ratio is 3.27 (2.71). Thus the sample is skewed toward large, high-market-to-book firms. We control for these effects in our analysis.

On average, the IS outsourcing contract in our sample is valued at $1.1 billion; the BPO contract is valued at $703 million; and the application, network, and desktop management contract is valued at $747 million. Gartner’s analysis of IT outsourcing contracts over a period of 14 years found that as of 2003, the average annual value of an outsourcing contract was $47 million. A comparison with this estimate emphasizes the strategic importance of our sample contracts.

Figure 2 shows the number and value of the sample outsourcing contracts. More than 40% of these outsourcing contracts were signed in the period 2001–2003. Total contract value for the period 2001–2005 accounted for more than 50% of the aggregate contract value for the sample period. Figure 3 suggests that fixed price contracts constitute 30% of our sample. The average contract value of the fixed price contracts is $826 million and that of variable price contracts is $834 million.

### 4.4. Methods

We test efficiency of the market’s response to the outsourcing announcements by estimating the three-year BHAR (in both event time and calendar time) for the sample firms following the implementation of the outsourcing contract. To test Hypothesis 1, we estimate the significance of abnormal returns to fixed price contracts. As noted earlier, BHAR may be calculated in event time or calendar time. Event-time returns have a cross-sectional dependence problem that biases the standard error downward, and consequently biases tests using this return metric toward an incorrect rejection of the EMH (Mitchell and Stafford 2000). The use of calendar time returns addresses this issue. However, calendar time returns have low power (Loughran and Ritter 2000) and do not precisely measure investor experience (Barber and Lyon 1997). Mitchell and Stafford (2000) and Fama (1998) argue that estimates of abnormal returns may be biased if factor model estimates of expected returns are incomplete in measuring risks. Studies in finance (Eberhart et al. 2004) address the above issues by examining the robustness of results to alternative measures. Therefore, we use both calendar-time and event-time returns in our estimation. We note that these methods are biased in favor of the EMH; because the bulk of our results still reject the EMH, any possible bias of these methods in favor of the EMH only strengthens our results.

Our use of calendar-time returns and our long sample period also address any possible concern that the results are driven by brief calendar periods where firms that just happen to implement fixed price contracts do abnormally well. Further, in order to examine whether the equity value gains from fixed price contracts are from real economic gains that the market underestimates and not simply capital market inefficiencies or chance, we report the median abnormal operating performance for the fixed price portfolio following the implementation of the outsourcing contract. This approach is consistent with studies in finance (Eberhart et al. 2004) on the financial impact of strategic information events. Finally, we perform robustness checks to ensure that the results are not influenced by prior performance of the firm.

We regress the above BHAR on a variety of firm and relational characteristics including prior association between the outsourcing firm and vendor and outsourcing experience. The above estimation of abnormal returns is consistent with the view in the finance literature that systematic risk is the only significant predictor of abnormal returns. However, theories of firm boundaries suggest that firms self-select into strategic decisions based on various idiosyncratic factors that may also impact abnormal returns. Our failure to correct for these factors may result...
in biased and inconsistent estimates of predictors of abnormal returns. Thus, in examining support for Hypotheses 2 and 3, we use a Heckman two-stage model of contract choice and abnormal returns (Heckman 1979). The first stage relationship of our Heckman two-stage model estimates a model of contract choice as a function of several variables that shift the relative costs and benefits of fixed price contracts: \( P(Y_{it} = 1) = \Phi(\beta X_t), \) where \( Y_{it} \) represents the contract choice for firm \( i \) in date \( t, \) \( X_t \) is a vector of the relationship-, transaction- and firm-level characteristics that determine contract choice, \( \beta \) is a vector of estimated coefficients for these characteristics, and \( \Phi(\cdot) \) is the standard normal cumulative distribution function.

The second stage of the Heckman model estimates the effect of firm and relational characteristics, including prior association and outsourcing experience on abnormal returns in both contracts. Petersen (2009), in his simulation of analytical methods in corporate finance, finds that when both firm and time effects are present, standard errors clustered on both dimensions are unbiased and produce correctly sized confidence intervals. The fixed and random effect specifications also produce unbiased standard errors but only when the firm effect is permanent. Thus, we estimate the following:

\[
BHAR_{ic} = aX_{ic} + \beta Z_{ic} + \gamma M_{ic} + \delta C_{ic} + e_{ic},
\]

where \( C_{ic} \) represents the contract type chosen by firm \( i \) in outsourcing contract \( c, X_{ic} \) is a vector of firm attributes, \( Z_{ic} \) is a vector of transactional attributes, and \( M_{ic} \) is a vector of relational attributes. Given potential firm and time effects, we cluster standard errors on both firm and year of implementation of the contract.\(^{10}\) The operationalization of all variables used in our analyses is detailed in Table 3.

5. Results

5.1. Announcement Period Abnormal Stock Returns

Following prior research, we report the mean two-day \([-1, 0]\) announcement period return for our sample of outsourcing contracts. The mean two-day announcement period return across our sample of contracts is an insignificant \(-0.11\%\). The equivalent estimate for fixed price engagements was \(-0.86\% \) \((p < 0.05)\) and that for variable contracts was an insignificant \(0.43\%\). Our results are consistent with that of Farag and Krishnan (2003) who find that outsourcing initiatives, which focus on cost reduction, are characterized by significant negative announcement period returns. However, the use of announcement period returns assumes market efficiency; a comparison with long-term abnormal returns is necessary to test the efficiency of the market in responding to the outsourcing event:

...Systematically nonzero abnormal security returns that persist after a particular type of corporate event are inconsistent with market efficiency. Accordingly, event studies focusing on long-horizons following an event can provide key evidence on market efficiency... (Kothari and Warner 2007, p. 5)

5.2. Event-Time Abnormal Stock Returns

Table 4, panel A, reports three-year BHAR for all sample outsourcing firms following the implementation of the outsourcing contract. Panel B reports BHAR for outsourcing firms that implemented contracts between 1996 and 2003—all three years’ return data exist for these firms.

The mean three-year BHAR for the fixed price portfolio relative to an industry-, size- and book-to-market matched control portfolio is 17.5\% \((p < 0.05)\) and the corresponding estimate for the variable price portfolio is \(-21.2\% \) \((p < 0.10)\). Thus, the fixed price portfolio significantly outperformed the variable price portfolio in the sample period. The results in Table 4, panel B, suggest that estimates in Table 4, panel A, underestimate the costs (benefits) of variable (fixed) price contracts. The mean three-year BHAR for the fixed and variable price portfolios for which all three years’ price data exist are 23.6\% \((p < 0.05)\) and \(-32.7\% \) \((p < 0.05)\), respectively. Indeed, the market is inefficient in its valuation of outsourcing contracts. Taken together with the results for the announcement period returns, the long-term abnormal returns to fixed price contracts suggest that the market significantly underestimated the benefits to these contracts when the outsourcing initiative was announced. The results for the fixed price portfolio provide strong support for Hypothesis 1.

5.3. Calendar-Time Abnormal Stock Returns

Table 4, panel C, reports calendar time portfolio abnormal returns after attribution to the Fama and French (1993) factors.\(^{11}\) The first row of panel C provides results for estimation of calendar time stock
Table 3  Measurement of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Measure</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engagement attributes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APP</td>
<td>Application, network, and desktop management outsourcing</td>
<td>Reflects that the underlying task involves application, network, and desktop management. The default category included instances of ISO.</td>
<td>IDC</td>
</tr>
<tr>
<td>BPO</td>
<td>Business process outsourcing</td>
<td>Reflects that the underlying task involves business process outsourcing. The default category included instances of ISO.</td>
<td>IDC</td>
</tr>
<tr>
<td>CONTRACT</td>
<td>Contract type</td>
<td>Fixed price: fixed payment per billing cycle or per transaction per billing cycle. Variable price: payment based on variable factors such as time and materials used during the billing cycle or improvements against key performance indicators or any combination of these factors.</td>
<td>IDC</td>
</tr>
<tr>
<td>COORDN</td>
<td>Anticipated coordination requirements of the outsourced function</td>
<td>Anticipated interdependence based on the strategic rationale for outsourcing the given business function. The outsourcing literature points to eight rationales that cover the spectrum of outsourcing logics: 1. Reduction of costs 2. Improve management focus on core competences 3. Access to competitive capabilities not available in-house 4. Growth strategy 5. Speed to market 6. Access to new markets 7. Proximity to customers 8. Business transformation The rationales were assessed from the IDC description of the outsourcing initiative and the public announcement of the initiative.</td>
<td>IDC</td>
</tr>
<tr>
<td>PRIOR</td>
<td>Prior cooperative association between the firms</td>
<td>We infer trust based on the bid type, which is one of competitive, incumbent, or sole sourced. Competitive bidding suggests the absence of prior association between the firms. Incumbent bidding implies that the outsourcing firm has an existing relationship with the provider. A sole-sourced contract means that the provider is the only provider of the outsourced function. The client may enter into sole-source negotiations with an incumbent in which case the bid type is recorded as incumbent.</td>
<td>IDC</td>
</tr>
<tr>
<td>CONTINUITY</td>
<td>Expectation of continuity of the relationship</td>
<td>Length of the contract in months.</td>
<td>IDC</td>
</tr>
<tr>
<td>CONTRACTVAL</td>
<td>Normalized contract value</td>
<td>Ratio of contract value to operating expenses. Operating expenses is defined as the sum of cost of goods sold, (COMPSTAT DATA ITEM COGS) and sales, general and administrative expenses (COMPSTAT DATA ITEM XSGA).</td>
<td>IDC, Compustat</td>
</tr>
<tr>
<td><strong>Firm attributes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNCERTAINTY</td>
<td>Uncertainty in business requirements of the outsourcing firm</td>
<td>Variance in the outsourcing firm’s return on assets (RoA) over the three years prior to the contract effective year. RoA is defined as the ratio of operating income (COMPSTAT DATA ITEM OPITI) to total assets (COMPSTAT DATA ITEM AT).</td>
<td>Compustat</td>
</tr>
<tr>
<td>EXP</td>
<td>Outsourcing experience</td>
<td>The cumulative number of strategic alliances across a firm’s life served as a proxy for the depth of its outsourcing experience. We also used the number of outsourcing relationships recorded in the IDC database to estimate the experience of the outsourcing firm. The results were largely consistent with the previous measure.</td>
<td>SDC Platinum, IDC</td>
</tr>
<tr>
<td>SIZE</td>
<td>Market value of equity of the outsourcing firm</td>
<td>Market value of equity, defined as the product of the number of shares outstanding (COMPSTAT DATA ITEM CSHO) and market price (COMPSTAT DATA ITEM PRRC, C).</td>
<td>Compustat</td>
</tr>
<tr>
<td>BTM</td>
<td>Book-to-market ratio of the outsourcing firm</td>
<td>Ratio of book value of equity (COMPSTAT DATA ITEM BKVLP5 x CSHO) to market value of equity of the outsourcing firm (SIZE above).</td>
<td>Compustat</td>
</tr>
<tr>
<td>CASH</td>
<td>Short-term cash needs of the outsourcing firm</td>
<td>Cash and cash equivalents (average of COMPSTAT DATA ITEMS CHEB, CHEE) as a ratio of net sales (COMPSTAT DATA ITEM SALE).</td>
<td>Compustat</td>
</tr>
<tr>
<td>MKTLEV</td>
<td>Market leverage of the outsourcing firm</td>
<td>Ratio of market value of debt to total market value of firm.</td>
<td>Compustat</td>
</tr>
<tr>
<td>BKLEV</td>
<td>Book leverage of the outsourcing firm</td>
<td>Ratio of total debt (debt in current liabilities plus long-term debt) (sum of COMPSTAT DATA ITEMs DLTT, LTC) to book value of equity as calculated above. The results are also robust to the estimation of debt as total assets less common stockholders equity.</td>
<td>Compustat</td>
</tr>
<tr>
<td>OPEX</td>
<td>Operating expenses of the outsourcing firm</td>
<td>Total of cost of goods sold and selling, general and administrative expenses as a ratio of net sales.</td>
<td>Compustat</td>
</tr>
<tr>
<td>OPTIONS</td>
<td>Incentive created by CEO stock options</td>
<td>Black-Scholes value of all new options awarded to the outsourcing firm’s CEO as a percent of CEO compensation.</td>
<td>S&amp;P’s ExecuComp</td>
</tr>
<tr>
<td>COMP</td>
<td>Annual pay as a percent of total compensation</td>
<td>Salary, bonus, and other annual compensation as a percent of total compensation (excluding option grants). Operating income as a percent of net sales as of the year prior to implementation of the outsourcing contract.</td>
<td>S&amp;P’s ExecuComp, Compustat</td>
</tr>
<tr>
<td>PRIOROP_PERF</td>
<td>Prior operational performance</td>
<td>Buy and hold returns for the three-year period preceding implementation of the outsourcing contract.</td>
<td>CRSP</td>
</tr>
<tr>
<td>PRIORFIN_PERF</td>
<td>Prior financial performance</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
returns in excess of the risk free rate for the entire sample of outsourcing contracts and the latter two rows provide corresponding estimates for the fixed and variable price portfolios, respectively. The regression intercepts indicate that fixed price outsourcing engagements earned average abnormal returns of 1.1% per month \( p < 0.01 \) over the three-year period following the implementation of the outsourcing contract. This translates to a three-year return of over 48% \( (1 + 0.011)^{36} - 1 \). The significant intercept provides additional support for Hypothesis 1. The corresponding estimate for variable price contracts is an insignificant –10%.

Therefore, we find that the announcement period returns to fixed price contracts change direction over the long term. The results for short- and long-term returns reject the hypothesis of market efficiency, and confirm that the market underestimated the positive impact of relatively more complete fixed price contracts at the time of the outsourcing announcement.

### 5.4. Outsourcing Contracts and Long-Term Operating Performance

To determine whether the equity value gains to fixed price contracts are from real economic gains that the market underestimates and not simply capital market inefficiencies, we report the median abnormal operating performance for the fixed price portfolio following the implementation of the outsourcing contract. The median abnormal sales efficiency estimates for the three years following the implementation of the outsourcing contract are $85.8 per employee, $90.1 per employee, and $94.7 per employee. These represent an increase of 33%, 40%, and 47%, respectively, over the year preceding the implementation of the contract. The median abnormal income efficiency measures for
the three years following the implementation of the outsourcing contract are $14.5 per employee, $15.3 per employee, and $14 per employee. These estimates represent an increase of over 200% over the year preceding the implementation of the contract. The results for significant positive abnormal operating performance are robust to alternative industry performance and profit margins matched samples.

Eberhart et al. (2004) note that the statistical concerns of clustering and cross-sectional correlations that apply to estimation of event time returns are also pertinent to operating performance measures. Thus, we also compute abnormal operating performance of firms in the fixed price portfolio in calendar time. For each calendar year, we estimate the abnormal operating performance for each sample firm that has implemented a fixed price contract in the preceding five years. Following prior research (e.g., Barber and Lyon 1996, Loughran and Ritter 1997), we compute the median abnormal operating performance for each calendar year. The abnormal operating performance for the fixed price portfolio is computed as the time series average of these annual abnormal performance measures and the standard error is computed as the time series volatility of these annual measures. The abnormal sales efficiency measure for the fixed price portfolio is $91.2 per employee ($p < 0.01) and the abnormal income efficiency measure is $22.5 per employee ($p < 0.10). The equivalent mean estimates are $147.1 per employee ($p < 0.01) and $26.86 per employee ($p < 0.01). The estimates of event time and calendar time abnormal operating performance confirm that the market underestimates efficiency benefits of fixed price contracts at the time of implementation of the contract.

5.5. Robustness Checks
We perform multiple robustness checks to examine whether superior returns to fixed price contracts are correlated with exogenous firm characteristics. First, we check whether pre-event performance measures explain differences in the BHAR. A comparison of pre-event returns across both contracts finds that the mean and median raw returns for firms engaging in fixed price contracts is not significantly different from those with variable price contracts. Further, for both contracts, the mean raw buy-and-hold returns are lower than the mean contemporaneous buy-and-hold returns for the industry-, size- and book-to-market control firm benchmarks; however, this difference is insignificant. Results of the calendar-time portfolio methodology confirm these results. We also compare the difference in BHAR between fixed and variable price contracts for firms in the upper tercile of pre-event stock returns (high-return stocks) with those in the lower tercile of pre-event stock returns (low-return stocks). The fixed price portfolio outperforms the variable price portfolio in the subsamples of low return and high return stocks by 38.1% ($p < 0.01) and 53.3% ($p < 0.01), respectively. Hence, pre-event stock return performance does not explain the difference in abnormal returns between fixed and variable price outsourcing contracts. We also stratify the sample firms based on their operating performance for the three-year period preceding the implementation of the outsourcing contract. The difference in BHAR between the fixed and variable price portfolios for firms in the upper tercile of pre-event operating performance is 30.7% ($p < 0.01) and that for firms in the lower tercile of pre-event operating performance is 20.7% ($p < 0.01). In both cases, an F-test does not reject the hypothesis that the abnormal returns for the fixed price contracts relative to the matched control firms are equal across the subsamples.

5.6. Determinants of Contract Choice and Long-Term Abnormal Stock Returns

5.6.1. Contract Choice. The outsourcing and contracting decisions are self-selected choices of the outsourcing firm. Failure to control for these selection processes, including unobserved heterogeneity that impacts these choices and also abnormal returns, will result in biased and inconsistent estimates. Therefore, we use the specifications of contract choice and the decision to outsource, detailed in Tables 5 and 6, respectively, to derive correction factors for these selection models that we include in our models of abnormal returns. The results for contract choice also confirm prior findings for the association between complexity of the outsourced task and relational environment and contract type.

Table 5 reports the results for our model of contract choice. The first column of Table 5 reports results for a probit model where CONTRACT takes on one of two values—fixed or variable price. The estimated coefficients are significant and of the hypothesized
association are positively related to the choice of a variable price contract. Book-to-market ratio (BTM), short term cash needs (CASH), prior operating expenses (OPEX) and prior operational performance (PRIOROP_PERF)—that measure the financial health of the firm variables—book-to-market ratio (BTM), short term cash needs (CASH), prior operating expenses (OPEX) and prior operational performance (PRIOROP_PERF)—that measure the financial health of the outsourced tasks also vary in the level of interdependence and hence, coordination requirements. At higher levels of interdependence, contingencies are hypothetical because they often depend on the action of the provider and the latter’s accurate interpretation and timely responsiveness to the outsourcing firm’s own actions. In such cases, it is costly to contractually specify a precise division of labor and responsibilities. Complexity associated with greater levels of coordination (COORDN) will result in more incomplete variable price contracts. Different types of outsourcing initiatives vary in their relative maturity and management challenges and hence, in the choice of governing contract. The complete specification of contingencies and time of performance in longer term contracts may be difficult and costly. On the other hand, expectations of continuity of the relationship inherent to longer term contracts may strengthen incentives and weaken the association between complexity of the contracting environment and contract choice, resulting in choice of fixed price contracts. We test these conflicting predictions by examining the influence of contract duration (LENGTH) on contract choice. We also examine the impact of CONTRACTVAL, if any, on the choice of variable price contracts. Finally, we test whether firms, through prior cooperative association (PRIOR), may have developed channels and codes for exchange of information. Greater competence in transacting with each other reduces complexity in the contracting context, and makes it easier for the firms to specify the management of the interface between them and provide incentives through more complete contracts.

Finally, we control for firm capabilities that may influence contract choice. Uncertainty in business requirements of the outsourcing firm (UNCERTAINTY) increases the costs of completeness because it necessitates systematic allocation of resources to identify diverse action-outcome contingencies, and incorporate paths that are best aligned with the objectives of the outsourcing initiative. Thus, greater levels of environmental uncertainty (UNCERTAINTY) should result in more incomplete variable price agreements. Greater experience of the outsourcing firm in managing similar initiatives (EXP) should enable the outsourcing firm to better predict contingencies in its environment. Larger firms have superior financial, technological, and human resource endowments that render the design of complex contracts more efficient and less expensive. Thus, we expect that larger firms (SIZE) will design more complete contracts. Similarly, we control for firm variables—book-to-market ratio (BTM), short term cash needs (CASH), prior operating expenses (OPEX) and prior operational performance (PRIOROP_PERF)—that measure the financial health of the outsourcing firm. Our results show that business uncertainty, anticipated coordination requirements, and book-to-market ratio are positively related to the choice of a variable price contract. Prior cooperative association and outsourcing experience positively relate to choice of a fixed price contract.

Table 5 Model of Choice of Contractual Structure

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model I (probit)</th>
<th>Model II (Heckman probit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement attributes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APP</td>
<td>0.353***</td>
<td>0.339*</td>
</tr>
<tr>
<td>BPO</td>
<td>0.483***</td>
<td>0.388*</td>
</tr>
<tr>
<td>CONTRACTVAL</td>
<td>0.267</td>
<td>0.407</td>
</tr>
<tr>
<td>COORDN</td>
<td>0.346*</td>
<td>0.333*</td>
</tr>
<tr>
<td>CONTINUITY</td>
<td>0.039</td>
<td>0.067</td>
</tr>
<tr>
<td>PRIOR</td>
<td>-0.385***</td>
<td>-0.351**</td>
</tr>
<tr>
<td>Firm attributes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNCERTAINTY</td>
<td>0.532***</td>
<td>0.603***</td>
</tr>
<tr>
<td>EXP</td>
<td>-0.363***</td>
<td>-0.496**</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.080</td>
<td>0.007</td>
</tr>
<tr>
<td>BTM</td>
<td>0.954**</td>
<td>1.011**</td>
</tr>
<tr>
<td>OPEX</td>
<td>-0.345</td>
<td>-0.227</td>
</tr>
<tr>
<td>CASH</td>
<td>-0.459</td>
<td>-0.476</td>
</tr>
<tr>
<td>PRIOROP_PERF</td>
<td>0.340</td>
<td>0.266</td>
</tr>
<tr>
<td>CONSTANT</td>
<td>0.566**</td>
<td>0.831**</td>
</tr>
<tr>
<td>Pseudo R-square</td>
<td>0.36</td>
<td>0.39</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>-39.80</td>
<td>-107.26</td>
</tr>
</tbody>
</table>

Notes. Model I reports results of a probit estimation of contract choice with clustered standard errors. Contract choice is only observed for firms that engage in a significant outsourcing initiative. Model II uses a Heckman probit estimation to correct for the fact that unobserved factors that influence the decision to outsource also influence contract choice. However, the correlation between the residuals of the equations of outsourcing and contract choice is insignificant. Thus, we estimate self-selection into the outsourcing and contracting decisions separately and use the results of model I to calculate the inverse Mill’s ratio. The characteristics of the outsourcing engagement that we consider in our analyses include anticipated interdependence and coordination complexity (COORDN), whether the underlying task involves application, network, and desktop management (APP) or business process outsourcing (BPO), or information systems outsourcing (ISO), length of the outsourcing contract (LENGTH), contract value (CONTRACTVAL), and prior cooperative association between the firms (PRIOR). Outsourced tasks also vary in the level of interdependence and hence, coordination requirements. At higher levels of interdependence, contingencies are hypothetical because they often depend on the action of the provider and the latter’s accurate interpretation and timely responsiveness to the outsourcing firm’s own actions. In such cases, it is costly to contractually specify a precise division of labor and responsibilities. Complexity associated with greater levels of coordination (COORDN) will result in more incomplete variable price contracts. Different types of outsourcing initiatives vary in their relative maturity and management challenges and hence, in the choice of governing contract. The complete specification of contingencies and time of performance in longer term contracts may be difficult and costly. On the other hand, expectations of continuity of the relationship inherent to longer term contracts may strengthen incentives and weaken the association between complexity of the contracting environment and contract choice, resulting in choice of fixed price contracts. We test these conflicting predictions by examining the influence of contract duration (LENGTH) on contract choice. We also examine the impact of CONTRACTVAL, if any, on the choice of variable price contracts. Finally, we test whether firms, through prior cooperative association (PRIOR), may have developed channels and codes for exchange of information. Greater competence in transacting with each other reduces complexity in the contracting context, and makes it easier for the firms to specify the management of the interface between them and provide incentives through more complete contracts.

Finally, we control for firm capabilities that may influence contract choice. Uncertainty in business requirements of the outsourcing firm (UNCERTAINTY) increases the costs of completeness because it necessitates systematic allocation of resources to identify diverse action-outcome contingencies, and incorporate paths that are best aligned with the objectives of the outsourcing initiative. Thus, greater levels of environmental uncertainty (UNCERTAINTY) should result in more incomplete variable price agreements. Greater experience of the outsourcing firm in managing similar initiatives (EXP) should enable the outsourcing firm to better predict contingencies in its environment. Larger firms have superior financial, technological, and human resource endowments that render the design of complex contracts more efficient and less expensive. Thus, we expect that larger firms (SIZE) will design more complete contracts. Similarly, we control for firm variables—book-to-market ratio (BTM), short term cash needs (CASH), prior operating expenses (OPEX) and prior operational performance (PRIOROP_PERF)—that measure the financial health of the outsourcing firm. Our results show that business uncertainty, anticipated coordination requirements, and book-to-market ratio are positively related to the choice of a variable price contract. Prior cooperative association and outsourcing experience positively relate to choice of a fixed price contract.

*p < 0.10, **p < 0.05, ***p < 0.01.
esign. Each initiative is also coded as involving information systems outsourcing; business process outsourcing; or application, network, and desktop management. Three dummy variables, ISO, BPO, and APP capture this distinction. The default category included instances of information systems outsourcing (ISO). We find that the coefficients for application outsourcing (APP) and business process outsourcing (BPO) are positive and significant. Thus, these types of outsourcing initiatives are more likely to be governed by variable price contracts. This is likely because the relatively nascent nature of BPO and complex application development, and the greater interdependencies of the underlying task in these initiatives render it relatively difficult to predict and define all contingencies at the outset. The results for the other explanatory variables are also consistent with our theoretical expectations. Coefficients of business uncertainty (UNCERTAINTY), anticipated coordination complexity (COORDN), and contract value (CONTRACTVAL) are positive and significant, whereas that of prior association (PRIOR) and experience (EXP) are negative and significant. The positive effect of environmental uncertainty, anticipated coordination, and contract value of the initiative on the likelihood of choice of a variable price contract is consistent with the argument that variables indicative of increased environmental complexity are associated with variable price contracts accompanied by low levels of completeness in task specification (and hence, a high probability that adaptations are needed). Prior cooperative association between the outsourcing firm and provider as well as outsourcing experience facilitate less costly prediction of contingencies; greater ease in management of the interface between the outsourcing firm and the provider; and better knowledge of structures, processes, and technologies that help manage the initiative, resulting in more complete fixed price contracts.\(^{13}\)

The contracting decision is only observed for firms that engage in an economically significant outsourcing initiative. The second column of Table 5 estimates a Heckman probit model of contract choice that controls for firm capabilities and unobserved heterogeneity that impact the decision to outsource and also likely influence the contracting decision. Following Hall and Liedtka (2005), we include prior operating expenses (OPEX), short-term cash needs (CASH), market and book leverage (MKTLEV and BKLEV), executive compensation (COMP), and CEO stock options (OPTIONS) in estimating the likelihood of outsourcing. Academic and industry surveys (e.g., Linder 2004, Dibbern et al. 2004) find that firms primarily outsource to reduce costs and improve management’s focus on more strategic issues. Thus, the higher the operating expenses, the greater should be the likelihood of outsourcing. Cash needs and financial leverage of the firm increase the likelihood that the firm will use outsourcing to transfer costly assets to the provider and convert capital to expense. Hall and Liedtka (2005) find that incentives created by CEO stock options and the overall compensation mix significantly influence the decision to outsource. The results for estimation of the model of outsourcing choice are presented in Table 6 and are consistent with the above theorized relationships.

The estimated correlation between the errors of the outsourcing and contract choice equations, \(\rho\), is statistically insignificant, suggesting that the probit estimation does not require controlling for sample selection effects. Thus, we estimate separately the models of outsourcing and contract choices to obtain correction factors for self-selection into the outsourcing and contracting decisions, respectively.

### 5.6.2 Long-Term Abnormal Returns

Table 7 presents the results of our second-stage models of three-year buy-and-hold abnormal returns following the implementation of the outsourcing contract. To test Hypothesis 2 and 3, we check for the significance of the impact of prior association (PRIOR) and experience (EXP) on BHAR. Model I examines the effect of contract choice on BHAR after controlling

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertainty</td>
<td>0.147</td>
</tr>
<tr>
<td>Contractual</td>
<td>-0.450*</td>
</tr>
<tr>
<td>Exp</td>
<td>0.978*</td>
</tr>
<tr>
<td>Size</td>
<td>0.110</td>
</tr>
<tr>
<td>Btm</td>
<td>0.126</td>
</tr>
<tr>
<td>Cash</td>
<td>-0.002</td>
</tr>
<tr>
<td>OpeX</td>
<td>0.371</td>
</tr>
<tr>
<td>Prior_op_perf</td>
<td>0.531*</td>
</tr>
<tr>
<td>Prior_mkt_perf</td>
<td>0.133</td>
</tr>
<tr>
<td>Bklev</td>
<td>0.743**</td>
</tr>
<tr>
<td>Options</td>
<td>-0.448</td>
</tr>
<tr>
<td>Comp</td>
<td>-0.274*</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.040</td>
</tr>
<tr>
<td>Pseudo R-square</td>
<td>0.497*</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>-69.10</td>
</tr>
</tbody>
</table>

Note: The model of the decision to outsource is used to obtain the correction for self-selection into the outsourcing decision.

\(^{*} p < 0.10, ^{**} p < 0.05.\)
for the endogeneity of such choice. Model II includes the drivers of contract choice that are estimated to be equivalent across both contract types. Model III uses a switching regression to assess the impact of different task, firm, and relational characteristics on BHAR in each of the contracts.

The coefficient of contract choice in model I is significant and negative, confirming that the market underestimates the benefits of fixed price contracts. The results of model II suggest the influence of contract choice on abnormal returns observed in model I is likely explained by various factors that drive contract choice—uncertainty, coordination requirements, prior association—that also influence long-term BHAR. Model III separately estimates models of long-term BHAR for the two contract choices after correcting for self-selection. In line with theoretical expectations, we find that uncertainty in business requirements negatively impacts the BHAR to fixed price contracts. This is because the outsourced task environment responds to the firm’s changing business requirements resulting in potentially costly renegotiation of the task specification in fixed price contracts.

Prior association with the provider and prior experience in managing similar outsourcing initiatives positively impact the BHAR to variable price contracts. The results provide support for Hypothesis 2 and 3, respectively. As theorized earlier, prior association and prior experience reflect relational and procedural learning of the outsourcing firm, respectively. Such learning helps in ex post adaptation through better planning and response to unforeseen contingencies in the task and relational environments.

As noted earlier, these contextual attributes that positively affect BHAR in variable price contracts are also associated with increased likelihood of choice of fixed price contracts. However, certain tasks that are intrinsically dynamic because of changing business requirements or require more complex coordination will be governed by variable price contracts. Similarly, we find that greater interdependence between firms and anticipated coordination requirements that increase the likelihood of choice of a variable price contract are associated with decreased BHAR. This is because interdependencies increase the potential for coordination failures, cost overruns, and the ensuing risk of costly bargaining and privately favorable distribution of ex post surplus.

Thus, taken together with the results of the probit model, the results of the performance regressions suggest that the outsourcing contract is a proxy for the complexity of the underlying task and relational environments that impact performance gains from outsourcing. The market is slow to incorporate this signal provided by the contract so that there is systematic and predictable association between the factors that drive contract choice and long-term BHAR following the implementation of the outsourcing contract. The negative coefficient for the inverse Mills ratio in the model of BHAR further emphasizes that unobserved factors that impact contract choice also impact abnormal returns.

6. Discussion of Results and Conclusion

Large-scale outsourcing is considered as a strategic necessity for competitiveness by modern enterprises. Yet, as the focus of such outsourcing has evolved from pure cost savings to a myriad of strategic objectives including faster time to market and organizational flexibility, there has been a significant increase in business volatility, coordination complexity, and the challenges in realizing payoffs from such effort. Indeed,

### Table 7 Model of Buy-and-Old Abnormal Returns (BHAR)

<table>
<thead>
<tr>
<th></th>
<th>Model I</th>
<th>Model II</th>
<th>Fixed price</th>
<th>Variable price</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engagement attributes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTRACT</td>
<td>-0.562**</td>
<td>(0.217)</td>
<td>0.325</td>
<td>0.442</td>
</tr>
<tr>
<td>CONTRACTVAL</td>
<td></td>
<td></td>
<td>(0.276)</td>
<td>(0.407)</td>
</tr>
<tr>
<td>COORDN</td>
<td>-0.518***</td>
<td>(0.189)</td>
<td>-0.144</td>
<td>-0.714**</td>
</tr>
<tr>
<td>CONTINUITY</td>
<td>-0.013</td>
<td>(0.089)</td>
<td>-0.037</td>
<td>-0.074</td>
</tr>
<tr>
<td>PRIOR</td>
<td>0.191*</td>
<td>(0.100)</td>
<td>0.129</td>
<td>0.521*</td>
</tr>
<tr>
<td><strong>Firm attributes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNCERTAINTY</td>
<td>-0.280*</td>
<td>(0.149)</td>
<td>-0.526**</td>
<td>-0.258</td>
</tr>
<tr>
<td>EXP</td>
<td>0.176</td>
<td>(0.111)</td>
<td>-0.076</td>
<td>0.266***</td>
</tr>
<tr>
<td>PRIORFIN_PERF</td>
<td>-0.067</td>
<td>(0.113)</td>
<td>-0.375**</td>
<td>0.044</td>
</tr>
<tr>
<td>IMR1—Outsourcing</td>
<td>0.172*</td>
<td>(0.089)</td>
<td>0.361</td>
<td>-0.506**</td>
</tr>
<tr>
<td>IMR2—Contract</td>
<td>0.248</td>
<td>(0.150)</td>
<td>-0.277**</td>
<td>-0.264**</td>
</tr>
<tr>
<td>Constant</td>
<td>0.034</td>
<td>(0.087)</td>
<td>0.111</td>
<td>-0.723***</td>
</tr>
<tr>
<td>R-square</td>
<td>0.10</td>
<td>0.38</td>
<td>0.30</td>
<td>0.49</td>
</tr>
</tbody>
</table>

**Notes.** Model I tests the influence of contract type on BHAR while controlling for gains in income efficiency and self-selection into the outsourcing and contracting decisions. Model II tests the unconditional impact of contractual drivers on BHAR. Model III tests the impact of the contractual drivers on BHAR after conditioning for contract choice. Firm and time effects are controlled for in all models. Robust standard errors clustered by firm are reported in parentheses. A Hausman test finds that random effects estimators are consistent and efficient. We report this specification as well in model III.

* p < 0.10, ** p < 0.05, *** p < 0.01.
widespread failures of large outsourcing engagements have raised many questions regarding the antecedents of success. Given that these outsourcing initiatives involve significant changes to the structure and management of the value chain, they are likely to have implications for shareholder value. The extant IS literature has largely focused on announcement period returns in assessing the market value of outsourcing. We argue that the market incurs information acquisition and learning costs in pricing major outsourcing decisions, resulting in inefficient pricing of such events in the short run.

Our results for short- and long-term abnormal returns to outsourcing initiatives support our thesis of market inefficiency for both contract types. For fixed price contracts, the initial reaction of the market was negative (−0.83% (p < 0.05), which is consistent with the −2.07% reported by Farag and Krishnan (2003) for cost cutting projects. However, the three-year BHAR of 17.5% (p < 0.05) suggests that the market initially underestimated the value created by outsourcing simple tasks performed in relatively stable environments. Fixed price contracts involve lower business uncertainty, coordination complexity, and measurability of output, all of which result in higher transferability of control and ownership to the vendor. The underlying tasks are unlikely to be central to the core business, and hence the long-term abnormal returns may indicate that the market rewards firms for externalizing these tasks and focusing attention on core competencies.

The insignificant announcement-period returns for variable price contracts suggest the market’s ambiguity regarding payoffs from such endeavors. However, in the long run, the market acquired and learned about capabilities necessary for the success of variable price contracts; firms with prior association with the vendor and outsourcing experience were rewarded relative to those that did not have such capabilities. Because prior association is a proxy for the presence of relational norms, trust, and reciprocity, our study extends the findings of Poppo and Zenger (2002) regarding the complementary relationship between complex contracts and relational norms to superior market performance.

Our results may help reconcile findings on market value created by outsourcing engagements focused on strategic and cost cutting objectives. For example, studies reporting negative announcement period reaction to cost cutting also reported positive reactions to strategic initiatives, and vice versa. However, our results for long-term returns suggest that both classes of outsourcing initiatives may create value under suitable conditions, though the market is slow to recognize such value.

Our results are robust to controls for pre-event performance of the fixed and variable price portfolios, industry effects, and sample subperiods. Thus, the market initially underestimated the benefits of fixed price contracts and the risk embodied in variable priced contracts. What are these benefits or risks that the market underreacts to? Fixed price contracts are indicative of lower costs of opportunism and coordination, whereas the opposite holds for variable price contracts. The insignificant announcement period returns to variable prices indicate that the market was not initially aware of such costs, whereas the long-term BHAR relative to similar firms who did not outsource suggest a correction to the initial pricing.

Although outsourcing is not a new phenomenon, the expanding scope and the increasingly complex nature of outsourced tasks represent a fundamental shift in the way firms are managed today. Prior research in strategy has largely focused on the quality of internal management and firm value. However, value creation through the outsourcing of complex tasks requires a different set of managerial skills that involve communication, coordination, and collaboration with intrafirm and interfirm agents with diverse objectives and capabilities. The large negative abnormal returns reported in our study underscore the potential danger of loss in shareholder value through such initiatives; our results demonstrate the importance of experience in managing outsourcing relationships as well as familiarity with the vendor, in the absence of which firms may be better off keeping complex organizational tasks in-house.

Our study is subject to certain limitations. First, the generalizability of our results for market value is limited to large outsourcing contracts. A small contract relative to a the client’s operating expenses is likely to have localized performance impacts—either positive or negative—compared to a large end-to-end outsourcing deal, which may have enterprise-wide impacts that are discernible to the market. Thus, it may not be appropriate to consider market value as the dependent variable when the contract size is relatively small; however, such contracts may still have a significant impact on internal performance measures at the departmental or business unit level. Therefore, our theses for heterogeneity in value creation across different types of outsourcing initiatives and firm specific capabilities are expected to hold if market value is replaced with alternative internal measures of performance.

Another potential limitation of our study is that we do not consider the impact of the outsourcing
characteristics that explain significant variance in these management choices may be important firm future cash flows. The long-term price reaction to decisions that represents intangible information on tion is representative of a broader class of managerial outsourcing firm. However, the firm boundary deci-
tions and abnormal returns to persist once the mar-
tial processes and technologies that complement in behavior, and aligning actions between partici-
t time.

A key implication of our results is that as firm boundary decisions increase in their importance and scope, the ability to identify tasks that are best candidates for outsourcing and who these tasks must be outsourced to become important sources of competitive advantage. However, the significant impact of unobserved heterogeneity that is correlated with contract choice and returns suggests the presence of alternative causal explanations. For instance, although the contract aligns incentives to address appropriation concerns, complementary noncontractible investments in relational processes and technologies improve ex post adaptation and reduce coordination failures by engendering mutual trust, facilitating timely information sharing and mutual adjustments in behavior, and aligning actions between participant firms (Gulati et al. 2005). Thus, in addition to the learning perspective examined in the study, relational processes and technologies that complement the structure of risk and incentives in variable price contracts (Mani et al. 2012) may also likely explain variance in returns. Such investigation of alternative explanations presents interesting avenues for future research and has important implications.

What do the hypotheses portend for future abnormal returns? We do not expect the relationship between contract choice or its contextual determinants and abnormal returns to persist once the market has fully incorporated attributes of the outsourced task and outsourcing relationship into the price of the outsourcing firm. However, the firm boundary decision is representative of a broader class of managerial decisions that represents intangible information on future cash flows. The long-term price reaction to such managerial decisions is relatively unexamined in financial research. Yet, as indicated by our results, these management choices may be important firm characteristics that explain significant variance in stock returns and correlate with price scaled variables such as the book-to-market ratio that has historically explained returns. Future research could examine whether cross-sectional variation in common stock returns can be better explained by the quality of underlying management choices rather than sensitivity to the Fama and French (1993) factors. This, in turn, has important implications for portfolio analysis and design and performance measurement.

References


