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Outsourcing impact on manufacturing firms' value: Evidence from Japan

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Abstract

Previous studies on the effects of outsourcing have relied largely on anecdotal evidence, non-financial metrics or accounting-based measures that ignore intangible value. This study views outsourcing effects from its future revenue-generation potential, using market value. The relation between firms' market valuation and outsourcing decisions is investigated using a cross-sectional valuation approach. Results based on Japanese manufacturing industries data from 1994 to 2002 indicate that core business-related outsourcing, offshore outsourcing, and shorter-term outsourcing have positive effects on outsourcing firms' market value. In contrast, non-core business-related outsourcing, domestic outsourcing, and longer-term outsourcing are not found to enhance firm value.

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1. Introduction

Scholars and practitioners have supported outsourcing as an efficient way to address organizational competitiveness (Quinn, 1992; Hirschhorn and Gilmore, 1992; Sharpe, 1997). Outsourcing has increasingly played such an important role in business, yet the overall impact remains largely an unexplained puzzle. Executives asked about the financial impact of outsourcing initiatives respond that it cannot be readily quantified (Bryce and Useem, 1998). Researchers looking to measure the financial impact must rely on managers' estimates in place of tangible metrics. As a result, much of the evidence is anecdotal and case study oriented, and based

on non-financial metrics (such as Likert scale). Although rate-of-return measures have been used in outsourcing studies (Smith et al., 1998; Jiang et al., *in press*), they have usually been based upon historical accounting measures. There are many intangible effects or non-cash benefits of outsourcing that are usually overlooked by traditional accounting measures, e.g., development of a more effective business model that gives increased flexibility to meeting changing business environment, adoption of better quality, and consistency of core competencies. Furthermore, the focus has been on cost savings, and managers or researchers have rarely directed their attention to an outsourcing decision's ultimate benefits for company investors.

As an alternative to traditional accounting measures, financial market-based measures that consider the future performance of firms have been proposed in the economics and finance literature. The change in focus from an accounting-based (historical) measure to

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a market-based (future) measure of performance presents both tangible and intangible effects of outsourcing in the way in which the strategic nature of outsourcing should be viewed. Because the impact of outsourcing on firm's value has not been investigated, this study is concerned with examining the relation between outsourcing and firms' value.

Based on the theory of transaction cost analysis and signaling theory, we use a cross-sectional valuation model to examine outsourcing impact on firms' value. This empirical research is based on a sample of 441 publicly traded Japanese manufacturing firms that outsourced partial operations between 1994 and 2002. We use publicly available financial data to investigate the relation between those firms' market value and outsourcing contracts' characteristics, such as vendors' location, the relevance between outsourced business and outsourcing firms' core business, partnerships with vendors, and contract duration. This approach is novel to the literature of operations management, and offers a fresh way of considering the impact of outsourcing.

This paper is organized as follows. The next section provides a brief review of current literature on specific impacts of outsourcing on firms' value, discusses the event studies' limitations for valuating the impact of outsourcing, and provides the theoretical framework and research questions of this study. The Section 3 describes the development of a cross-sectional valuation model that relates market value to various accounting variables including closing book value, dividends, earnings, goodwill, R&D and advertising expenses, capital contributions, and outsourcing contract value. The Section 4 describes details of the sample used and data sources in this research. The Section 5 provides the results and discussions. The Section 6 concludes the managerial implications of the findings.

2. Literature review

2.1. Previous studies on outsourcing effects

Though many studies attempt to relate outsourcing effects directly to revenue, asset deployment, and cost-savings, these are poor surrogates for the real implications. For example, after outsourcing, a firm may reinvest the released resources to enhance its most value-creating activities rather than to increase its price-cost margin (Bryce and Useem, 1998). If so, no significant relations between outsourcing and accounting rates of return may be detected over that period. Outsourcing is creating substantial intangible value for firms (Quinn, 1992; Barthélemy, 2003), such as, agility

to adapt to varying business conditions, quality or productivity improvement, speed to market, access to outside experience and expertise, and so on. Unfortunately, methodologies that link outsourcing decision to accounting measures of performance, such as return on assets, return on equity and return on sales, capture only outsourcing's tangible value components, with little consideration for intangible worth (Garrod and Rees, 1998; Bharadwaj et al., 1999). These accounting rates of return are not adjusted for risk and are distorted by temporary disequilibrium effects, tax laws, and accounting conventions. Another problem with the accounting measures is that they look only at a firm's past performance; they do not consider future profit potential (Akbar and Stark, 2003). Outsourcing decisions, however, are often made with a strategic view to pursuing competitive advantages in the future. In addition, because of the substantial learning curve associated with the uses of vendors, outsourcing often takes a longer time to add value to a firm and is more likely to be reflected in future profit streams (Clemons et al., 1993).

Unlike a balance sheet, which reflects a firm's tangible assets and past information, the market value of a firm's securities is the best indicator of profit potential, since it provides an unbiased estimate of future cash flows attributable to all the firm's assets (both tangible and intangible). Market measures are based on the present value of a firm's expected future cash flows, and are presumed to have the following six advantages (Lubatkin and Shrieves, 1986): (a) stock prices represent the only direct measure of stockholder value; (b) stock prices fully reflect all available aspects of performance; (c) stock prices are not only reported objectively, but are also easily available for publicly traded firms; (d) stock prices can "see through" managers' attempts to manipulate reported accounting measures; (e) stock prices can be adjusted for general market movements, inflation, and a firm's market risk; (f) stock prices provide a basis for evaluating investors' assessment of the impact of managerial decision. In an efficient market, stock price will quickly and fully impound, and reflect publicly available information (Beaver, 1998).

It is plausible to expect that the outsourcing impact on a firm's stock price is likely to vary with the size of the outsourcing contract, the activity outsourced, the expected cost savings, the market or the macroeconomic environment, and the partnership between the participants. Bryce and Useem (1998) believe that detection of the precise amount of outsourcing impact on firm's value is nearly as elusive as measuring the mass of a neutrino. Thus, far, there is only one research

relating firms' market value to outsourcing. Hayes et al. (2000) examined the impact of information systems outsourcing announcements on the market value of outsourcing firms. They utilized the event study method to examine the abnormal return of stock price on -1 day (the day before the announcement), 0 day (the announcement date) and $+1$ day (the day after the announcement), i.e., the event window is 3-day. Their results provided empirical evidence from the capital market that outsourcing announcements can immediately increase outsourcing firms' value. However, McWilliams and Siegel (1997) warn that when the event window is short, the event study method examines whether there is an abnormal stock price effect associated with an *unanticipated* or *surprising event*. As a consequence, failing to find that an event affects stock prices in short-term may reflect a lack of surprise, rather than a lack of effect; on the other hand, finding significant evidence that an event affects stock prices in short-term may only show that the event affects stock prices by its newness to the market, rather than by its actual effects. The presence of such a short-term market value shift does not necessarily imply the existence of a long-term premium or discount of firm's value. From this perspective, Hayes et al.'s research reveals the stock market reaction on outsourcing *announcements*, rather than outsourcing *effects*.

There are a number of methodological concerns with long-term event studies (McWilliams and Siegel, 1997; Barber and Lyon, 1997; Fama, 1998; Mitchell and Stafford, 2000; Brav, 2000). These papers question every aspect of the long-term event studies, from the calculation of the point estimates to the assumptions required to assess statistical significance. The evidence relying on the event methodology must be considered with caution for two reasons:

First, abnormal returns are assumed to be the result of the stock market's reacting to new information. Difficulties occur when the event has been anticipated by traders or information has leaked to the market in advance of a formal announcement. Much outsourcing information actually reaches stock markets before formal corporate releases through public media reports and analyses, employees' and neighbors' actions, consulting firms, and even rumors. Accordingly, finding an actual event date becomes a very speculative endeavor.

Second, researchers have to isolate the effect of an outsourcing event from the effects of other events. Confounding events can include any effects that may impact share price during an event window, e.g.,

announcements of dividend payments, introduction of new products, major sales, merger or acquisition, lawsuits or strikes, the appointment or termination of top executives. The longer the event window, the more difficult it is to control confounding effects. The outsourcing impact on stock prices may be entirely buried in firm information. Failing to control confounding effects causes serious doubts about the validity of empirical results and calls into question any conclusions drawn.

To solve the above analytical challenges, a cross-sectional valuation approach may be more appropriate to evaluate the outsourcing impact on a firm's value, which results from compounded business activities. Cross-sectional valuation models have become increasingly frequent in the current accounting literature (Ohlson, 1999). Such approaches to identify the value relevance of accounting information have been employed in a number of studies (e.g., Rees, 1997; Garrod and Rees, 1998; Bharadwaj et al., 1999; Akbar and Stark, 2003). By attempting to define a firm's market value in terms of accounting and managerial (such as acquisitions, mergers, outsourcing, etc.) variables, a cross-sectional valuation approach allows for a direct assessment of a managerial decision's usefulness for market valuation purposes without the specification of a speculative event date.

2.2. Theoretical framework and research questions

Gilley et al. (2004) pointed out that defining outsourcing simply in terms of procurement activities does not capture the true strategic nature of this issue. Outsourcing is not simply a purchasing decision, because all firms purchase elements of their operations. Outsourcing may arise through the substitution of external purchases for internal activities. In this way, it can be viewed as a discontinuation of internal production and an initiation of procurement from outside suppliers. Theories provide several explanations why an outsourcing firm would like to terminate its current production and substitute it by outside production. The most common theory is the transaction cost theory in the form of interorganizational endorsement.

The outsourcing decision creates a market-contracting, interorganizational relationship between a firm and its external vendor, and requires the firm to incur costs of negotiating, monitoring, and supervising external contractual parties. According to the transaction costs analysis theory, the decision of outsourcing and the extent of outsourcing depends upon the transaction

costs associated with outsourcing versus internalization. Pioneered by Coase (1937) and developed principally by Williamson (1975, 1979, 1985, 1991), this theory posits that there are costs in using a market and activities of the firm either will be internalized or market-mediated, depending on relative transaction costs of conducting the activities. By hypothesizing that firms seek to minimize costs, the theory of transaction cost analysis attempts to predict which activities are internalized and which are transacted via market exchanges. When asset specificity and uncertainty are low, and transactions are relatively frequent, transactions will be governed by markets-outsourcing. High asset specificity and uncertainty lead to transactional difficulties with transactions held internally within the firm-vertical integration. This has laid the foundations for the outsourcing discipline (Quinn, 1992).

While the theory of transaction cost analysis explains the determinants of outsourcing decision, signaling theory establishes the bridge between market valuation and outsourcing determinants. Signaling theory addresses problems of information asymmetry in markets. Market participants evaluate firms based on their own experience with the focal firm or its observable quality. If the market actor has not dealt with the firm before, and/or the quality cannot be observed directly, other “signals” have to be taken into account, i.e., investors attempt to evaluate a firm’s value-creating potential by observing signals reflected in its future performance (Grinblatt and Hwang, 1989; Carter and Manaster, 1990; Michaely and Shaw, 1994). From the perspective of signaling theory, the publicly available information of outsourcing is expected to be incorporated into a firm’s stock price, provided this information signals the market that future cash flows will be impacted (Hayes et al., 2000). As outsourcing is the substitution of external purchases for internal activities (Gilley et al., 2004), the signal of such a strategic change indicates the current firm’s value is inappropriate for this firm’s new status. For example, by transferring resources from nonvalue-added functions to value-added core competency functions, the outsourcing firm releases a signal with regard to enhance or protect its wealth (Bettis et al., 1992; Hayes et al., 2000). Given today’s increasingly rapid pace of technological changes, a signal of enhancing or protecting a firm’s value can also be caught by investors if the outsourcing decision allows the outsourcing firm to stay abreast of fast-changing technologies or to draw on the results of capabilities it could not develop itself (Stuckey and White, 1993; Bryce and Useem, 1998). An outsourcing firm’s enhanced value can also be signaled

to public when management attention is more focused on strategic issues and less on daily operational problems or organizational conflicts (Lei and Hitt, 1996; Abraham and Taylor, 1996; Alexander and Young, 1996). In short, after a firm enters outsourcing agreements, fresh value may come from an outsourcing contract if it provides for good complementarities between the outsourcing firm’s and the vendor’s capabilities, so that the market will re-evaluate the outsourcing firm’s stock price.

Transaction cost analysis theory and signaling theory in tandem suggest that there should be a relation between the decision of outsourcing and the perception of the value of firms. This line of reasoning leads to the following research questions about how the stock market will react to a firm’s outsourcing decision.

2.2.1. Overall effect of outsourcing

According to the theory of transaction cost analysis, organizational decision makers seek to balance transaction and production costs in their decision to internalize or externalize a transaction. Williamson (1979, 1985) argues that the higher the transaction cost, the more likely that the transaction mode goes to making rather than buying. When a firm makes an outsourcing decision, it signals the market that the cost of this new external transaction mode should be lower than its former in-house transaction’s. This signal with regard to fresh value will be brought to the outsourcing firm should result in a positive stock market reaction, indicating an increase in firm value. The first hypothesis, stated in alternate form (as are all hypotheses in this study) is:

H1. The outsourcing decision will demonstrate a positive signal to the stock market.

2.2.2. Effect of outsourced businesses

It is intuitive that outsourcing impact should not be analyzed independently of the kind of business to be contracted out, because an increased focus on a firm’s core competencies is one of the important benefits associated with outsourcing (Dess et al., 1995; Kotabe and Murray, 1990; Lei and Hitt, 1996; Quinn, 1992; Venkatraman, 1997). Contracting out allows the firm to rely on management teams in other organizations to oversee tasks at which it is at a relative disadvantage, and to increase managerial attention and resource allocation to those tasks that it does best. Nevertheless, outsourcing may simultaneously erode the firm’s potential for organizational learning and development of new technologies, particularly those skills necessary for the development of new business and core capabilities (Bettis et al., 1992).

The core or distinctive businesses of a firm are based on it making distinctive use of its resources (Penrose, 1995). For a firm, different resources have different asset-specific functions, which are likely to represent this firm's core businesses (Williamson, 1985). Grover and Malhotra (2003) comment that higher asset specificity is characterized by "costs that have little or no value outside the exchange relationship," thus leading to higher transaction costs. In consequence, higher levels of asset specificity will lead to a lower proportion of the core businesses being outsourced. On the other hand, non-core businesses are related with lower asset specificity, and can be easily acquired from external vendors. By accessing to economies of scale and the unique expertise that a vendor can deliver but the outsourcing firm cannot develop in-house, the outsourcing firm can save its former expensive internal transaction costs by contracting out its non-core businesses which it is not good at (Anderson and Weitz, 1986; Roodhooft and Warlop, 1999). Conversely, when contracting out its core businesses, the outsourcing firm gives up its established internal asset specificity (Holcomb and Hitt, in press). This may signal the market that the firm cannot use its high asset-specific resources effectively. We hypothesize:

H2a. Outsourcing non-core business will demonstrate a positive signal to the stock market compared to outsourcing core business.

H2b. Outsourcing core business will demonstrate a negative signal to the stock market compared to outsourcing non-core business.

2.2.3. Effect of vendor

Pilling et al. (1994) mention that transaction costs are incurred for "developing and maintaining an exchange relationship, monitoring exchange behaviors, and guarding against opportunism in an exchange situation." In order to minimize the transaction costs that ensue from opportunistic behavior, transaction cost theory prescribes that managers should maintain hierarchical control of transactions that may be susceptible to opportunism. Compared to domestic outsourcing, offshore outsourcing has to face complicated supply chains, culture conflicts, different regulations, and uncertain social or political environments. Barthélemy (2003) argues that all of these factors will reduce the outsourcing firm's hierarchical control power and increase its control costs, from negotiating to monitoring to evaluating its oversea vendor. Thus, Sebenius (2002) states that an international transaction between

the buyer and the supplier usually brings additional communication problems to the relationship, so that both parties have to gradually learn how to better do business with each other. In that sense, offshore outsourcing leads to partner-specific processes or to co-specialized investments and specific skills on both sides, i.e., increasing special assets. Thus, the transaction cost of offshore outsourcing will be higher than domestic outsourcing. We hypothesize:

H3a. Offshore outsourcing will demonstrate a negative signal to the stock market compare to domestic outsourcing.

H3b. Domestic outsourcing will demonstrate a positive signal to the stock market compared to offshore outsourcing.

2.2.4. Effect of outsourcing duration

Functional complexity can precipitate difficult contracting relationships, which can drive up transaction costs. One attribute affecting the complexity of an outsourcing relationship is a contract's duration. When an outsourcing contract's duration requires a longer timeframe, a rising diversity of business relationships and an increasing complexity of contract management can result (Mulherin, 1986; Joskow, 1987). As a consequence, longer duration contracts expose the outsourcing company to greater levels of risk because of managerial uncertainty. Holcomb and Hitt (in press) observe that at higher levels of managerial uncertainty, larger information deficits increase the likelihood for opportunism, making it costly to handle exchanges through intermediate markets.

In contrast, a shorter-term outsourcing contract can reduce the outsourcing firm's transaction costs because it allows exchange partners to be more easily monitored and evaluated as well as allowing the outsourcing firms to more easily foresee potential contingencies. In addition, given the inevitable uncertainties in the longer-term, a shorter-term contract can help outsourcing firms remain flexible to meet the market changes and new technology opportunities. As a result, short-term duration contracts signal that the risk of outsourcing is controllable. We hypothesize:

H4a. Short duration outsourcing contract will demonstrate a positive signal to the stock market compared to long-term outsourcing.

H4b. Long duration outsourcing contract will demonstrate a negative signal to the stock market compared to short-term outsourcing.

3. Model

3.1. Basic model

As an extended version of one derivable from Ohlson' model (1995) where market value can be expressed as a linear function of earnings, book value and net dividends, our basic cross-sectional valuation model employed in this paper is as follows:

$$MV_t = \beta_0 + \beta_1 BV_t + \beta_2 E_t + \beta_3 DIV_t + \beta_4 GW_t + \beta_5 CC_t + \beta_6 RDAD_t + \beta_7 OUT_t + \varepsilon \quad (1)$$

where,

- MV_t represents market value by the end of fiscal year t .
- β_0 is a constant term to allow for potential omitted variables.
- BV_t is the closing book value at the end of fiscal year t (shareholders' equity).
- E_t is the current earnings before exceptional and extraordinary items at the end of fiscal year t .
- DIV_t is the declared dividend at the end of fiscal year t .
- GW_t is the goodwill on acquisition at the end of fiscal year t .
- CC_t is capital contributions which is measured as the negative of the sum of equity raised for cash and for acquisitions at the end of fiscal year t .
- $RDAD_t$ represents current research/development and advertising expenditures at the end of fiscal year t . We use it as a control variable, because studies consistently conclude that stock prices react favorably to increases in R&D and advertising expenditures. For example, Jaffe (1986) estimates that "the market apparently places more than three times as much value on a dollar of R&D stock as on a dollar of capital stock." Connolly and Hirschey (1984) indicate that advertising has a large positive and statistically significant effect on increasing the spread between the market value and the book value of assets.
- OUT_t is the outsourcing contract's value in the fiscal year t .
- ε is a mean zero random variable to control for the effect of unobservable factors.

3.2. Measuring outsourcing firm's characteristics

3.2.1. Firm size

Eq. (1) reflects a particular outsourcing firm's market value. However, when we study many different firms'

market value, the difference in firms' size will cause scale-related heteroscedasticity problems. Without the reference of a firm's size, the absolute outsourcing contract value cannot reflect its real importance to the firm. For example, a ten million dollars outsourcing contract may not significantly affect a multinational corporation's market value, but it may dramatically change a small or medium firm's market value.

To reduce the impact of firms' size, cross-sectional valuation models are usually deflated by a measure of firm size for estimation purposes. This procedure yields two benefits (Tse, 1989): first, it reduces the level of heteroscedasticity in the data: regression model error is likely to be correlated with firm size. Second, it reduces the impact of outliers: the differences in firm magnitudes are so large that without deflation the estimation results are likely to be determined by a few large observations. Akbar and Stark (2003) suggest that the market value can be valued in a deflated form, using book value (BV) or opening market value as a deflator. Their research showed that the two deflators lead to qualitatively similar results. As a consequence, we use BV as the deflator in this research.

3.2.2. Capital intensity

Capital intensive industries are likely to face fewer competitors. Therefore, incumbent firms could earn higher profits (Capon et al., 1990; Bharadwaj et al., 1999). To capture the effects of entry barriers on firm's value, we include the industry's capital intensity in the model. This control variable is measured as a dummy variable (lower versus higher) based on the sample median of the ratio of fixed assets (FA) to the book value, i.e., FA/BV (see Hendricks and Singhal, 2001; Datta et al., 2005) for more discussion on capital intensive).

3.3. The final model

After including all above concerns of outsourcing firm's characteristics, the initial valuation model is revised as:

$$\frac{MV_t}{BV_t} = \beta_0 \frac{1}{BV_t} + \beta_1 + \beta_2 \frac{E_t}{BV_t} + \beta_3 \frac{DIV_t}{BV_t} + \beta_4 \frac{GW_t}{BV_t} + \beta_5 \frac{CC_t}{BV_t} + \beta_6 \frac{RDAD_t}{BV_t} + \beta_7 \frac{OUT_t}{BV_t} + \beta_8 CI_t + \varepsilon \quad (2)$$

where, CI is the dummy variable for capital intensity by the end of fiscal year t . There are two forms of dummy variable coding: indicator coding (in which the category

is represented by either 1 or 0) and effects coding (in which the category is represented by either 1 or -1). The first form is most appropriate when there is a logical reference group, such as in an experiment; the second one is suitable to represent differences for any group from the mean of all groups rather than from the reference category. We use the effects coding (1, -1), because there are no known references. If a firm's FA/BV ratio is higher than the sample's median of this ratio, then $CI = 1$; otherwise $CI = -1$.

4. Sample selection and data

All empirical evidence of this research comes from Japan. There are several reasons for using Japanese data:

First, the purpose of this research is to study outsourcing impact on manufacturing firms' value. Manufacturing of Japan is famous worldwide. To maintain Japan's manufacturing advantages, the Japanese government releases reports and statistics each year (e.g., Annual White Paper of Manufacturing Industries, Annual Census of Manufactures, etc.) to help Japanese manufacturing firms adjust their operations. Such a plentiful supply of detailed manufacturing-related information is extremely helpful for us to establish our research and interpret the results.

Second, Japan has geopolitically limited access to natural resources and land necessary for making everything in-house. In response to these limitations, outsourcing is an effective strategy for Japanese manufacturing industries. Japanese manufacturing industries' tradition of outsourcing traces back to 1980s. As a result, Japanese investors are savvy to the value of manufacturing firms' outsourcing decisions.

Third, Japanese investors are traditionally signal-oriented in the stock market. Haugen and Baker (1996) and Daniel et al. (1998) find strong and consistent evidence of a difference in stock market behaviors in Western versus Asian groups, especially Japan. In the United States and in European countries, investors view themselves as more able to value securities than they actually are, so that they are overconfident, i.e., they overestimate the precision of their private perception, but not of information signals publicly received by all. In Japan, however, there is little or no self-enhancing attribution bias (Kitayama et al., 1995), i.e., Japanese investors are more likely to attribute their investment

success to external factors (signals) rather than to their own competence. As a result, Japanese investors have a strong tradition to use signals to circumvent all that noise in stock market. For example, the Japanese Candlestick investing signals have to be considered one of the most tested, proven trading techniques in history, because they were created more than 400 years ago by Japanese rice traders and have been applied to today's stock market (Nison, 1994).

Finally, market value is sensitive to the macro-economic environment. After its rapid growth in 1980s, Japanese economy was stable from 1992 to 2002 (see Table 1), known as "the decade of stagnation." Using data from this time window, we can reduce the heterogeneity of economy in the valuation model.

Japanese manufacturing firms publicly announcing outsourcing contracts from January 1, 1994 to December 31, 2002 were initially included in the sample. These outsourcing announcements were ascertained from *Nihon Keizai Shimbun* CD-ROMs. *Nihon Keizai Shimbun*, or *Nikkei* as it is more widely known, is the primary source of business information for top executives and decision-makers in Japan. Each year it publishes two CD-ROMs which cover daily news on

Table 1
Japan real GDP growth rate

Real GDP growth rate	
1980	2.8%
1981	2.8%
1982	3.2%
1983	2.3%
1984	3.8%
1985	4.6%
1986	2.9%
1987	4.4%
1988	6.5%
1989	5.2%
1990	5.2%
1991	3.3%
1992	1.0%
1993	0.3%
1994	1.0%
1995	1.9%
1996	3.4%
1997	1.8%
1998	-1.1%
1999	0.1%
2000	2.8%
2001	0.4%
2002	0.1%

Source: Ministry of Economy, Trade and Industry.

economy, industry, finance and market in Japan during the whole year. A keyword search was employed using a combination of the following search terms: “outsourcing” and “contact” or “announcement”. The search yielded an initial sample of 2062 outsourcing announcements. As we are interested in manufacturing industries, 924 non-manufacturing firms’ outsourcing contracts were eliminated. Four hundred and eighty-seven of the remaining 1138 announcements did not provide the outsourcing contracts’ value so that they were removed from the sample. Sixty-three firms which announced more than one outsourcing contracts in 1 year were eliminated. Subsequent review of the announcements revealed 94 duplicated announcements, which were deleted from the sample. Further, we only selected firms whose shares are listed on Tokyo Stock Exchange (TSE) in order to collect their financial data. We deleted 46 private firms’ outsourcing announcements. At last, there were 448 qualified outsourcing contracts to make up the sample.

The sample firms’ financial data in period of 1994–2002 fiscal years were obtained from *Kaisha Zaimu Karute* CD-ROM (2006 Edition). Because Japanese financial year lasts from April 1 to March 31 in the next year, all data (E_t , DIV_t , GW_t , CC_t , FA_t and $RDAD_t$) for the analysis were extracted from the sample firms’ year-end financial statements (on March 31), except for the market value for the outsourcing firm MV_t was calculated as the share price on March 31 multiplied

by the number of ordinary shares in issue; BV_t was calculated as the sum of shareholder equity plus reserves. All outsourcing contract information, such as the contract value OUT_t , vendor location (domestic or overseas), contract duration, and outsourced business was obtained from each sample firm’s outsourcing announcement.

Finally, after examination of Cook’s D statistics, studentized residuals and DFFITS (Neter et al., 1990), we eliminated seven outliers. Table 2 provides some details of the final 441 sample firms’ outsourcing information.

5. Results and discussion

An examination of variance inflation factors and condition indices (Neter et al., 1990) suggested that multicollinearity is not an issue in this valuation model. While model deflation prevented a small group of large firms from unduly influencing the estimation, it was clear that we experienced problems with heteroskedasticity. If heteroscedasticity is not completely eliminated, the regression standard errors may be misstated. White (1980) offers a solution to the problem of misstated standard errors by deriving a variance matrix estimator that is consistent in the presence of heteroscedasticity. Therefore, all of the significance tests in this study are based on the White variance estimator, i.e., heteroskedasticity-consistent standard errors.

Table 2
Summary of outsourcing contracts for 1994–2002

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Observations	40	32	60	69	51	52	34	45	58
Outsourcing value (¥ in millions)									
Max	2700	3300	4000	3000	4500	4500	4000	3000	3500
Mean	326.4	438.2	505.7	463.7	531.9	528.4	503.2	494.6	489.3
Min	25	20	32	25	17	20	35	27	25
Vendor									
JPN	28	23	38	31	30	33	20	24	37
INTL.	12	9	22	38	21	19	14	21	21
Outsourced activities									
Core business									
MFT	18	13	35	44	35	38	27	31	42
Non-core business									
IT	10	8	12	10	12	9	6	8	11
HR	1	4	3	4	0	2	1	1	2
Acc/Fin	4	3	4	3	2	2	0	2	2
Log	3	1	4	4	1	0	0	1	0
Others	3	3	2	4	1	1	0	2	1

MFT, manufacturing; IT, information Technology; HR, human resource; Acc/Fin, accounting/finance; Log, logistics; others, marketing, R&D, customer service, payroll, facility management.

5.1. Overall effect of outsourcing

The results of the overall effect of outsourcing can be found in Table 3.

Consistent with intuition and prior empiricism, the coefficients of closing book value, earnings and dividends are positive; the coefficient of capital contribution is negative; all of them are statistically distinguishable from zero at the 5% level. The coefficient of R&D and advertising expenditures is statistically distinguishable from zero at the 10% level. There are two coefficients are not statistically distinguishable from zero: goodwill on acquisition and capital intensity.

The positive influence of outsourcing on the firm's market value is obtained at 10% significant level. This result is consistent with the existing literature. For example, the literature has cited a number of different potential and actual benefits from outsourcing. The most frequently cited benefit is cost savings. An outsourcing contract that transfers the outsourcing firm's partial assets to a vendor can convert fixed amortization and operating expenses to variable usage charges. Also, outsourcing can reduce the commitment to fixed-cost, full-time human resource expenses and other overhead costs through contracts that provide development skills on an as-need basis. As a result, outsourcing can improve firms' cost efficiency. There are also a number of studies that focus on explaining the relation between productivity growth and outsourcing. Abraham and Taylor (1996) find that firms "contract out" operations with the objectives of smoothing production cycles and benefiting from specialization. Ten Raa and Wolff (2001) find a positive association between the value of outsourcing and productivity growth. Either the cost-saving or the productivity growth brings fresh value to the outsourcing firm. As a

consequence, there is a positive relation between the outsourcing decision and the firm's market value in our model.

5.2. Outsourced business effects

To distinguish which kind of operations the outsourcing firm is contracting out, we compared the outsourced product's or activity's Japan Standard Industry Classification (JSIC) code with the outsourcing firm's primary business JSIC codes. If the two codes were same at least at one digit level, we concluded that this firm outsourced partial of its core businesses; otherwise, this firm outsourced its non-core businesses. Having split the pooled sample by outsourced businesses, the results of following this process are shown in Table 4.

First, we note that for core business outsourcing, the coefficient of OUT becomes statistically distinguishable from zero. It reveals that core business-related outsourcing is positively relevant to outsourcing firms' market value. Firms, recognizing that they cannot be world class in every activity and function involved in producing their products, are moving toward business strategies based on "core competencies" (Peters and Waterman, 1982) that help maintain their competitive advantage in serving customers. For manufacturers in developed countries, that means doing high-end design, engineering and systems integration. There are clear advantages in not trying to take a product (let alone all the elements in a complex system) from start to finish. Instead of a closed and vertically integrated structure, manufacturers want a supply chain that includes innovative vendors that have proved in competition that they are the best in class. For example, firms from developed countries may contract out their most labor-intensive activity to a host economy with a relatively large supply of cheap labor.

Kruger and Homp (1997) believe that core competencies' characteristics must be relevant to firms' core business. For the core business-related outsourcing, it is relatively easy to figure out the outsourced business' position in the whole value chain according to the technological endowment. As a result, few outsourcing firm's executives would mistakenly contract the firm's core competencies out. This is why the market positively responds to the core business-related outsourcing.

Second, we find that for non-core businesses, the coefficient of OUT is not statistically distinguishable from zero. It can be interpreted as the market hesitates to respond to non-core business-related outsourcing.

Table 3
Estimation results for the cross-sectional model

Independent variable	Coefficient (β)	p-Value
Intercept/BV	3293.241	0.0032***
BV/BV	0.853	0.0051***
E/BV	0.391	0.0291**
DIV/BV	16.342	0.0071***
GW/BV	0.213	0.1799
CC/BV	-3.062	0.0000***
RDAD/BV	7.490	0.0518*
OUT/BV	9.545	0.0814*
CI	-0.146	0.1853

$R^2 = 0.284$; adj. $R^2 = 0.221$; F -stat = 8.16; $N = 441$.

* Significant on 10% level.

** Significant on 5% level.

*** Significant on 1% level.

Table 4
Valuation of outsourcing impact on firms' value: outsourced business effects

Independent variable	Coefficient (β) (p -value)		
	Pooled	Non-core	Core
Intercept/BV	3293.24 ^{***} (0.00)	3576.6 ^{***} (0.00)	3653.4 ^{***} (0.00)
BV/BV	0.85 ^{***} (0.01)	0.78 ^{***} (0.00)	0.62 ^{***} (0.00)
E/BV	0.39 ^{**} (0.03)	0.24 ^{**} (0.03)	1.43 [*] (0.07)
DIV/BV	16.34 ^{***} (0.01)	8.63 ^{***} (0.00)	11.92 ^{***} (0.00)
GW/BV	0.21 (0.18)	0.15 (0.27)	0.31 [*] (0.08)
CC/BV	-3.06 ^{***} (0.00)	-1.86 ^{***} (0.00)	-2.07 ^{***} (0.00)
RDAD/BV	7.49 ^{**} (0.05)	7.25 ^{***} (0.01)	10.04 ^{***} (0.00)
OUT/BV	9.55 [*] (0.08)	5.63 (0.14)	8.37 ^{**} (0.04)
CI	-0.15 (0.19)	-0.31 (0.13)	0.43 ^{**} (0.05)
R^2	0.284	0.296	0.371
Adj. R^2	0.221	0.243	0.312
Observations	441	158	283

* Significant on 10% level.

** Significant on 5% level.

*** Significant on 1% level.

In fact, non-core business-related is not necessarily non-core competencies-related. For example, IT operation is not core business-related for a manufacturing firm. For some manufacturing firms, however, investment in IT systems and related processes has been tremendously beneficial; for many other firms the benefit from their substantial spending on IT has been marginal. Popularly termed the “IT productivity paradox” these asymmetrical outcomes of IT investments have been of tremendous interest to both researchers and practitioners for many years. Prahalad and Hamel (1990) argue that core competence, a set of “skills and knowledge,” is communication, involvement, and a deep commitment to working across organizational boundaries (e.g., the cooperation between IT division and manufacturing division). They believe that the embedded skills and knowledge that give rise to the next generation of competitive products cannot be “rented in” by outsourcing. Outsourcing can provide a shortcut to a more competitive product, but it typically contributes little to building the people embodied skills that are needed to sustain product leadership.

The non-core businesses in our sample include IT, human resource management, accounting or other financial services, and logistics or transportation. They are not obviously relevant to manufacturing firms' core business. It is relatively difficult for investors to judge whether these non-core business-related outsourcing decisions will improve the firms' core competencies. Thus, the impact of non-core business-related outsourcing on firms' value is fuzzy.

For core business outsourcing, the coefficient of capital intensity becomes significant positive from zero.

This observation implies that by outsourcing core business-related operations, highly capital intensive firms improve their market value more significantly than firms with lower capital intensity levels. A higher level of capital intensity obviously means a higher entry barrier. Even though a capital intensive firm gives out its partial core business-related operations, it is still not easy for the vendor to take this opportunity to become the outsourcing firm's potential competitor. Firms in high capital intensity industries tend to focus on leveraging their investments, resulting in a greater concern for cost efficiency consideration (Datta et al., 2005). By outsourcing their core business-related operations, they can improve the cost efficiency. However, for firms with lower levels of capital intensity, if vendors decide to enter the market directly and become competitors, these outsourcing firms' product lines, along with all of their investments in marketing and distribution, could be vulnerable.

5.3. Vendor location effects

We re-estimated the cross-sectional valuation model on each of the two sub-samples – domestic outsourcing and offshore outsourcing – to investigate whether the coefficient of outsourcing varies by location of vendor. The results of following this process are shown in Table 5. Our empirical evidence shows that the coefficient of offshore outsourcing is positive and statistically distinguishable from zero at 5% level. This reveals that offshore outsourcing significantly improves the firm's market value.

Table 5
Valuation of outsourcing impact on firms' value: vendor location influences

Independent variable	Coefficient (β) (p -value)		
	Pooled	Domestic	Overseas
Intercept/BV	3293.2 ^{***} (0.00)	3653.2 ^{***} (0.00)	4038.4 ^{***} (0.00)
BV/BV	0.85 ^{***} (0.01)	0.58 ^{**} (0.02)	1.32 ^{***} (0.00)
E/BV	0.39 ^{**} (0.03)	0.18 (0.13)	0.93 (0.14)
DIV/BV	16.34 ^{***} (0.01)	10.32 ^{***} (0.00)	14.68 ^{***} (0.00)
GW/BV	0.207 (0.18)	0.11 (0.23)	1.72 ^{***} (0.00)
CC/BV	-3.056 ^{***} (0.00)	-0.96 ^{***} (0.00)	-1.13 ^{***} (0.00)
RDAD/BV	7.490 ^{**} (0.05)	6.21 ^{**} (0.05)	8.74 ^{***} (0.01)
OUT/BV	9.545 [*] (0.08)	-1.96 [*] (0.08)	11.38 ^{**} (0.03)
CI	-0.15 (0.19)	0.18 [*] (0.06)	-0.27 (0.34)
R^2	0.284	0.332	0.411
Adj. R^2	0.221	0.277	0.363
Observations	441	264	177

^{*} Significant on 10% level.

^{**} Significant on 5% level.

^{***} Significant on 1% level.

It is easy to see that offshore vendors' labor and materials costs are cheaper, but it is harder to pin down the problems of complex supply chains, inflexible manufacturing schedules, and project management overhead. Actually, offshore outsourcing is more risky than domestic outsourcing, given the lack of vendor's information, managerial difficulties, political or economical uncertainty, and the cost of knowledge transfer in a culturally different environment. And add the costs of stolen intellectual property, the challenge become greater. If the market evaluates offshore outsourcing higher than domestic outsourcing, then the intuitive interpretation is that the outsourcing firm's possible domestic vendors have no competitive advantages in the global competition. One possibility is that the Japanese investor has more information on domestic outsourcing contracts and tend to view foreign outsourcing in a more favorable light. As a result, offshore outsourcing brings more benefits to the outsourcing firm.

While no data directly distinguish outsourced products' or operations' comparative advantages in the global economy, several Japanese governmental publications provide important insights to interpret our findings. According to the Annual White Paper of Japanese Manufacturing Industries (2005) carried out by Japan Ministry of Economy, Trade and Industry (METI), most Japanese manufacturers limit offshore outsourcing to mature products or standard components that rarely require changes and have established, predictable markets. In a consequence, 80% offshore outsourced products had been produced in Japan more than 10 years; only about 10% offshore outsourced products had been produced in Japan less than 3 years.

This survey strongly supports our intuitive interpretation. In the short run, a firm's competitiveness derives from the price/performance attributes of current products. But the domestic survivors of the first wave of competition all converge on similar standards for product cost and quality—minimum hurdles for continued competition, but less important as sources of differential advantage. It is difficult to exploit more profits from a mature product through domestic resources. However, contracting such a product out to international counterparts who possess comparative advantages should contribute more to the firm's value than in-house producing or domestic outsourcing. Also, for mature products, intellectual property is no longer an obstructer for working with foreign vendors. Furthermore, offshore outsourcing may create new demands for a matured product in overseas markets.

It is interesting to see that the coefficient of domestic outsourcing is negative and distinguishable from zero at 10% level. That means that domestic outsourcing even erodes the firm's value. At the mean time, the coefficient of capital intensity is statistically positive, i.e., capital intensive firms prefer domestically outsourcing. The labor economics literature indicates that capital-intensive industries are generally associated with increased employee skill levels and higher wages, and capital intensity often creates strategic rigidity because fixed costs are high and deviations tend to be expensive (Datta and Rajagopalan, 1998). As a result, the high employee skill levels and strategic rigidity may force the capital intensive firms to focus on domestic outsourcing rather than to use the overseas cheaper labor (usually with lower skill levels) or to take the risk of overseas operations.

5.4. Vendor's partnership effects

Because it is surprising to see that the domestic outsourcing erodes outsourcing firms' market value, this phenomenon is worth further investigation. We categorized domestic vendors into two groups: independent vendors and competitive vendors. Independent vendors do not have their own brands, but have a wide range of clients. Competitive vendors are just the direct competitors of the outsourcing firms. For example, after Renault's "Le Cost Killer" Carlos Ghosn joined the near-bankrupt Nissan Motor in 1999, he began to outsource some former in-house operations to domestic vendors in order to reduce costs. Nissan outsourced its axles and hydro-forming operations to Yorozu in 2000, and hybrid vehicles' transmission system and major engine components to Toyota in 2002. Here, Yorozu is an independent vendor, providing axles and hydro-forming services to Nissan, Honda, and others; Toyota is a competitive vendor.

Kaisha Zaimu Karute database lists each firm's major competitors in Japan. By checking whether an outsourcing firm's vendor is from its "major competitors" list, we could label each vendor by "independent" or "competitive." Having split the pooled sample into domestic outsourcing and offshore outsourcing sub-samples, we then sub-divided the domestic outsourcing sub-sample into "independent vendor" and "competitive vendor" categories identified above. The model was then re-estimated on each category. The results are shown in Table 6.

From Table 6 we can make a couple observations. First, the coefficient of domestic independent vendors' impact is not significantly distinguishable from zero. Second, the domestic competitive vendors' impact on outsourcing firms' value is statistically negative. The evidence shows that investors do not appreciate contracting out to competitive vendors. In fact, these observations coincide with the reality. For instance, Nissan Motor is working well with its independent vendor Yorozu. In the hybrid car market, however, Nissan's performance is far behind Toyota.

If contracting out to competitive vendors cannot improve outsourcing firms' value, why are there still many such contracts (e.g., in our sample, 136 out of 264 domestic outsourcing contracts are competitive vendor-related)? There are two possible explanations:

First, in the category of competitive vendors, the coefficient of outsourcing firms' capital intensity becomes significantly positive from zero. For these high capital intensive firms, they are facing fewer competitors but holding huge fixed assets. As a result, they do not worry about new competitors, but they do care how to leverage the investments and improve the cost efficiency. By contracting out to a competitive vendor with similar operations, the outsourcing firm's investment in plant and equipment can be reduced. This reduced investment in manufacturing capacity lowers fixed costs and leads to a lower break-even point. Thus, outsourcing may be an attractive method of improving

Table 6
Valuation of outsourcing impact on firms' value: vendor partnership effects

Domestic outsourcing			
Independent variable	Coefficient (β) (p -value)		
	Pooled	Independent	Competitive
Intercept/BV	3653.2*** (0.00)	4043.5*** (0.00)	4532.1*** (0.00)
BV/BV	0.58** (0.02)	1.01*** (0.01)	0.64*** (0.00)
E/BV	0.18 (0.13)	0.37 (0.19)	1.22* (0.06)
DIV/BV	10.32*** (0.00)	9.55*** (0.00)	13.53*** (0.00)
GW/BV	0.11 (0.23)	-0.03 (0.26)	2.49 (0.17)
CC/BV	-0.96*** (0.00)	-1.18*** (0.00)	-1.06*** (0.00)
RDAD/BV	6.21** (0.05)	7.16*** (0.00)	11.42** (0.03)
OUT/BV	-1.96* (0.08)	3.33 (0.24)	-4.57** (0.04)
CI	0.18* (0.06)	-0.44 (0.19)	0.29** (0.04)
R^2	0.332	0.367	0.435
Adj. R^2	0.277	0.313	0.390
Observations	264	128	136

* Significant on 10% level.

** Significant on 5% level.

*** Significant on 1% level.

a firm's financial performance, especially in the short run.

Second, in-house production increases organizational commitment to a specific type of technology and may constrain flexibility in the long run (Harrigan, 1985). However, outsourcing allows for quick response to changes in the environment in ways that do not increase costs associated with bureaucracy (D'Aveni and Ravenscraft, 1994; Dess et al., 1995). For example, Nissan's CEO Carlos Ghosn said that "Nissan is a profit-driven company. We do not want to build or sell cars that do not make a profit ... Hybrid sales account for less than 1% of global sales. It is a niche technology. We have seen no significant shift in the market. We have to be careful that we do not try to impose a technology on the market." Through contracting hybrids out to Toyota, Nissan can keep in touch with this niche market without increasing its long-term investments. On the other hand, by carrying out this outsourcing contract, Toyota can simultaneously improve its economies of scales and keep this niche technology in control.

Nevertheless, one limitation to outsourcing is that over the long-term, expertise does not remain within the organization and the effectiveness in managing that area is lost. Outsourcing can provide a shortcut to a more competitive product, but it typically contributes little to building the people embodied skills that are needed to innovate the next generation product (Pralhad and Hamel, 1990). Accordingly, effort is needed in strong collaboration between the outsourcing firm and the vendor to create added value. However, it is unthinkable

that Toyota would form an alliance with Nissan to develop a completely new model that might compete with Toyota. Investors value a firm's value from the long-run perspective. Even though contracting out to competitive vendors is reasonable sometimes, the stock market does not positively response to it.

5.5. Contract duration effects

Among the original 441 observations, 156 of them did not provide the detailed information of duration. To examine different outsourcing contract duration's effects on outsourcing firms' value, we divided the total 285 outsourcing contracts with clear duration information into two sub-samples: short-term (less than 3 years) and long-term (more than 3 years). By re-estimating the cross-sectional valuation model on each of the two sub-samples, the effects of contract duration are shown in Table 7. While the coefficient of long-term contract's impact is not significantly distinguishable from zero, the coefficient of short-term contract is statistically positive.

This finding confirms the hypothesis that a short-term outsourcing contract signals a positive sign to the stock market. Based on the ongoing management, an outsourcing firm usually wants to change both the pricing structure of the deal and certain aspects of the service being supplied. But once most vendors get their contract, they do not want to change anything that would affect their profit margins. Besides, contracting an outsourcing service to be effective for a long term – without costly upgrades – usually is not possible in this era of fast-changing technology.

Table 7
Valuation of outsourcing impact on firms' value: contract duration effects

Independent variable	Coefficient (β) (p-value)		
	Pooled	Long-term	Short-term
Intercept/BV	3293.24*** (0.00)	4639.2*** (0.00)	2186.3*** (0.00)
BV/BV	0.85*** (0.01)	1.32*** (0.00)	0.77*** (0.00)
E/BV	0.39** (0.03)	0.27** (0.04)	1.58* (0.06)
DIV/BV	16.34*** (0.01)	4.57*** (0.00)	12.17** (0.02)
GW/BV	0.21 (0.18)	0.22 (0.16)	0.47 (0.38)
CC/BV	-3.06*** (0.00)	-2.22*** (0.00)	-2.38** (0.02)
RDAD/BV	7.49** (0.05)	9.17*** (0.02)	3.07 (0.16)
OUT/BV	9.55* (0.08)	3.29 (0.21)	7.51** (0.03)
CI	-0.15 (0.19)	0.26 (0.17)	-0.11 (0.25)
R^2	0.284	0.304	0.290
Adj. R^2	0.221	0.294	0.247
Observations	441	186	99

* Significant on 10% level.

** Significant on 5% level.

*** Significant on 1% level.

Table 8
Summary of findings

Characters of outsourcing	Hypothesis	Reject?	Signal to market	Confounding signal
Overall effect	H1	No	+	
Outsourced business				
Non-core business	H2a	Yes	Fuzzy	
Core business	H2b	Yes	+	High capital intensity
Vendor				
Offshore	H3a	Yes	+	Late stage of product life cycle
Domestic	H3b	Yes	–	Competitive vendor and high capital intensity
			Fuzzy	Independent vendor
Duration				
Short-term	H4a	No	+	
Long-term	H4b	No	Fuzzy	

5.6. Summary of results

According to the pooled sample, the evidence weakly supported that outsourcing has a positive impact on manufacturing firms' market value. Nonetheless, when the pooled sample was divided into "core business-related outsourcing" versus "non-core business-related outsourcing," "domestic outsourcing" versus "offshore outsourcing," and "short-term outsourcing" versus "long-term outsourcing" sub-samples, respectively, outsourcing decisions appeared to be significantly positive value relevant for core business-related outsourcing, offshore outsourcing and short-term outsourcing, but weakly negative value relevant for domestic outsourcing. Further, when the domestic outsourcing sub-sample was split into "independent vendor" and "competitive vendor" categories, this negative value relevance appeared to be significantly driven by competitive domestic vendors.

Table 8 summarizes our findings, including outsourcing characteristics and their signals to the stock market, alternative hypotheses and test results, and confounding signals.

6. Conclusion

With the fast pace of technical innovations, shorter product lifecycles, and increasing global competition pressure, manufacturing firms must now carefully consider the merits and demerits of keeping production facilities in-house. In an age where management carefully weighs the costs and benefits of every discretionary investment dollar, finding evidence of the results of outsourcing is critical. The analysis of the shareholder value variation due to outsourcing decision is valuable because it provides firms with a sense of the economic impact of contracting out.

This research contributes to the growing literature on outsourcing by introducing a new approach to evaluating outsourcing impacts on firms' value. Given the mixed results of prior studies that have relied mainly on non-financial or historical evidence to evaluating outsourcing effects, we have argued that stock market performance provides a more appropriate measure of the strategic nature of outsourcing. By relying on market valuation, a cross-sectional valuation approach avoids many shortcomings of event studies.

In this paper, we study whether manufacturing industries' outsourcing decision has value relevance using a cross-sectional valuation approach on data for 1994–2002 from Japan. While these findings are obtained from Japan, they provide important general implications for manufacturing industries.

First, outsourcing non-core business-related operations cannot significantly affect outsourcing firm's value, while existing literature argues that outsourcing non-core business reduces the need for large capital expenditures in non-core functions (as a result, outsourcing firms can concentrate the enterprise's resources in their core competencies to increase firms' value). Although few outsourcing firms would intentionally outsource core competencies, they can misjudge core competencies. Because business processes are so tightly linked with each other, firms can struggle to define bundles that are clear non-core competencies. In addition, capabilities that are non-core today may become core competencies tomorrow. The insignificant evidence of non-core business-related outsourcing impact on firm's value reflects that the market hesitates to respond to this kind of outsourcing.

Second, contracting out core business-related operations improves firms' value. Because a firm's core competencies must be directly relevant to this firm's core business, it is relatively easy to discern the

outsourced business process' position in the whole value chain according to the technological endowment, i.e., shareholders can "see through" the relation between the outsourcing decision and the firm's core competencies. However, for firms with lower capital intensity, contracting out core business-related operations may put themselves in a vulnerable position, because their vendors may become their potential competitors.

Third, offshore outsourcing is more highly appreciated by the market than domestic outsourcing, as long as the outsourced products or operations are mature. Through outsourcing the production of its mature product to overseas counterparts who possess comparative advantages, a manufacturing firm can improve its market value.

Fourth, when selecting a potential vendor, the outsourcing firm must focus on a cooperative relationship with the vendor. It is risky to outsource just because the vendor's costs are somewhat lower on present expectations than those of the in-house operations. Once an operation is contracted out, the outsourcing firm has, to some extent, lost technical expertise. Decisions to dismantle internal activities damage the economics of in-house production. For example, to recreate a production facility the outsourcing firm will generally incur the capital costs of all new assets, where previously it used depreciated assets at relatively low costs in terms of further depreciation (decline in market value) and opportunity cost (foregone interest on market value tied up in assets). This carries potential risks if the vendor cannot or is unable to help the outsourcing firm create competitive advantages. The market is neither myopic nor fixated on the short-term profitability of firms.

Finally, our findings show that the risk control plays an important role in outsourcing contract implementation. A short-term outsourcing contract can more reliably achieve positive outcomes. This result coincides with the theory of transaction cost's argument about uncertainty and the agency theory's argument that principle prefers an outcome-based contract.

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