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THE VALUATION EFFECT AND DETERMINANTS OF CORPORATE CONTRACTING

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ABSTRACT

This study examined abnormal stock market returns to equity holders around corporate contract announcement that were obtained from Dow Jones & Company, Inc. between January 1, 1990 and December 31, 2000. Of the 7137 contract announcement found, 984 contract winning companies (contractee) and 575 contract giving companies (contractor) were not contaminated by other announcements and have sufficient CRSP data to enter the final sample that was analyzed for excess returns to the contractees. Excess returns were also analyzed for the contractors. The Asymmetric Information Hypothesis and Information Content Hypothesis were used to develop hypotheses that predict contract announcement abnormal returns. The Market Model was used to analyze abnormal returns for both the contractees and contractors. As expected, statistically significant cumulative average excess returns were found for contractee companies, but not for contractor companies. Contractee excess returns were also examined for different industry groups. Also, the international or domestic nature of the contractor is analyzed for differences in abnormal returns. Contrary to expectations, the market reacted with more significant abnormal return for domestic contracting than the international contracting. Finally, cross-sectional regression models are developed to test the statistical significance of variables relative to sample characteristic, firm size, profitability, and information asymmetries of firm. Contractee relative contract size was found to have significant impact on cumulative average abnormal returns. Dummy variables were included in the cross-section model to account for the sequence of the contract and nationality of the contractee and contractor, but they were statistically insignificant to the model. The variables for contractor's firm were also statistically insignificant in effecting abnormal returns for their equity.

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CHAPTER I

INTRODUCTION

This paper uses the event study methodology to empirically examine the effect of contract announcement on the market value of equity for both firms entering the contract. Capital Market Efficiency Theory suggests if the markets were efficient, prices would adjust quickly to all relevant information. In a semi-strong efficient capital market, financial markets react in direct proportion to relevant informational announcement and stock prices react to all publicly available information.

While economic and finance literature is replete empirically examined numerous types of corporate announcements, like merger and acquisitions, leverage buy-outs, joint-ventures, capital structures and dividend payout changes, there have been very few empirical studies examine market reaction to contract announcements. Many articles have sought to theoretically explain the contractual process from both the legal and the mathematical perspective. Most of the empirical studies were in the area of asymmetric information and agency theory, and only few are on the market reaction to contract announcements. Diltz (1990) empirically examined stock market reaction to large contracts between the U.S. Department of Defense and the award-winning firms.

This study examines the stock market's reaction to contract announcements between publicly traded U.S. corporations, international corporations as the contractee and publicly traded U.S. corporations, international corporations as the contractor. It was believed that because government contracts are so numerous, they might dominate non-government contracts in the analysis. Therefore, government contracts were exclude from this study.

The objective of this study is to examine market reaction to contract announcements between listed corporate, using the Market Model and Center for Research on Security Prices (CRSP) data (Brown and Warner 1985). Contract announcements are

expected to convey relevant information to the market about management's expectations toward the future investment opportunities of their company. Therefore, contract winning companies (contractees) are expected to receive significant positive abnormal returns in the announcement period, especially when there were numerous bidders, should be seen as good news by the market. Conversely, contract-giving companies (contractors) are not expected to earn significant abnormal returns around the announcement period. The market is expected to see the giving of a contract as the normal course of business of the contractors.

This study will categorize international contracts from purely domestic ones. The market is expected to react positively to a USA corporation entering an international contract, which should be a sign of a company that is either starting to, or continuing to diversify internationally. It should be a good sign, hence excess returns are expected. From the contractor's point of view, international business is usually viewed as more risky than strictly domestic business. Therefore, if a contractor is willing to take on the additional risks of an international contract, the international contract announcement should convey important information about the contractors' expectations concerning the future investment opportunities of the contractee. Also, there could be information asymmetries and monopolies that caused the contractor to go international. In either case, the market is expected to react with greater excess returns for the international contract than those for the domestic one.

Market reaction to the contract announcement will depend on the nature of the industry group in which the firm is operating. Capital Market theory indicate that the existence of information asymmetry in different market segments, such as service vs non-service firm, will cause the market to react more strongly under certain circumstances. A firm in a high technology industry wining a contract is expected to receive greater abnormal return than that low technology one, because of information asymmetries and monopolies.

The Market Model will also be used to analyze the difference in excess returns for different relative contract sizes. Relative contract size will be the ratio of the dollar value of the contract, to the total assets of the firm one year prior to the contract

announcement. The market is expected to be influenced by the relative contract size. The announcement of a large company winning a large contract should not convey the same information as a smaller company winning an equivalently large contract. When a small firm winning a large contract, abnormal returns are expected for a large relative contract size, which should be signifying that the contractor is confident that the smaller company can perform the large contract.

Finally, cross-sectional regression models will be developed to analyze which variables are good predictors of expected excess returns. As already mentioned, firm size and relative contract size are expected to be good predictors of cumulative excess returns in the stock market. Both contractee and contractor Cumulative Average Excess Returns (CAER) will be the dependent variable, and a cross-sectional regression will be done on both contractee and contractor samples. For both the contractee and contractor sample, the regression will include dummy variables indicative of the international aspects, and the announcement sequence of the contractee and contractor.

CHAPTER II

LITERATURE REVIEW

Capital Market Efficiency theory suggests that financial markets have considerable informational asymmetries and adjust quickly to new information (Fama, Fisher, Jensen and Roll, 1969) (Leyland and Pyle, 1977). Therefore, current literature on the issue of information, both information asymmetries in markets, and information content in any announcement are particularly germane to this study. Obviously, information asymmetries should have strong implications for abnormal returns around contract announcements, that any company entering into the contract with monopolized information could probably overbid the contract and maximize profit. Next, the information content in a contract announcement is also particularly germane. By entering into a large contract both the contractee and contractor's management are revealing their belief about the future of both companies. Because of this, literature on information content and the signaling hypothesis will be included in this review.

1. Information Asymmetry Hypothesis

As stated before, financial markets adjust equity prices quickly to new information whenever it becomes available, and they also are particularly susceptible to information asymmetries (Fama et al. 1969) (Leyland et al. 1977). In most principal-agent relationships common to financial markets, one party is typically more informed about the true risks involved than the other. Such conditions are particular frequent in the case of high technology markets. High technology market are characterized by environmental turbulence in which both the speed and direction of change is difficult to forecast (Achrol, 1991). The requirements of new and changing technologies mean that contractors are in the situation of uncertainty on quality and often cannot measure the project according to standard. Therefore, the contractor faced with a strong asymmetry of information (he has less information and knowledge of the project than the contractee). Flannery (1986) indicates that relatively greater information

asymmetry exists among market traders for financial institution and other industries with poor external documentation. High technology firms (Amir and Lev 1996) and service industries (Lang and Warfield 1997) may be particularly subject to poor external documentation since standard financial reporting systems do not capture many factors that impact the value of these firms (e.g., intellectual capital and other “soft” assets).

Management is usually assumed to know more about the specific business they are in than the typical shareholder, and therefore better able to accurately predict the future investment opportunities of the firm. Also, an owner or entrepreneur is usually more knowledgeable about a specific project’s quality, and probability of success, than a potential investor or creditor. It is in these types of principal-agent relationships that Williamson’s concept of “bounded rationality,” “uncertainty,” and “complexity” becomes quite applicable (Williamson 1977).

Williamson described, “bounded rationality” as the “neurophysical limits” that limit a human’s ability to store, process and retrieve information. He continues by adding that it is our bounded rationality, operating in a complex and uncertain world, (complex in that we cannot begin to account for the infinite causal factors that are present at any given time, and uncertain in that we cannot predict the future states of the world) that lead to “information impactness” in a market, in other words information asymmetry (Williamson 1977). Information asymmetry and informational monopolies are not an economic problem in themselves, unless they are coupled with “opportunism” (Williamson 1977). It is not the fact that the manager or owner is more informed than the shareholder or creditor. It is whether or not the former will exploit the situation to his advantage.

Hart and Holmstrom, in their exhaustive treatise on the theory of contracts further delineate opportunism as an agency problem where the principal (contract agent in his study) can face either an “adverse selection” or “moral hazard” dilemma (Hart and Holmstrom 1985). Adverse selection is where the uninformed agent faces the question, with whom and how much? From a contractual point of view, in a transactional environment where the contractee holds asymmetric information, a

contractor can “adversely” select the wrong contractee, and end up paying and informational rent (Williamson 1977). This phenomenon is due to the other agent’s informational monopoly. Besides adverse selection, the contractor agent can face the “moral hazard” problem (Hart et al. 1985). Hart and Holmstrom define the Moral Hazard problem as one of either “ hidden actions” or hidden information”. In the hidden actions situation, a principal does not know whether the agent will supply the level of effort that the contract demands, or will be lazy. In the hidden information situation, the principal cannot be sure whether the agent will make all investment decisions according to what the best for the principal, or according to his self-interest (Hart et al. 1985; Jensen and Meckling 1976).

Williamson’s notions of bounded rationality, complexity and uncertainty, along with Hart and Holmstrom’s notion of adverse selection and moral hazard can easily have repercussions to the contract bargaining situation (Williamson 1977) (Hart et al. 1985). Therefore, contracts will obviously be affected by asymmetric information if it is present within the markets that the contract spans. When coupled with opportunism, informational rents can be charged by the contractee parties. If informational rents can be charged in an overbidding situation, the stock market is expected to quickly react to the situation, and abnormal returns should be earned. It is the next issue, the informational content of a contract announcement, where the contractor reveals his belief about the future prospects of the contractee to the market.

2. Information Content Hypothesis

The Signaling Hypothesis arises in a market, where information is not shared by all participants, being made common knowledge through a price. It is when information is impacted, or hidden, that the signaling hypothesis seeks to find out what management’s expectations truly is (Ross 1977). In an “actions speak louder than words” sense, the financial markets look for unequivocally indications of the content of the hidden information (Leyland et al. 1977).

It is the information that is inherently contained within a large contract announcement that will tell the stock market what management's expectations are about the future investment opportunities of both the contractee and contractor firms. It is assumed that all corporate managers will keep abreast of all large contracts (i.e., commitments) that their organizations are entering into. Large corporations will render "due diligence" in the pre-contracting stage of the contractual process on any contract that will involve substantial commitments of the firm's assets, financial and otherwise. And, they will not offer a bid (contractee's perspective) or they will not give the contract (contractor's perspective) unless Wealth Maximization conditions exist and a positive Net Present Value can be earned. It is in light of these simple financial basics that the contract announcement conveys information to the market. If either the contractee or the contractor were not convinced that the other organization was strong enough to last the duration of the contract, the agreement would not have been signed. Therefore, when a large contract is announced, there is information conveyed.

If the contract announcement involves publicly traded firms, as it does in this study, then the contract size can be related to the size of either or both of the contracting parties. The contract size can be looked upon as a commitment of resources that can be compared to actual firm size to gauge the commitment level. Often, contracting involves a relationship specific investment that leads one, or both of the contract's participants to invest in assets that would be of little use outside the relationship (Choate and Master 1992). This type of situation can lead to contract "lock in" (Farrell and Shapiro 1989). If the commitment is relatively large, the market can discern even greater information that otherwise would be hidden. If an extremely large company like General Motors or IBM enters a large contract with a relatively unknown company, the stock market should see it as an unequivocally good sign. Because of relationship specific investment and contract lock in, the contract should be seen as a good sign about the future aspects of the company, and the success of the management team.

CHAPTER III

DEVELOPMENT AND DISCUSSION OF THE TESTABLE HYPOTHESES

In the first section of this chapter, the hypotheses using the Market Model will be discussed and developed. Then, in the latter section, hypotheses about the cross-sectional regression analysis will be developed.

1. Market Model Hypotheses

Hypotheses about contractee and contractor abnormal returns will be developed based on the Asymmetric Information Hypothesis and Information Content Hypothesis. Different excess returns are expected for the contractee according to the various types of contractors who do business with them, and the relative size of the contracts that are being announced. Contractor excess returns are not expected to be found. Through this section, information asymmetries are assumed to exist between contracting agents in many of the contracts that are included in the study. It is under this asymmetry assumption that the market is expected to react to information contained in the announcement itself. Generally, a market reaction is predicted for the contract. The significance, direction and magnitude of the expected abnormal returns will be delineated in the subsequent sections.

A. Information Asymmetry in contracting

Information asymmetry is thought to be a problem common to many markets, and is believed to be especially prevalent in financial market specifically. In financial market, information is often held by one, but not the other agent. Leyland & Pyle (1977) are specifically talking about financial markets, where the asymmetry of information between the contractee and contractor result in excess returns.

It is normally assumed that a manager is more informed about his specific business and industry than any given shareholder in his company. Under the same reasoning, it is usually assumed that an owner or entrepreneur is better informed about her potential project, than a prospective creditor would be. It is under this basic framework that it is hypothesized that the ordinary contractee agent is better informed than a potential contractor concerning the true costs, risks and profits in the performance of the specific contract in question. Although the contractor possibly performs some information gathering before and during the contracting process, it is still doubtful that he or she would be as informed about all the implications and ramifications contained in the contract agreement.

Specifically, cumulative excess returns are expected for the contractee because, by winning the contract, the contractee has proven to an outside agent that the company is the best, or only, agent available to perform this contract. Therefore, when the contract is signed and made public, the contractor has revealed that either the contractee is the most efficient company available to perform the specific project, or is the only company available. The market is expected to react to this information, and significant excess returns are expected for the contractee's stock. Therefore, the information asymmetry hypothesis expects significantly positive abnormal returns for the contractee's stock around the announcement date of a large contract, and the null hypothesis will be:

H1: the contract announcement will not be interpreted by the stock market as due to informational asymmetries between the contractees and contractors, contractees' equity will not receive significantly positive abnormal return, against the alternative hypothesis.

Conversely, the contractor has not revealed anything about their company's business in the contract announcement. They have not conveyed any information about information monopolies, relationship specific investment, relationship specific assets or contract lock-in (Williamson 1977) (Farrell et al. 1989). The contractor, along with any other potential contractor needing an equivalent technology would face the same information rent, relationship specific investment, or contract lock-in. Therefore,

the contractor will enter the contract, pay the rent, but not convey negative information to the market, because that informational rent would already be capitalized into their stock price. The contract is hypothesized to be view by the market as simply normal business for them, and significant excess returns are not expected for their stock. So, the information asymmetry hypothesis expects insignificant abnormal returns for the contractors stock around the announcement date of a large contract, the null hypothesis will be:

H2: the contact announcement will be interpreted by the stock market as due to informational asymmetries between the contractors and contractees, the contractor's equity will receive significantly positive abnormal return, against the alternative hypothesis.

B. Information Content in Contract Announcement

As stated before, the U. S. equity market is assumed to be semi-strong form efficient, in that stock prices will quickly adjust to all public, but not private information that is revealed (Fama et al. 1969). Analogous to the information content hypothesis, if a contract announcement is large enough to warrant a press release, it should convey information that is otherwise only known to management, to the market.

For the contractee company, management's acceptance of the contract clearly shows the market their beliefs concerning the future prospects of their company. Quite simply, they plan to be in business for at least the duration of the contract, and they would not have accepted the contract unless it has a positive Net Present Value for their firm. The contractor has also revealed their positive beliefs concerning the contractee company by entering the agreement. As an outside agent, the contractor believes that the contracted can deliver the goods or services, and being convinced, have decide to depend on the contractee for some integral part of their business process. Therefore, the market is expected to interpret the information contained in a contract announcement as being positive concerning the contractee. Specifically, excess returns are expected for the contractee.

The contract also conveys contractee beliefs about the contractor company. The contractee must believe that the contractor will be in business for at least the duration of the contract. And, under the assumption that relationship specific investment is usually present in most contracting situations, the contractee is conveying that they are not worried about being “lock-in” to the contractor (Farrell et al. 1989; Choate et al. 1992). Accordingly, the market is expected to interpret a large contract announcement as also conveying good information about the contractor company, and cumulative excess returns are therefore expected for the contractor. Therefore, the information content hypothesis expects cumulative abnormal returns for both the contractee and contractor’s stock around the public announcement of a large contract, and the null hypothesis will be:

H3: the contract announcement will not be interpreted by the stock market as having informational content, and both contractee and contractor’s equity will not receive significant positive abnormal return, against the alternative hypothesis.

C. Determinants of Excess Returns

In addition to the asymmetric information of contract announcements, and its conveyance to the market, additional determinants of excess return will be analyzed. The first issue is that of contract size, relative to the total assets of the firm involved. The second and third determinants that will be examined are, the industry nature or the contractee and contractor, and the international or domestic state of the contract.

Then the market model will be used to analyze contractee abnormal returns for samples that are segregated according to most of the determinants listed below. The relative contract size, international and national aspect of the contractor will all be analyzed for contractee abnormal returns. Because contractor abnormal returns are not expected, segregation of their sample is not expected to yield significant results. Also, the firm size determinant listed below will only used in the cross-sectional

regression models. All others bellows are used in both the Market Model and the cross-sectional regression explained in the next section.

1. 1 Sample Characteristics

1.1.1 Relative Contract Size

It is believe that the market will not react equally to a contract announcement between tow extremely large corporations, like general Motors and International Business Machines, as it would between a smaller company like Granger & Associates and IMB. To analyze this, the total assets of all the contractee and contractor companies entering the study will be gathered. Then, abnormal returns will be analyzed to see if the market reacts differently for companies and contracts of dissimilar sizes.

To test the size issue, the relative contract size variable was developed to be included in the analysis for contractee and contractor excess returns. The dollar value of the contract will be normalized by dividing it by the total assets of the firms involved so that a comparison can be made between contractee and contractor abnormal returns. The relative contract size is defined as:

$$\text{Relative Contract Size} = \frac{\text{Dollar Value of the Contract}}{\text{Total Assets}}$$

Where: Total Assets = the total assets of the company one year before the announcement

Then, after the median relative contract size is found for both the contractee and contractor sample, abnormal returns will be calculated for firms entering contracts with relative size above and below median. It is expected that market reaction will vary according to differences in the relative contract size.

From a contractee abnormal return perspective, in a contract announcement where a contractor gives a smaller company a larger contract, the market is expected to interpret it as contrary to normal economies of scale. Large companies should be

operating at a lower Average Total Cost (ATC) if a normal “U-shaped” ATC curve is present in the contractee’s industry (Salvatore 1991). Under this condition, if a contractor awards the large contract to a smaller contractee, it is believed that the contractee is probably in possession of asymmetric information, and exploiting an informational monopoly. Smaller firms, with their intense desire to grow quickly, usually spend more R & D and seek out market niches so they can exploit monopolistic situations whenever possible. Therefore, when the contract is large, relative to the contractee’s total assets, the market is expected to interpret the information contained in the announcement as indicative of a firm that has successfully exploited an informational monopoly situation. It is probable that the firm holds some type of idiosyncratic knowledge of a certain process or technology. Otherwise, the contractor would have selected a larger company that is operating on a lower ATC (Williamson 1977). Conversely, when a large firm announces winning a large contract, the market is not expected to react with abnormal returns. In this situation, no asymmetric or idiosyncratic information is conveyed. Large firms are expected to win large contracts.

From the contractor abnormal return perspective, a large contractor announcing a contract with a large contractee is not expected to convey any information to the market. The market is expected to see this situation as normal. On the other hand, when a small contractor announces entering a relatively large contract, the market is expected to react with significantly negative returns. In this situation, the contract announcement is not revealing any asymmetric information, but the market is expected to react to the commitment of the smaller firm’s future cash flows to the contract. The smaller contractor in this sense should be perceived as riskier. Therefore, negative abnormal returns are expected around the announcement.

Accordingly, abnormal returns are expected to be significant for smaller contractee companies entering large contracts (large relative size percentage), and small contractors are expected to earn significantly negative abnormal returns when entering large contracts (small relative contract size). Statistically significant abnormal returns are not expected in any other case. Therefore, significant and positive excess returns are expected for the contractee firms entering contracts that are above the median of

their sample, and significantly negative excess returns are expected for contractor firms entering contracts that are above their sample median, and the null hypothesis will be:

H4: significantly abnormal returns will not be found for either contractees entering agreements where the relative contract size is above the median of the sample, or contractors entering agreements where the relative size is below the sample median, against the alternate hypothesis.

1.1.2 Maturity

The contract also conveys contractee beliefs about the contractor company. The contractee must believe that the contractor will be in business for at least the duration of the contract. And, under the assumption that relationship specific investment is usually present in most contracting situations, the contractee is conveying that they are not worried about being “lock-in” to the contractor (Farrell et al. 1989; Choate et al. 1992). Bruce (1996) found that the use of long-term contracts to protect specific investments gains strong support even for very large firms, though much of the empirical work is concentrated on heavily regulated US energy industries. Furthermore, the same factors that suggest long-term contracting also suggest vertical integration as a solution to the hold-up problem.

If transactions must take place over time and if not all detail can readily be specified in advance, a contractor knows that selecting a particular contractee puts her in that contractee’s power in the future. Even if competition is perfect, once a relationship is established there is some bilateral monopoly, which, as Oliver Williamson (1985) has emphasized, can lead to problems of opportunism. Long-term contracts are an obvious remedy, especially when contractors are large and sophisticated. With a long-term contract, the contractor protects herself from ex post exploitation by specifying the contractee’s responsibilities before becoming lock-in.

A long-term contract that prevents the contractee from raising the price ex post might tempt him to lower the quality instead. Because of that would be inefficient,

contractors would prefer no long-term contract (Farrell et al. 1989). Accordingly, the market is expected to interpret a long-term contract announcement as conveying good information about the contractor company, and cumulative excess returns are therefore expected for the contractor. Therefore, significant and positive excess returns are expected for both the contractee firms and contractor firms entering contracts that are above median of their sample, and the null hypothesis will be:

H5: significantly abnormal returns will not found for either contractees or contractors entering agreements where the maturity is above the median of the sample, against the alternate hypothesis.

1.1.3 Initial Vs Subsequent Announcement

The first public contract announcement is a good sign for the contractee company, which means the contractee company will have positive net cash flow from the contract. Therefore, it is expected the market will have positive and significant reaction for the first announcement of the contractee company. The contract is hypothesized to be view by the market as simply normal business for contractor companies, and significant excess returns are not expected for their stock. So, the null hypothesis will be:

H6: significantly abnormal returns will not be found for the contractees entering agreements where the announcement is first public announce to the market, and contractor's equity will receive significantly positive abnormal return, against the alternative hypothesis.

1.1.4 Leverage

As we known, debt can be sued to “leverage up” the rate of return on equity. Firms with relative high debt ratios have higher expected returns when the economy is normal, but they can also suffer losses when economy goes into a recession. Thus, firms with low debt ratio are less risky, but they also forego the opportunity to

leverage up their return on equity. The prospects of high returns are desirable, but investors are averse to risk. The leverage is defined as:

$$\text{Leverage 1} = \frac{\text{Total Liability}}{\text{Total Liability} + \text{Market Value}}$$

Where:

Total Liabilities = the total liabilities of the company one year before the announcement

Market Value = the market value of the company one year before the announcement

$$\text{Leverage 2} = \frac{\text{Total Liability}}{\text{Total Assets}}$$

Where:

Total Liabilities = the total liabilities of the company one year before the announcement

Market Assets = the total assets of the company one year before the announcement

When the contractor firms entered the contracts with high leverage ratio, the market will interpret this announcement as a good sign that the contractor has confident with the contractor's ability to paid the bill. If the contractee firms with high debt ratio won a contract, that means they have more cash flow to repaid its debt. Therefore, significant and positive excess returns are expected for both the contractee and contractor firms entering contracts that are above the median, and the null hypothesis will be:

H7: significantly abnormal returns will not be found for either contractees or contractors entering agreements where the leverage ratio is above median of the sample, against the alternative hypothesis.

1.2 Firm Size

According to capital market theory, an efficient market attaches value to a firm based on publicly available information. When information is not made available, firm valuation becomes a complicated and costly process. The prior research indicates that

the amount of publicly available information is not equal for firm for all size. Hence, uneven costs and information asymmetry are imposed between large and small firms (Hayes, Hunton, & Reck 2000). Because more public information concerning large firm is available, the market has already impounded and adjusted its beliefs for most information released in financial report. However, small firms have fewer public disclosures between releases of financial reports, thereby providing the market with little basis for making valuation adjustments. Hence, the market tends to significantly react to the information of small firms.

As stated before, firm size will only be included in the cross sectional model, but will not be analyzed for contractee abnormal returns. Contractee and contractor firm size, although similar to the relative contract size hypothesis above, is expected to influence the market also. Because larger firms should generally be operating at a lower ATC than smaller firms within a given industry, the size of a firm should be related to its competitive and strategic posture. Therefore, larger firms could be expected to be associated with higher market reaction relative to smaller firms. Also, larger firms should have a lower cost of capital because their cash flows should be in a lower risk class. Given that the larger a firms ism the more competitive it should be in any given contracting situation. Also, smaller firms are expected to want to do business with larger firms because of the shear volume of business that the larger firm can give them. Smaller firms are expected to be very competitive when bargaining with larger firms, and larger contracts. Although smaller firms are expected to be very competitive, larger firms are expected to be better able to bargain for favorable contractual terms.

On the other hand, if a larger firm were more efficient at its business, why would a relative smaller company win a large contract? Could the winning of a large contract be indicative of some asymmetric information that the smaller firm holds? If not, why did the contractor select the larger company? In this situation, it is hypothesized that when a smaller firm win the contract, it is because the smaller firm is probably holding information that is not asymmetric within the industry. As said before, smaller firms usually have a strong desire to grow, so they strategically seek out market niches that they can exploit into growth. In believing that the later argument is

the stronger one for abnormal market returns, when a smaller firm does win a large contract, it is expected that the market will interpret this type of announcement as indicative of the contractee having asymmetric information. This phenomenon should lead smaller firms to earn greater abnormal returns than larger firms. Total assets, market value of equity, and sales are normally used to measure the size of a firm. The null hypothesis will be:

H8: significant abnormal returns will not be found for contractees entering agreements where their total assets, market value of equity, and sales are below median of the sample, or contractors entering the agreements where their total assets, market value of equity, and sales are above the sample median, against the alternate hypothesis.

1.3 Information Asymmetry

1.3.1 TIA/TA Ratio

The main difference between the tangible and intangible assets is that tangible assets is that tangible assets have to be present for the business operations to take place whereas intangible assets are necessary for competitive success (Arikan 2002). The “intangible assets” are organizational capital, such as business alliance, customer capital, the value of branding and reputation for quality or service, and intellectual capital, such as patents and proprietary technology. Hard to defined, and even harder to measure, intangible assets are becoming increasing essential to the success of many companies in the 21st century.

According to the resource-based logic, firm-specific resources that are rear, valuable, and inimitable are the real sources of competitive advantage. Of these firm-specific resources, intangible assets are more likely to be the source of sustainable competitive advantage because they are harder and more time-consuming to accumulate, provide simultaneous uses and they are both inputs and outputs of business activities.

Moreover, these intangible assets are likely to be casually ambiguous making them less likely to be imitated by competitors (Arikan 2002).

Firms with high TIA/TA ratio have higher competitive advantage than those with low TIA/TA ratio. Therefore, significant and positive excess returns are expected for the contractee firms entering contracts that are above median of their sample, and no excess returns are expected for the contractor firms entering contracts that are above their sample median, and the null hypothesis will be:

H9: significant abnormal returns will not be found for contractees entering agreements where the ratio of intangible assets to total assets is above median of the sample, and significant and positive abnormal return will be found for the contractors entering agreements where the ratio of intangible assets to total assets is above median of the sample.

1.3.2 RD/TA Ratio

The emergence of new global competitors, the convergence of high technology industries, and the increasing speed and cost of technological development promise an increasingly more uncertain environment for firms, requiring them to be efficient, innovative, and flexible (Duncan, 1976; Hagedoorn & Schakenraad, 1994). Thus, it is becoming increasingly important for firms invest in R & D and intangible assets. Two recent studies of UK and US firms find that the private returns to R & D are over twice those on tangible assets (Chauvin and Hirschey 1993; Stoneman and Toivanen 1997).

An empirical study of US firms found that brand names are valued by share markets (Barth 1998), although the brand names considered were only those most widely known and researched. Different industries require different measures of intangible capital. For example, advertising expenditures are an important source of intangible capital in the distilled beverage and cosmetic industries, research and development expenditures (R & D) are important for the pharmaceuticals industry (Megna &

Mueller 1991), and Patents are important for optical scanners (Trajtenberg 1991) and semiconductors (Megna & Klock 1993).

When a contractee that has relative high ratio of R& D to total assets, it is expected the firm holds some type of idiosyncratic knowledge of certain process or technology, and thus exploited an information monopoly situation. Therefore, significant and positive excess returns are expected for the contractee firms entering contracts that are above median of their sample, and no excess returns are expected for the contractor firms entering contracts that are above their sample median, and the null hypothesis will be:

H10: significant abnormal returns will not be found for contractees entering agreements where the ratio of R & D to total assets is above median of the sample, and significant and positive abnormal return will be found for the contractors entering agreements where the ratio of R & D to total assets is above median of the sample.

1.3.3 Tobin Q Ratio

Tobin's q ratio is calculated as the market value of equity divided by book value of total assets. Tobin's q reflects a firm's prospects for profitability: q can be interpreted as investors' views on the ability of management to generate more cash from assets. The value of Tobin's q greater than 1 indicates an assessment by financial claimants that the corporation will generate greater value from its asset stock than if the assets were deployed outside the firm (McGahan 1999).

Based on the argument of Lang, Stulz, and Walkling (1991), firms with high Tobin's q ratios are likely to have more investment opportunities than those with low Tobin's q ratios. Firms with high Tobin's q ratio are more likely to have positive net present value projects, while firms with low Tobin's q ratios should be less likely to have positive net present value projects. Thus the growth opportunities of low Tobin's q firms should be limited, and their potential prospects should be more limited. But if

the contractee with low Tobin's q ratio winning a contract, which is a good sign that the market expected the growth opportunities of the contractee will be increased. Therefore, contract announcement by firms with an below median Tobin's q ratio are expected to be associated with significantly higher market reaction compared to below median Tobin's q firm. The null hypothesis will be:

H11: significant abnormal returns will not be found for contractees entering agreements where the Tobin's q is below median of the sample, and significant and positive abnormal return will be found for the contractors entering agreements where the ratio of Tobin's q is above median of the sample.

1.3.4 Capital Intensity

Myers and Majluf (1984) argued that, in the presence of information asymmetry, a firm with sufficient 'financial slack' can avoid higher external financing cost and can take on profitable new projects which otherwise might be passed over. Financial slack can take the form of liquid assets such as cash and marketable securities, and reserve borrowing capacity. Increasing the book value of total tangible assets can enhance reserve-borrowing capacity.

Capital intensity is defined as the ratio of fixed asset to total assets, which is used as a proxy for the collateral value of firm's assets. The rationale underlying this ratio is that tangible assets are easy to collateralize and thus they reduce the agency cost of debt (Rajan & Zingales 1995). This ratio refers to how reliable or safe the firm is. If firm with a high capital intensity are recognized as having a greater collateral value of assets.

If the firm with a low capital intensity ratio has received a contract, the market is expected to interpret the contract announcement as that the contractor believes the contractee can deliver the goods and services. The contract also conveys contractee beliefs about the contractor company, which would be in business for at least the

duration of the contract. Therefore, positive and significant cumulative excess returns are expected for the contractees and contractors entering contracts that are below the median of their sample, and the null hypothesis will be:

H12: significant abnormal returns will not be found for contractees and contractors entering agreements where the capital intensity ratio is below median of the sample.

1.4 Historical Profitability

1.4.1 Basic Earning Power

Basic earning power is calculated by dividing earning before interest and taxes (EBIT) by total assets. This ratio shows the raw earning power of the firm's assets, before the influence of taxes and leverage.

If a firm with low basic earning power earn a contract, it would be expected that firm will improve its earning. Accordingly, abnormal returns are expected to be significant for the contractee firms entering contracts that are below the median of their sample, and significant abnormal returns are not expected for the contractor firms, and the null hypothesis will be:

H13: significant abnormal returns will not be found for contractees entering agreements where the basic earning power is below median of the sample, and significant and positive abnormal return will be found for the contractors entering agreements where the basic earning power is above median of the sample.

1.4.2 Return on Equity

Return on equity is calculated as net income divided by the market value of equity estimated one year before the announcement. ROE is used as a proxy for firm profitability. Firms with relatively high ROE are considered to be high profitability in the sense described by Myers (1984).

As mention above, contract announcement of a firm with low ROE will be a good sign of improving the earning that firm, and the market is expected to have positive and significant reaction. Therefore, abnormal returns are expected to be significant for the contractee firms entering contracts that are below the median of their sample, and significant abnormal returns are not expected for the contractor firms, and the null hypothesis will be:

H14: significant abnormal returns will not be found for contractees entering agreements where the return on equity is below median of the sample, and significant and positive abnormal return will be found for the contractors entering agreements where the return on equity is above median of the sample.

1.5 International versus national contracting

The international versus national status of the contractor will be included in both the Market Model and cross-sectional analysis for contractee abnormal returns, vise and versa. Two major issues are hypothesized to affect the abnormal returns. The first issue is that of diversification, and the other is the increased risk of international business.

From a U.S. perspective, U.S. firms that win large international contracts are expected to be seen by the stock market as leaders within their industries. By having more diverse sales, in more than one economy, the contractee firm announcing an international contract should be seen by the market as less risky than one entering a purely domestic contract. Conversely, international business transactions are usually

perceived as being in a higher risk class than purely domestic ones. International transactions face more risky cash flows. Therefore, for the international contractor to face these additional risks, informational asymmetry and informational monopolies are probably present.

Therefore, because of the increased probability that an international contract is indicative of asymmetric information, and the good signal that an international contract is indicative of the contractee diversifying its business, the international contract is expected to have higher abnormal returns than a domestic one. Also, to account for the significance of the international contract issue, a dummy variable will be included in the contractee regression model to account for the international dimension in the contracting process.

Accordingly, significant and positive abnormal returns are expected either for the U.S. contractee with an international contractor, or for the international contractees. Conversely, significant and negative abnormal returns are expected either for the U.S. contractor with an international contractee, or for the international contractors.

H15: significant and positive abnormal returns will not be found for either the U.S. contractee with an international contractor, or for the international contractees. Significant and negative abnormal returns will not be found for either for the U.S. contractor with an international contractee, or for the international contractors.

1.6 Industry Sector

Industry effects arise when the average performance of direct competitor is abnormally high or low. Permanent (or fixed) industry effect reflects impediments to product or resource flows that affect the incumbents of an industry in common for the entire time. Examples include barriers to entry, switching costs, and widespread opportunities to differentiate. Transient industry effects reflect the common tendencies in performance among direct competitors.

Industries with poor external documentation will exist relatively greater information asymmetry (Flannery 1986). High technology firms (Amir and Lev 1996) and service industries (Lang and Warfield 1997) may be particularly subject to poor external documentation since standard financial reporting systems do not capture many factors that impact the value of these firms (e.g., intellectual capital and other “soft” assets). Additionally, prior research indicates that service firms allocate a higher proportion of their resources to information technology investments (Roach 1988). As a result of information asymmetry between service firms and non-service firms, and the higher proportional allocation of information technology resources in service firms, the market should place greater value on contract announcement related to the service firms as compare to the non-service firms. Therefore, the null hypothesis will be:

H16: significant and positive abnormal returns will not be found for service industry contractees, and significant and negative abnormal returns will not be found for the service industry contractors.

2. Cross-Sectional Regression Model

After all Market Model samples have been analyzed, two cross-sectional regression models will be developed, one for the contractee and the other for the contractor sub samples respectively. Variable that will be included in the model will be defined and their inclusion will be theoretically defined in this section. Also, the expected sign of all independent variables will be hypothesized.

2.1 Contractee Regression Model

For the contractee sample, the basic regression model will be estimated as follows:

$$CAER_{1(t-1, t0)} = \beta_0 + \beta_1 TOBIN\ Q + \beta_2 RCSIZE + \beta_3 LOG\ MV + \beta_4 INTG + \beta_5 RAD + \beta_6 ROE + \beta_7 CAPI + \beta_8 LEV1 + \beta_9 DID + \beta_{10} DNATLOR + \varepsilon_1$$

Where:

CAER₁ = cumulative average excess returns for contractee equity from t₋₁ to t₀

TOBIN Q = market to book value of the contractee firm

RCSIZE = relative contract size defined as, the dollar value of the contract relative to the total assets of the contractee firm, one year before the announcement

LOG MV = log of the market value of equity of the contractee firm, one year before the announcement

INTG = the intangible assets relative to the total assets of the contractee firm, one year before the announcement

RAD = the R & D relative to the total assets of the contractee firm, one year before the announcement

ROE = return on equity of the contractee firm, one year before the announcement

CAPI = capital intensity defined as, the fixed asset relative to the total assets of the contractee firm one year before the announcement

LEV1 = leverage 1 defined as total liabilities to the sum of total liability and market value of the contractee firm, one year before the announcement

DID = a dummy variable that takes a value of one if the announcement is the first announcement of the contractee firm, and zero otherwise.

DNATLOR = a dummy variable that takes a value of one if the contractor is an international organization, and zero otherwise.

ε₁ = the random error term

It is expected that all the independent variables above will significantly affect contractee cumulative average excess returns in the t₋₁ through t₀ announcement period of a large contract. According to the information content hypothesis, if the announcement of winning a contract conveys information about the future prospect of the firms, then it has been hypothesized that the market is expected to react, and this reaction is expected to be related to sample characteristics (the relative contract size, the size, maturity of the contract, announcement sequence, and leverage) of the firm, the size of the firm (total assets, market value of equity, and sales), historical profitability of the firm (basic earning power and return on equity), industry sector of

the firm, and the status of the contractor (whether it is an international entity). As in the Market Model analysis, the market is expected to differentiate between contracts of different relative size, and greater excess returns are expected for a small company winning a large contract (i.e., a large contract size). In the regression analysis, firm size is also used.

Firm size is hypothesized to influence cumulative average excess returns, in that when a smaller company wins a large contract, the market is expected to interpret the announcement as indicative of asymmetric information held by that company, and the firm is probably exploiting an informational monopoly. Therefore, in the contractee regression model, the coefficient of the variables relative to firm size are expected to be statistically significant and negative. Greater cumulative average excess returns are expected for smaller firms winning larger contracts than the converse situation, in that the smaller the firm size is, the greater the market will react with abnormal returns.

The relative contract size is also expected to be significant in the contract announcement. The coefficient of the RCSIZE variable is expected to be significant and positive, so that when the relative size of the contract rises, the market is expected to react to the announcement with higher cumulative average excess returns because the contractee has a higher probability of holding asymmetric information, and an information monopoly could be present.

The DNATLOR variable is expected to vary directly with the CAER to the contractee. Because greater returns are expected for the international sample due to less competitive contracting and diversification of business, the coefficient is expected to be significant and positive for both.

According to the zero sum game theory, due to the information asymmetries, the contractee should benefit from the contractor's cost. Therefore, match sample is used to build up the second model to investigate that. In the match sample, abnormal returns of both contractee and contractor in the contract announcement are available in the CRSP. By adding one more variable (CARTOR) that represent the contractor's

cumulative average abnormal return in the contractee's basic model. It is expected the CARTOR variable to be significant and positive.

$$CAER_{1(t-1, t_0)} = \beta_0 + \beta_1 TOBIN Q + \beta_2 RCSIZE + \beta_3 LOG MV + \beta_4 INTG + \beta_5 RAD + \beta_6 ROE + \beta_7 CAPI + \beta_8 LEV1 + \beta_9 DID + \beta_{10} DNATLOR + \beta_{11} CARTOR + \varepsilon_1$$

Where:

CAER₁ = cumulative average excess returns for contractee equity from t₁ to t₀

TOBIN Q = market to book value of the contractee firm

RCSIZE = relative contract size defined as, the dollar value of the contract relative to the total assets of the contractee firm, one year before the announcement

LOG MV = log of the market value of equity of the contractee firm, one year before the announcement

INTG = the intangible assets relative to the total assets of the contractee firm, one year before the announcement

RAD = the R & D relative to the total assets of the contractee firm, one year before the announcement

ROE = return on equity of the contractee firm, one year before the announcement

CAPI = capital intensity defined as, the fixed asset relative to the total assets of the contractee firm one year before the announcement

LEV1 = leverage 1 defined as total liabilities to the sum of total liability and market value of the contractee firm, one year before the announcement

DID = a dummy variable that takes a value of one if the announcement is the first announcement of the contractee firm, and zero otherwise.

DNATLOR = a dummy variable that takes a value of one if the contractor is an international organization, and zero otherwise.

CARTOR = the cumulative average excess return for contractor equity from t₁ to t₀ in the same announcement

ε₁ = the random error term

2.2 Contractor regression model

For the contractor sub-sample, the regression model will be defined as follows:

$$\text{CAER}_{2(t-1, t_0)} = \beta_0 + \beta_1 \text{TOBIN Q} + \beta_2 \text{RCSIZE} + \beta_3 \text{LOG MV} + \beta_4 \text{INTG} + \beta_5 \text{RAD} + \beta_6 \text{ROE} + \beta_7 \text{CAPI} + \beta_8 \text{LEV1} + \beta_9 \text{DID} + \beta_{10} \text{DNATLEE} + \varepsilon_1$$

Where:

CAER₂ = cumulative average excess returns for contractor equity from t₋₁ to t₀

TOBIN Q = market to book value of the contractor firm, one year before the announcement

RCSIZE = relative contract size defined as, the dollar value of the contract relative to the total assets of the contractor firm, one year before the announcement

LOG MV = log of the market value of equity of the contractor firm, one year before the announcement

INTG = the intangible assets relative to the total assets of the contractor firm, one year before the announcement

RAD = the R & D relative to the total assets of the contractor firm, one year before the announcement

ROE = return on equity of the contractor firm, one year before the announcement

CAPI = capital intensity defined as, the fixed asset relative to the total assets of the contractor firm one year before the announcement

LEV1 = leverage 1 defined as total liabilities to the sum of total liability and market value of the contractor firm, one year before the announcement

DID = a dummy variable that takes a value of one if the announcement is the first announcement of the contractor firm, and zero otherwise.

DNATLEE = a dummy variable that takes a value of one if the contractee is an international organization, and zero otherwise.

ε_1 = the random error term

Contractor sample cumulative average excess returns (CAER₂) are only expected for small contractors entering relatively large contracts. The contractor regression model will use the same size related independent variables used in the contractee sample, but the dummy variables are not applicable in this situation. The contractor firm size was also included in the model because it is expected that a small contractor giving a large contract will signal to the market that the firm is making commitments against future cash flows that could raise the firms perceived risk class. It is expected that the variables relative to contractor firm size will be significant, and have a negative sign. The contract size relative to the contractor's total assets (RCSIZE) will also be included in the model because of the possibility of a small firm giving a contract that is very large as compared to it size. Therefore, the market is expected react negatively to this type of contracting situation. Therefore, the RCSIZE variable is expected to be statistically significant and carry a negative sign.

As mention before, a second model is build up for the contractor match sample, and CARTEE is add in the basic contractor sample. The CARTEE variable is expected to be statistically significant and carry a negative sign.

The second model as follow:

$$CAER_{2(t-1, t_0)} = \beta_0 + \beta_1 TOBIN\ Q + \beta_2 RCSIZE + \beta_3 LOG\ MV + \beta_4 INTG + \beta_5 RAD + \beta_6 ROE + \beta_7 CAPI + \beta_8 LEV1 + \beta_9 DID + \beta_{10} DNATLEE + \beta_{11} CARTEE + \varepsilon_1$$

Where:

CAER₂ = cumulative average excess returns for contractor equity from t₋₁ to t₀

TOBIN Q = market to book value of the contractor firm, one year before the announcement

RCSIZE = relative contract size defined as, the dollar value of the contract relative to the total assets of the contractor firm, one year before the announcement

LOG MV = log of the market value of equity of the contractor firm, one year before the announcement

- INTG = the intangible assets relative to the total assets of the contractor firm, one year before the announcement
- RAD = the R & D relative to the total assets of the contractor firm, one year before the announcement
- ROE = return on equity of the contractor firm, one year before the announcement
- CAPI = capital intensity defined as, the fixed asset relative to the total assets of the contractor firm one year before the announcement
- LEV1 = leverage 1 defined as total liabilities to the sum of total liability and market value of the contractor firm, one year before the announcement
- DID = a dummy variable that takes a value of one if the announcement is the first announcement of the contractor firm, and zero otherwise.
- DNATLEE= a dummy variable that takes a value of one if the contractee is an international organization, and zero otherwise.
- CARTEE = the cumulative average excess return for contractee equity from t_{-1} to t_0 in the same announcement
- ε_1 = the random error term

CHAPTER IV

DATA DESCRIPTION

The original data sample was obtained from Dow Jones & Company, Inc. by using keyword search in all publications that available the Dow Jones Interactive web site. Under these parameters, the dialog search found 7137 contract announcements reported from January 1, 1990 to December 31, 2000. A few examples of the different types of contract announcements that were in the DJ Interactive can be referenced to in the appendix.

1. Data Description

The 7137 contract announcements were entered into a data file including data about each specific contract announcement. These data fields include:

Announcement Date: The announcement date of the contract was compare to the trading days listing from the Center for Research of Security Prices (CRSP) tape. If the announcement date fell on a nontrading day, the next trading day available was entered as the contract announcement date.

Size of the Contract: Contract size was rounded off in millions.

SIC code: The Standard Industrial Classification code of both the contractee and contractor was entered in the data.

CUSIP: The CRSP tape identification number for both contracting parties were entered for contracting events.

Company Account Data: For the size issue analysis, the major company account data (Total Assets, Fixed Asset, Intangible Assets, R&D Expenditure, Total Liability, Long-term Debt, Total Sales, EBIT, Market Value of Equity, Book Value of Equity,

Return on Equity, Net Income, Number of Shares.) of companies in the study was found in Data Stream database for the year prior to the date of the contract's announcement.

Dummy Variables: Three dummy variables were also added to the sample. Two of the dummy variables identified elements of the two parties enter into the contract, one, whether or not the contractor was U.S. firm or an international firm (but trade in the U.S.), and two, whether or not the contractee was a U.S. firm or a U.S. traded international firm. The dummy variable equals one if the firm is a U.S. company or zero if it is an international company. The last dummy variable indicates whether or not the contract announcement was the first announcement of firms in studies, which equals one if the announcement is the first announcement of the firm in study or zero for the subsequent announcement.

2. Contamination Issue

Within the Brown & Warner (1985) event study methodology, any contaminating announcements made in the Wall Street Journal within ± 2 days of the contract announcement will be included in a "contaminated" sub-sample. Confounding announcements included defense contracts, realized or pending mergers, acquisitions, joint ventures and leverage-by-outs. Also announcements about contingent and realized liabilities due to litigation, reorganizations and restructuring announcement were believed to contaminate the announcement period, due to the mixing of signals other major announcements would sent to the stock market.

This study's focus was on valuation effects, and financial and legal contract events were excluded from the study because it was thought that including them in the sample set would have diluted the results, because contracts are central to the normal course of business within these industries. Therefore, all contract events in the 7137 fields sample that involved contracts for litigation (contract disputes, jury awards, non-complete, patent and union contracts) along with purely financial contracts (including merger and acquisition, joint-venture, restructuring, leasing, debt/equity

offerings and credit contracts) and government contracts were removed from the sample.

The initial sample of 7137 contract announcements is reduced to 984 contractee sample and 575 contractors sample, and the data met the following criteria:

- 1) The firms had returns on the CRSP Tape Daily Return File 250 days before the announcement to 90 days after.
- 2) No major confounding events (earning announcements, merger and acquisition announcements, dividend announcements, capital structure change, etc.) occurred within a five-day window, from two days before to two days after the contract announcement.

Table 2 explains the difference between the initial sample (7137) and the final sample (984 contractee sample and 575 contractor sample) by showing the reason for deletion to obtain the final sample. The difference is due to the following reasons.

- a) Some contracts are government contract. 5748 announcements were government contract announcement.
- b) Some companies are not listed and thus have no CRSP number. 305 announcements were made by unlisted companies.
- c) Some companies have confounding events occurred within a five-day window from two day before, to two day after, the contract announcement. 42 firms have confounding events.
- d) Some companies have no returns available on the CRSP tape because they were de-listed or suspended from trading. Also some companies with missing return during the announcement period are eliminated. 58 announcements were dropped by this reason.

A frequency distribution table of the number of contract events included in the final contractee sample for each respective year that this study covered is given in Table 3, and in graphic form in Figure 1.

Table 4 exhibits the summary statistics for selected companies account data of contractee samples. Table 4 shows that contract sizes ranging from \$1.0 million to \$15.0 billion. The mean (median) contract size was \$400.91 (\$100) million. The average maturity of the contracts equals 5 year. The average (median) total liability was \$25.6 (\$5.2) billion, and was ranged from \$85,000 to \$357 billion.

The firm size ranged from \$7.6 million to \$405.2 billion. The average (median) firm size was \$32.7 (\$9.4) billion. The mean (median) market value of equity equals \$29.5 (\$8.51) million. The average (median) total sales equal \$24.5 (\$10) billion. The median total intangible assets (R & D) equal \$1.09 billion (\$545 million). The median fixed assets equal \$2.45 billion.

EBIT is ranged from -\$7.6 billion to \$25.9 billion. The median EBIT is \$734 million. ROE is range from -1062 to 1477. The median ROE is \$14.23 million.

Table 5 reports the summary statistics for selected company account data of contractor sample. Table 5 shows that contract sizes ranging from \$1.0 million to \$20.0 billion. The mean (median) contract size was \$918 (\$100) million. The average maturity of the contracts equals 5 year. The average (median) total liability was \$32.6 (\$9.47) billion, and was ranged from \$103,000 to \$357 billion.

The firm size ranged from \$10 million to \$405.2 billion. The average (median) firm size was \$41.6 (\$15.8) billion. The mean (median) market value of equity equals \$28.2 (\$13.74) million. The average (median) total sales equal \$31.8 (\$14.9) billion. The median total intangible assets (R & D) equal \$1.77 billion (\$871 million). The median fixed assets equal \$5.95 billion.

EBIT is ranged from -\$7.52 billion to \$34.3 billion. The median EBIT is \$1.43 billion. ROE is range from -597 to 588. The median ROE is \$15.51 million.

A frequency distribution table of the number of the contract events included in the final contractor sample for each respective year that this study covered is give in table 3, and is in figure 2.

CHAPTER V

METHOD OF ANALYSIS

A market model is used to estimate the abnormal security returns associated with line of credit announcements. The model assumes that realized rates of return are represented by the following relationship:

$$R_{j,t} = \alpha_j + \beta_j * R_{m,t} + \epsilon_{j,t}, \quad (1)$$

Where

$R_{j,t}$ = the rate of return on security j on day t,

$R_{m,t}$ = the rate of return on the value-weighted market index on day t,

α_j = the intercept of the linear relationship for security j, which is given by $E(R_j) - \beta_j * E(R_m)$,

β_j = the slope of the linear relationship between security j and the return on the market index,

$\epsilon_{j,t}$ = the unsystematic component of security j's return on day t.

The estimated return for security j on day t based on the actual market return on day t is given by the following equation:

$$\hat{R}_{j,t} = \hat{\alpha}_j + \hat{\beta}_j * R_{m,t}, \quad (2)$$

where $\hat{\alpha}_j$ and $\hat{\beta}_j$ are estimates of α_j and β_j .

These estimates are obtained by regressing the daily returns for security j on the daily returns for the market over the 150-day period from day t = -240 through day t = -91. The abnormal return for each security j on day t is given by the following equation:

$$A_{j,t} = R_{j,t} - (\hat{\alpha}_j + \hat{\beta}_j * R_{m,t}). \quad (3)$$

The average abnormal return (AAR_t) on day t is the sample mean:

$$AAR_t = \left[\frac{1}{N} * \sum_{j=1}^N A_{j,t} \right], \quad (4)$$

where t is defined in trading days relative to the event day (eg. $t - 90$ means 90 trading days before the event). Over an interval of two or more trading days beginning with day T_1 , and ending with T_2 , the cumulative average abnormal return ($CAAR_{T_1,T_2}$) is given in (5).

$$CAAR_{T_1,T_2} = \left[\frac{1}{N} * \sum_{j=1}^N \sum_{t=T_1}^{T_2} A_{j,t} \right]. \quad (5)$$

Under the null hypothesis, each $A_{j,t}$ has a mean of zero and $\sigma_{A_{j,t}}^2$. The maximum likelihood estimate of the variance is:

$$S_{A_{j,t}}^2 = S_{A_j}^2 * \left[1 + \frac{1}{D_j} + \frac{(R_{m,t} - \bar{R}_m)^2}{\sum_k^{D_j} (R_{m,k} - \bar{R}_m)^2} \right], \quad (6)$$

where

$$S_{A_j}^2 = \left[\frac{1}{D_j - 2} * \sum_{k=1}^{D_j} A_{j,k}^2 \right],$$

$R_{m,t}$ = the observed return on the market index on day t ,

\bar{R}_m = the mean market return over the estimation period,

D_j = the number of non-missing trading-day returns used to estimate the parameters for firm j .

Define the standardized abnormal return ($SAR_{j,t}$) as:

$$SAR_{j,t} = \left[\frac{A_{j,t}}{SA_{j,t}} \right]. \quad (7)$$

Under the null hypothesis, each $SAR_{j,t}$ follows a Student's t distribution with $D_j - 2$ degrees of freedom. Summing the $SAR_{j,t}$'s across the sample produces the total standardized abnormal return (TSAR) as follows:

$$TSAR_t = \sum_{j=1}^N SAR_{j,t}. \quad (8)$$

The expected value of $TSAR_t$ is zero. The variance of $TSAR_t$ is given as follows:

$$Q_t = \left[\sum_{j=1}^N \frac{D_j - 2}{D_j - 4} \right]. \quad (9)$$

The test statistic for the null hypothesis that $CAAR_{T1,T2} = 0$ is:

$$Z_{T1,T2} = \left[\frac{1}{\sqrt{N}} * \sum_{j=1}^N Z_{T1,T2}^j \right], \quad (10)$$

Where:

$$Z_{T_1, T_2}^j = \left[\frac{1}{\sqrt{Q_{T_1, T_2}^j}} * \sum_{t=T_1}^{T_2} SAR_{j, t} \right]$$

$$Q_{T_1, T_2}^j = (T_2 - T_1 + 1) * \frac{D_j - 2}{D_j - 4}.$$

Under cross-sectional independence of Z_{T_1, T_2}^j and other conditions [See Patell (1976)], Z_{T_1, T_2} follows the standard, normal distribution under the null hypothesis.

The precision-weighted cumulative, average, abnormal return (PWCAAR) is constructed using the same relative weights as those implied in the definition of Z_{T_1, T_2} . The formula for the PWCAAR is given in (11) below.

$$PWCAAR_{T_1, T_2} = \sum_{j=1}^N \sum_{t=T_1}^{T_2} w_j A_{j, t}, \quad (11)$$

Where:

$$w_j = \left[\frac{\left(\sum_{t=T_1}^{T_2} S_{A_{j, t}}^2 \right)^{-1/2}}{\sum_{j=1}^N \left(\sum_{t=T_1}^{T_2} S_{A_{j, t}}^2 \right)^{-1/2}} \right].$$

CHAPTER VI

RESULTS OF THE MARKET MODEL AND CROSS-SECTIONAL REGRESSION

1. Results of the Market Model

As hypothesized, statistically significant abnormal returns were found for the contractee sample of companies in the event period. As accordance with hypothesized expectations, contractor companies had insignificant abnormal returns.

A. Result for the Total Sample

Table 6 presents the event study returns for the total sample of 984 contract announcements over the period from 90 days before, to 90 days after, the announcement day. Statistics reported are the average abnormal return, media abnormal return, the number of positive versus negative abnormal returns, z-statistic for the average abnormal return, and the generalized sign Z. The lower part of the table reports the same variable but for different intervals. The largest average abnormal return (AAR) of 1.13 percent occurs on day t_1 , followed by day t_0 (0.3 percent). The two-day announcement period AAR is 1.43 percent with z-statistic of 7.137, which is statistically significant at 0.10 percent. There are 566 positive AARs relative to 418 negative. The generalized sign Z-statistic is 6.314, which is statistically significant at 0.10 percent.

The results in Table 6 are consistent with the information asymmetry hypothesis and reject the null hypothesis (Hypothesis 1), which predicts no market reaction to the contract announcement. The positive and highly significant market response is consistent with the signaling hypothesis and reject the null hypothesis (Hypothesis 3).

Based on this evidence, the results strongly support the hypothesis that the market reacting to information that is conveyed in a contract announcement concerning contractee abnormal returns. Therefore, according to the findings, the null hypothesis is strongly rejected.

In the contractor sample, 575 companies were analyzed for abnormal returns, and excess returns were expected, because the market was hypothesized to see the contract announcement as a sign of commitment on the part of the contractee, due to relationship specific investment and contract lock-in. Unexpectedly, CAAR results (refers to Table 7 and Figure 4) were not significant for the contractor sample. Although the contractor sample did received positive CAAR for the announcement period of 0.04%, the Z-statistic was only -0.092 , which is not statistically significant.

The distribution of the two-day (day $t-1$ to day t_0) and three-day (day $t-1$ to day $t+1$) announcement period CAERs for 984 contractees and 575 contractors are presented in table 9. The majority distribution of the contractee sample appears to be reasonably normal, but there are 12 outliers at the two-days window and 13 outliers at the three-days window. The contractor sample has similar result, and there are 12 outliers at the two-days window and 19 outliers at the three-days window. Therefore, we cannot confident our results are not driven by the large observation.

1.1 Sample Characteristics

1.1.1 The Relative Contract Size

Table 11 reports the announcement period CAAR of contractees at the two-day window (day t_{-1} to day t_0) and three-day window (day t_{-1} to day t_{+1}), when the final sample is divided on the basis of the relative contract size, with firms have above median (below median and unknown) relative contract size in panel A1 (A2 and A3). As expected, announcements with above median relative contract size are associated with a higher CAAR (2.53%) and Z-value (6.193) compare to the announcements with a below median contract size (CAAR = 0.13% and $Z=0.325$). Both the Z statistic and the generalized sign Z-statistic (5.451) of above median relative contract

size is significant at 0.10 percent level. The mean difference in CAARs (A1-A2) is 2.40%, and statistically significant, as is expected under the size hypothesis (Hypothesis 4). There are 493 announcements do not have data of the contract amounts. The announcements with unknown relative contract size have a high CAAR (1.53), Z value (5.112), and generalized sign Z-statistic (4.467), which are statistically significant at 0.10 percent level. These results strongly supported our argument that the market will have greater reaction to the announcement of small firm received large amount contract than those of large firm receive large contract.

As far as contractor abnormal returns for relative contract sizes, which are reported in Panel A of Table 12, that is above median equals 0.70 ($Z=1.905$) and statistically significant at 10 percent level. The CAAR for contractors entering contract with below median maturity equals -0.61% ($Z=-2.653$) and is statistically significant at one percent level. These results are not consistent with our expectation that the small firm offer large contract will receive negative and statistically significant abnormal return.

1.1.2 Maturity of Contract

As above mention, the market reaction to the contract announcement may be related to the duration of the contract. Panel B of Table 11 shows that contractees with above median contract duration are associated with a CAAR of 1.05% ($Z=2.833$), which is significant at 0.1 percent level, compared to the CAAR of 2.20% ($Z=3.528$) for below median contracts. The difference (B1-B2) in CAARs equals -1.15% ($Z=-4.336$), which is significant at the 0.1 percent level. This result is not consistent with the expectation drawn previously for Hypothesis 5. This result may be cause by the market will convey that long-term contracts are more risky for the contractee firms because they are “lock-in” to the contractor firms in the contract.

Panel B of Tale 12 shows that the contractors entered above median duration contract are associated with a CAAR of 0.93% ($Z=2.838$) and statistically significant at one percent level. CAAR of contracts with below median duration contracts is -0.61%

($Z=-2.653$), which is significant at one percent level. These results consistent our expectation that the market positive reaction to the long term contract for contractors as it conveys that the contractee believe the contractor will be in business for at least the duration of the contract.

1.1.3 Initial Vs Subsequent Announcement

Panel C of Table 11 shows that the first contract announcement of contractee firms in study are associate with a larger market reaction compare to the subsequent announcement. The difference in the announcement CAARs between the first announcement and subsequent announcement equals 2.06% ($Z=12.397$), which is statistically significant at the 0.1 percent level. Theses results are consistent with the prediction of Hypothesis 6 that the market will have higher reaction to the first announcement.

Panel C of Table 12 shows that the CAAR of contractor firms, where the announcement is the first announcement, is -0.08% ($Z=-0.208$) and is not significant. The difference ($C1 - C2$) in CAARs equals -0.23% ($Z=-1.395$) and it is statistically significant at 0.1 percent level.

1.1.4 Leverage

Panel D of Table 11 show that contractee firms with below median leverage 1 associated with a CAAR of 1.69% ($Z=5.037$), which is statistically significant at 0.1 percent level, compare to the CAAR of 0.66% ($Z=1.00$) for the contractee firm with above median leverage. The difference ($D1 - D2$) in CAARs equals -1.03% ($Z=5.472$), which is significant at 0.1 percent level. These results are inconsistent with our expectation in hypothesis 7.

Panel D of Table 12 shows the contractor with above median leverage 1 associated with a CAAR of 0.52% ($Z=1.441$), but not significant. The CAAR of contractor with below median Leverage 1 equals 0.17% ($Z=0.323$), and it is also not significant.

Panel E of Table 11 shows that contractee firms with below median leverage 2 associated with a CAAR of 1.57% ($Z=4.404$), which is statistically significant at 0.1 percent level, compare to the CAAR of 0.88% ($Z=2.065$) for the contractee firm with above median leverage. The difference ($E1 - E2$) in CAARs equals -0.69% ($Z=-3.689$), which is significant at 0.1 percent level. These results are not consistent with the expectation drawn previously for the Hypothesis 7.

The results in Panel E of Table 12 show that contractor firms with above median leverage 2 ratio associated with a CAAR of 0.68% ($Z=1.199$), compare to the CAAR of 0.04% ($Z=0.728$) for contractor firm with below median leverage 2. Both of them are not statistically significant. The difference ($E1 - E2$) in CAARs equals 0.64% ($Z=-3.689$), which is significant at 0.1 percent level. These results are consistent with the expectation of Hypothesis 7, that the market reacts positively and significantly to the risky firms entering the contract.

1.2 Firm Size

Panel A of Table 13 reports the CAAR for announcement by contractee firms with a below median TA equals 2.25% ($Z=5.528$), which is statistically significant at 0.1 level, while that for above median TA equals 0.20% ($Z=0.482$). The difference ($A1 - A2$) in CAAR equals -2.05% ($Z=-10.765$) and this is statistically significant at 0.1 percent level. These results offer strong support for hypothesis 8, that the small firms winning contracts will receive higher abnormal return than the large firms winning contract.

Panel A of Table 14 shows the CAAR for contractor firms with above median TA equals 0.47% ($Z=1.255$), compare to that for below median TA equals 0.27% ($Z=0.919$). Both are not statistically significant. The difference ($A1 - A2$) in CAAR equals 0.20% ($Z=0.969$), which is statistically significant at 0.1 percent level. These results offer strong support for hypothesis 8, that the large firms offer contracts will receive higher abnormal return than the small firms offer contracts.

Panel B of Table 13 shows the CAAR for announcement by contractee firms with a below median MVE equals 2.03% ($Z=4.615$), which is statistically significant at 0.1 level, while that for above median ROE equals 0.31%. The difference (B1-B2) in CAAR in CAARs equals -1.72% ($Z=-9.030$) and this is statistically significant at 0.1 percent level. These results are consistent with our expectation.

Panel B of Table 14 shows the CAAR for the contractor firms with a below median MVE is 0.40% ($Z=1.438$), compared to that for firms with above median MVE equals 0.30% ($Z=0.302$), and both are not significant. The difference (B1 -B2) in CAARs equals -0.10% ($Z=-0.483$) and statistically significant at 0.1 percent level. These results are not consistent with our expectation. The market reacts positive to a small firm offering a contract may be cause by the contract conveys that the firm's earning will be increased by that project, because contractor would not offer contract unless it has a positive Net Present Value of their firm.

Panel C of Table 13 shows the CAAR for announcement by contractee firm with a below median Sales equals 2.19% ($Z=5.009$), which is statistically significant at 0.1 level, while that for above median Sales equals 0.27%. The difference (C1-C2) in CAAR equals -1.92% ($Z=-10.00$) and this is statistically significant at 0.1 percent level. These results are consistent with the prediction of hypothesis 8.

Panel C of Table 14 shows that the CAAR for contractor firms with above median Sales equals 0.48% ($Z=1.115$), and that for contractors with below median Sales equals 0.12% ($Z=0.751$). The difference (C1-C2) in CAARs equals 0.36% ($Z=1.729$) and statistically significant at 0.1 percent level, which support the hypothesis 8.

1.3 Information Asymmetry

1.3.1 TIA/TA Ratio

Panel A of Table 15 shows that the contractees with above median TIA/TA ratio are associated with a CAAR of 1.08% ($Z=3.102$) and is statistically significant at one percent level. For contractee with below median TIA/TA ratio, the CAAR equals 0.59% ($Z=1.495$). The difference (A1-A2) in CAARs equals 0.49% ($Z=2.379$), which is statistically significant at 0.10 percent level. These results support the Hypothesis 9 that contractee with higher relative intangible assets will be benefit from the contract due to the information asymmetries.

Panel A of Table 16 shows that the contractors with above median TIA/TA ratio associated with a CAAR of 0.98% ($Z=2.186$) and is significant at five percent level. CAAR for contractor below median TIA/TA ratio equals 0.44% ($Z=1.051$). The difference (A1 -A2) in CAARs equals 0.54% ($Z=2.021$) significant at 0.1 percent level. These results are contrary to our expectation.

1.3.2 RD/TA Ratio

Panel B of Table 15 shows that the contractees with above median RD/TA ratio are associated with a CAAR of 1.88% ($Z=4.426$) and is statistically significant at 0.10 percent level. For contractee with below median RD/TA ratio, the CAAR equals 1.00% ($Z=1.934$), which is statistically significant at 10 percent level. The difference (B1-B2) in CAARs equals 0.88% ($Z=4.2$), which is statistically significant at 0.10 percent level. These results are strongly supportive of the Hypothesis 10.

Penal B of Table 16 reports that the contractors with above median RD/TA ratio are associated with a CAAR of 0.24% ($Z=0.475$), and the CAAR for contractor with below median RD/TA equals 0.02% ($Z=-0.336$). The difference (B1-B2) in CAARs equals 0.22% ($Z=0.8875$), which it statistically significant at 0.10 percent level. These results are contrary to our expectation.

1.3.3 Tobin Q Ratio

Panel C of Table 15 shows that the announcement period CAAR for contractee with above median Tobin's q ratio is 0.95% ($Z=2.973$) and is statistically significant at one percent level. The CAAR for contractee with below median Tobin's q ratio is 1.38% ($Z=3.094$), which is statistically significant at one percent level. The difference (C1-C2) in CAARs equals -0.43% ($Z=-2.288$) and is statistically significant at 0.10 percent level.

Panel C of Table 16 shows that the CAAR for contractor with above median Tobin's q ratio is 0.60 ($Z=1.253$), and that for contractors with below median Tobin's q ratio equals 0.10 ($Z=0.408$). The difference (C1 -C2) in CAARs equals 0.50% ($Z=-2.288$), which is significant at 0.1 percent level. Taken together, these results offer modest support for hypothesis 11.

1.3.4 Capital Intensity

Panel D of Table 15 shows that the CAAR for contractees with above median CAPI is 1.00% ($Z=2.396$) and is statistically significant at five percents level. The CAAR for contractee with below median CAPI is 1.45%, which is significant at 0.10 percent level. The difference (D1-D2) in CAARs equals -0.45% ($Z=-2.386$) and is statistically significant at 0.10 percent level. These findings offer strongly support for hypothesis 12.

Panel D of Table 16 shows that the CAAR for the contractors with above median CAPI is 0.48% ($Z=1.425$) and the CAAR for the contractor below median CAPI is 0.19% ($Z=0.342$). The difference (D1-D2) equals 0.29% ($Z=-2.385$) and significant at 0.10 percent level, which is inconsistent with our expectation at hypothesis 12. These result may be caused by the market regards the contractors with high CAPI are less risk than those with low CAPI.

1.4 Historical Profitability

1.4.1 Basic Earning Power

Panel A of Table 17 shows that the CAAR for contractee with above median BEP is 0.95% ($Z=2.973$) and is statistically significant at one percent level. The CAAR for contractee with below median BEP is 1.38% ($Z=3.094$), which is also statistically significant at one percent level. The difference in CAARs (A1-A2) equals -0.43% ($Z=-2.265$), which is statistically significant at 0.10 percent level. These findings offer modest support for hypothesis 13.

In Panel A of Table 18, the CAARs for contractor with below median basic earning power 0.87% ($Z=2.549$), which is statistically significant at 10 percent level, and that for contractor with above median BEP is equal -0.13% ($Z=-0.78$). The difference in CAARs (A1-A2) equals -1.00 ($Z=-2.264$) and is statistically significant at 0.1 percent level. These results are contrary to our hypothesis 13, which predicted the market reaction to the contractor firms are insignificant.

1.4.2 Return on Equity

Panel B of Table 17 shows that the announcement period CAAR for contractees with above median ROE is 0.73% ($Z=2.462$) and is statistically significant at 5 percent level. The CAAR for contractee with below median ROE is 1.71% ($Z= 4.022$), which is statistically significant at 0.10 percent level. The difference of CAARs (B1 –B2) equals -0.98% ($Z=-5.178$) and is statistically significant at 0.10 percent level.

Panel B of Table 18 reports that the CAAR for contractors with above median ROE is 0.02% ($Z=-0.392$) and CAAR for contractor with below median ROE is 0.72% ($Z=-2.0987$). . The difference of CAARs (B1 –B2) equals -0.70 ($Z=-2.265$) and is statistically significant at 0.10 percent level. Both results are consistent with the implication of hypothesis 14.

1.5 International versus national contracting

Panel A of Table 19 reports the announcement period CAAR for the U.S. contractee is 1.42% ($Z=6.51$) and is statistically significant at 0.10 percent level. The CAAR for international contractee is 1.66% ($Z=-3.774$) and is statistically significant at 0.10 percent level. The difference (A1-A2) equals -0.24% ($Z=-0.712$), which is statistically significant at 0.10 percent level. These results offer little support for hypothesis 15.

Panel A of Table 20 reports the CAAR for the U.S. contractor is 0.11% ($Z=0.401$) and the CAAR for international contractor is -0.52% ($Z=-1.830$), which is statistically significant at 10 percent level. The difference (A1-A2) of CAARs equals 0.63% ($Z=2.399$), which is statistically significant at 0.1 percent level. These results also offer supports for hypothesis 15.

Panel B of Table 19 shows the CAAR for contractee with U.S contractor is 1.65% ($Z=6.837$) and is statistically significant at 0.10 percent level. The CAAR for contractee with international contractor is 0.95% ($Z=2.293$) and is statistically significant at one percent level. The difference (B1-B2) equals 0.70% ($Z=4.149$), which is statistically significant at 0.10 percent level. The nature and significance of these results are totally contrary to the expectations drawn for the hypothesis 15. These results should be cause by the market predicted that the international contractor is more risky than the national one.

Panel B of Table 20 shows the CAAR for contractor with U.S contractee is 0.07% ($Z=-0.037$) and the CAAR for contractor with international contractee is -0.84% ($Z=-1.382$). The difference (B1-B2) of CAARs equals 0.91% ($Z=2.98$), which is statistically significant at 0.10 percent level. The nature and significance of these results are consistent to the expectations drawn for the hypothesis 15.

1.6 Industry Sector

Table 21 shows the CAAR for contractees that belong to different industry sectors. Contractees belong to the Hotel, Motel, Business, Health, and Education Service Industry (SIC7) have the highest CAAR that equals 3.01% and is statistically significant at 0.10 percent level. CAAR for contractees belong to Professional Service Industry (SIC 8) is 2.31 ($Z=2.559$), which is statistically significant at 5 percent level.

Contractees belong to Banking and Other Financial Institutions have negative CAAR that equals -0.92% ($Z=-1.41$). The CAAR for contractees belong to Manufacturing Process Product Industry (SIC 2) is -0.02% ($Z=-0.484$).

Table 22 shows CAARs for contractors belong to Hotel, Motel, Business, Health, and Education Service Industry (SIC 7) equal -1.36% ($Z=-1.678$) and are statistically significant at 10 percent level. Both results offer modest supports to hypothesis 16.

B. Result for the Match Sample

Table 8 reports the event study returns for the match sample, which was consisted by 441 contractees and 441 contractors, where there was abnormal returns available in the CRSP for the contractee and contractor in the same contract announcement. The contractees and contractors were analyzed for abnormal returns, and excess returns were expected. For the contractee match sample, statistically significant abnormal returns were found in the two days window (Day t_0 to Day $t-1$). CAAR equals 0.65% ($Z=5.947$) and is statistically significant at 0.10 percent level. Abnormal excess returns were found in the contractor match sample, but not statistically significant. The difference between CAAR of contractee and contractor is 1.83%.

2. Results of the Cross-Section Model

When the cross-sectional regression models were done, results were close to expectation. For the contractee model, some independent variables were significant, and others were not. But the model did have significance for contractee cumulative average excess returns. On the other hand, neither the independent variable in the contractor models, nor the entire model itself has significance on contractor cumulative average excess returns. In both models, cumulative average excess returns are for the day t_1 through t_0 period.

A. Result for the Total Sample

1. Contractee Model

Abnormal returns were hypothesized and found for the contractee sample of companies in the Market Model. In selecting independent variable for the cross-sectional regression model, it was hypothesized that CAAR would be dependent on TOBIN Q, RCSIZE, LOG MV, INTG, RAD, ROE, CAPI, LEV1, DID, and DNATLOR, so they were all include in the contractee model.

Table 23 summaries the key statistics of the variables used in the regression model, and the correlation coefficients of those independent variables are reports in Table 25. We can find that LOG MV has strong correlation with other variables.

The Table 27 reports the results of the univariate regression test for the independent variables. Complete results of the contractee cross-sectional regression are given in Table 29. The multiple regression results are discussed in conjunction with the univariate results to highlight their complementary nature.

The major limitation of the univariate regression analysis, in comparison to the multiple regression analysis, is that it does not control for the effects of other variables. Because of this fact, if the results of the univariate analysis do not support

the findings in the regression model (in regard to expectations under the relevant hypothesis) greater reliance is placed on the regression results in drawing over all conclusions. Under each following heading the results of the predictive value of each independent variable are given.

Table 29 present the estimates of the regression model for the contractee sample. The results for 2-day CAR (day t-1 to day t0) are shown. Model 1 in Table 29 is based on all 10 independent variables while Model 2 drops SIZE variable, which has high and significant correlation with TQ, RCSIZE and DID. Because INTG and RAD have the lowest observation, Model 3 drops the INTG and RAD in order to get more observation.

1.1 Tobin's Q Ratio-- TQ

As to be expected, in Table 29 the TQ coefficient has the expected negative sign, and it is significant at 0.01 percent level. As the correlation in Table 25, TQ is highly correlated to SIZE. While Model 2 drop the SIZE variable, comparison of Model 1 with Model 2 does not encourage from the aspect of misspecification in that the regression results and level of significance are very similar. Those results are consistent with the univariate regression result in Table 27. Model 3 increase the samples size from 290 to 474, but the coefficient was event worse. These results offer strongly support for the information asymmetries hypothesis.

1.2 Relative Contract Size--RCSIZE

In Table 29 the RCSIZE coefficient has the expected positive sign in Model 1 and it is significant at the 0.10 percent level. As RCSIZE strongly correlated to SIZE variable, thus Model 2 drops the SIZE variable and the parameter coefficient for the RCSIZE variable is similar and significant at 0.1% level. These results consistent with the univariate regression result in Table 27. These significant regression results are consistent with the information asymmetry hypothesis. Although Model 3 increased the sample size, there isn't any encourages in coefficient for the RCSIZE variable.

1.3 LOG (MV)—SIZE

The cross-sectional regression results evidence a negative relationship between CAR and SIZE in all the models, which are significant in one percent level. These results are consistent with the univariate regression result in Table 27. The combination of the univariate and regression results, thereby offers support for the information asymmetry hypothesis.

1.4 Intangible Assets to Total Assets Ratio – INTG

In all of the regression models in Table 29 the coefficient for the INTG variable is positive as expected, and it is significant in ten percent level in Model 1. As Model 2 drop SIZE variable, and the parameter coefficient for INTG is encourage to significant at five percent level. Taken together with the univariate test results, these INTG variable findings offer support for the information asymmetry hypothesis that firms with a higher level of intangible assets benefit more from new signal of firm value embodied by the contract announcement.

1.5 R & D to Total Assets Ratio – RAD

As to expectations, the regression coefficients for RAD in Table 29 are positive and significant in 0.10 percent level in Model 1. After drop the SIZE variable in Model 2, the parameter coefficient for the RAD does not have any encourage. These results are consistent with the implication of the information asymmetry hypothesis.

1.6 Return on Equity – ROE

The result in Table 29 shows that the sign of the parameter coefficient for the ROE variable is positive and significant at 0.10 percent level in Model 1, which is totally contrary to expectation. After drop the SIZE variable in Model 2 or increase sample

size in Model 3, the parameter coefficient for the ROE does not have any encourage. Thus, the regression test results are not consistent with the implication of the information content hypothesis.

1.7 Capital Intensity – CAPI

As expected, Table 29 shows that the sign of the parameter coefficient for the CAPI variable is negative, but is insignificant in all the models. Combination of regression results with the univariate results offers only very limited support for the information content hypothesis.

1.8 Total Liability/(Total Liability + Market Value of Equity) – LEV1

Table 29 shows a similar result for the LEV1 parameter estimate, as it has the expected negative sign in all models and it is insignificant in T-test, but it is significant at ten percent level in the while test. These regression results have limited sufficient power to support the information content hypothesis.

1.9 First VS Subsequent Announcement – DID

The regression results in Table 29 for the DID dummy variable suggest although the DID has the expected positive sign in the models, since the regression coefficient is not significant, it does not have sufficient statistically significant explanatory power.

1.10 Nationality of Contractor – DNATLOR

Table 29 shows that the DNATLOR dummy variable does have the anticipated, negative sign, but it is significant in none of the models. Thus, the regression test results offer little support for the hypothesis.

Results for above models find TQ, RCSIZE, SIZE, INTG, and RAD, which offer support for the information asymmetry and information content hypothesis based on both univariate and regression tests, which are correct in sign and also significant. There of the remaining variables CAPI, LEV1, and DID have the correct sign, but are not significant. ROE and DNATLOR have the wrong sign, but are not significant. Viewing the regression models as a whole, the F-value of Model 1, 2 and 3 are significant at 0.1 percent level, and have adjusted R-squares of 0.377, 0.378, and 0.073, respectively. None variation inflation factor of the variables in those three models is higher than 2. From these results we can find the variables in these model are independent.

2. Contractor Model

In selecting independent variables for the contractor cross-sectional regression model, it was expected that CAER would be dependent on TOBIN'S Q, RCSIZE, Log MV, INTG, RAD, ROE, CAPI, LEV1, DID, and DNATLEE, so they were all include in the contractor model – Model 1.

The summary key statistics of the variables used in the regression model are given in Table 24, and Table 26 reports the correlation coefficients of those independent variables. DID have high correlation with LOG MV at 0.10 percent level. Therefore, that variable will be dropped from Model 2. As the same reason of contractee model, we will drop INTG and RAD in order to increase the sample size in Model 3.

The Table 28 reports the results of the univariate regression test for the independent variables. Complete results of the contractee cross-sectional regression are given in Table 30.

2.1 Tobin's Q Ratio-- TQ

Contrast to expected, in Table 30 the TQ coefficient has the negative sign, and it is significant at five percent level in Model 1. While Model 2 drop the DID variable,

comparison of Model 1 with Model 2 does not encourage the regression results and level of significance are very similar. Those results are consistent with the univariate regression result in Table 28. Model 3 increase the samples size from 133 to 279, but the coefficient was event worse. These results do not offer support for the information asymmetries hypothesis.

2.2 Relative Contract Size--RCSIZE

In Table 30 the RCSIZE coefficient has the expected negative sign in Model 1 but it is insignificant at the T-test and significant at 0.10 percent level at the while test. Model 2 drops the DID variable and the parameter coefficient and significance for the RCSIZE variable are similar as that at Model 1. These regression results are consistent with the information asymmetry hypothesis. These results are inconsistent with the univariate regression result in Table 28. As Model 3 increased the sample size, it encourages the coefficient for the RCSIZE variable to 10 percent level.

2.3 LOG (MV)—SIZE

The cross-sectional regression results evidence a positive relationship between CAR and SIZE in all the models, but all of them are insignificant. These results are consistent with the univariate regression result in Table 28. The combination of the univariate and regression results, thereby offers modest support for the information asymmetry hypothesis.

2.4 Intangible Assets to Total Assets Ratio – INTG

In all of the regression models in Table 30 the coefficient for the INTG variable is positive as expected, and it is significant in ten percent level in Model 1. As Model 2 drops DID variable, and the parameter coefficient for INTG does not encourage. Taken together with the univariate test results, these INTG variable findings offer support for the information asymmetry hypothesis.

2.5 R & D to Total Assets Ratio – RAD

Contrast to expectations, the regression coefficients for RAD in Table 30 is negative and insignificant in Model 1. After drop the DID variable in Model 2, the parameter coefficient for the RAD does not have any encourage. These results are inconsistent with the implication of the information asymmetry hypothesis.

2.6 Return on Equity – ROE

The result in Table 30 shows that the sign of the parameter coefficient for the ROE variable is negative and insignificant at T-test and significant at one percent level at while test in Model 1, which is consistent with the expectation. After drop the DID variable in Model 2 or increase sample size in Model 3, the parameter coefficient for the ROE does not have any encourage. Thus, the regression test results offer modest support to the information content hypothesis.

2.7 Capital Intensity – CAPI

As expected, Table 30 shows that the sign of the parameter coefficient for the CAPI variable is positive, but is insignificant in all the models. Combination of regression results with the univariate results offers only very limited support for the information content hypothesis.

2.8 Total Liability/(Total Liability + Market Value of Equity) – LEV1

Table 30 shows a similar result for the LEV1 parameter estimate, as it has the expected positive sign in the models and it is insignificant in T-test in Model 1 & 2, but it is significant at ten percent level in the while test, and it is significant at 10 percent level in Model 3 after dropping the INTG and R&D variables. These

regression results have limited sufficient power to support the information content hypothesis.

2.9 First VS Subsequent Announcement – DID

The regression results in Table 30 for the DID dummy variable suggest although the DID has the expected positive sign in the Model 1, since the regression coefficient is not significant, it does not have sufficient statistically significant explanatory power.

2.10 Nationality of Contractee – DNATLEE

Table 30 shows that the DNATLEE dummy variable does have the anticipated, negative sign, but it is significant in none of the models. Thus, the regression test results offer little support for the hypothesis.

The results for contractor model find only one variable INTG, which offer modest support based both univariate and regression tests, which are correct in sign and also significant at 10 percent level. Focusing on the regression results, the only other significant variable is TQ, but unfortunately for the model its sign is wrong. The remaining variables, RCSIZE, SIZE, ROE, CAPI, LEV1, DID, and DNATLEE have the correct sign, but are not significant.

B. Result for the Match Sample

The match sample is consisted by 441 announcements, which the abnormal return of contractee and contractor are available in the CRSP. Table 31 and 32 reports the summary statistics of the independent variables that enter in the regression models for contractee and contractor respectively. Table 33 and 34 shows the results of the correlation coefficients of the independent variables of match samples of contractee and contractor respectively. Table 35 and 37 shows the results of univariate regression and cross-sectional regression respectively for the contractee match sample. Table 36

and 38 reports those of the contractors match sample. The regression models are based on the basic models in the total sample, but CAR2TOR and CAR2TEE are added in the contractee models and contractor models respectively in order to investigate whether the contractee's gain is benefit from the cost of the contract.

The parameter coefficient of CAR2TOR and CAR2TEE variables in the contractee and contractors regression are positive, which is significant in 10 percent level in the contractee model. These results reveal that the gains of contractees are benefit from the cost of contractor firms.

The overall results for all the independent variables are similar to those regressions of total samples. The results of contractee model find that RCSIZE, INTG, and LEV1, which offer modest support, based on both univariate and regression tests, which are correct in sign and also significant. Focusing on the regression, the only other significant variable is NATLOR, but unfortunately for the model its sign is wrong. Three of the remaining variables, TQ, RAD, and DID have the correct sign, but are not significant. SIZE, ROE, and CAR2TOR are insignificant and with wrong sign. Viewing the regression models as a whole, the F-Value for Model 1, 2, and 3 are significant at 0.1 percent, 0.1 percent, and one percent respectively, and have adjusted R-squares of 0.175, 0.176, and 0.073 respectively. Therefore, the variables, which is consistent with either information asymmetry or information content hypothesis is RCSIZE, INTG, and LEV1.

For the contractor models, INTG and ROE offer modest support based on both univariate and regression tests, which are correct in sign and also significant. The other significant variables are TQ, RAD, and LEV1, but their signs are wrong. Two of the remaining variable CAPI and SIZE have the correct sign but are not significant. The F-value for both Model 1 and 2 are significant at one percent level, and have adjusted R-square of 0.148 and 0.143, respectively.

Chapter VII

SUMMARY AND CONCLUSION

This study set examined abnormal stock market returns to equity holder around the announcement of corporate contract. Of the 7137 contract announcements originally found in the Dow Jones Interactive web site between January 1, 1990 and December 31, 2000, only 984 met the study's criteria. After all announcements of mergers and acquisitions, joint ventures, leverage buy outs, legal agreements and settlements, union and other contracts were removed, 1042 remained. Then, when all contract announcements that had missing or insufficient Center for Research on Security Price data were removed for contractee and contractor companies, 984 contractee companies and 575 contractor companies remained.

The 984 contract announcements in the contractee sample were then analyzed for abnormal returns in a ± 90 day event period. Cumulative average abnormal returns are expected for the contractee companies because of information asymmetries that were believed to exist. Hypotheses were developed that were based on the Information Asymmetry Hypothesis and Information Content Hypothesis. The study expected that the contractee would be in possession of asymmetric information that the contractor would not hold. Therefore, excess returns were expected in the announcement period of day t_{-1} through day t_0 . The results of the Market Model analysis supported this hypothesis. A statistically significant cumulative average abnormal return of 1.43% was found for the contractee's equity in the announcement period. The null hypothesis was rejected.

Then the 575 contractors sample was analyzed for abnormal returns. Because it was thought that the contract announcement would convey to the market that the contractee was not worried about making any specific investment to the contractor, and the market would interpret that as good news, abnormal returns were expected for the contractor. Contrary to expectation, the contractors' cumulative average abnormal returns in the announcement period were insignificant.

The contractee and contractor samples were analyzed according to the sample characteristics, firm size, historical profitability, nationality, industry nature, and asymmetric information of firm. Positive CAAR were expected for the relative contract size above the median of sample for the contractee companies, and negative CAAR for contractor companies below the median of the sample. For the other relative contract size groups, abnormal returns were not expected. According to the expectation, a 2.53% announcement CAAR was found for the contractee companies where the relative contract size was above 2.09 % median. These results suggest that the relative contract size is important in the contract announcement.

Positive CAAR were expected for the firm size below the median of sample for the contractee companies, and no CAAR for the contractor companies below the median of sample. According to the expectation, positive announcement CAAR was found for the contractee companies where the variables relative to the firm size were below median. These results suggest that the firm size is also important in the contract announcement.

The results from the analysis of variables relative to information asymmetry suggest that contractee companies with above median relative intangible assets and R & D size would receive higher announcement CAAR. These results strongly support the information asymmetry hypothesis.

While analyzing the variable relative to the historical profitability of contractee firms, the results suggest that contractees with relative low historical profitability will have higher CAAR.

Contrary to expectation, CAAR for the contractee companies with U.S. contractors are higher than the CAAR for the contractee companies with international contractors. These findings suggest that nationality is not an important factor in the contract announcement.

We can also find that contractee firms in service industry receive higher CAAR than those in other industry sector.

Then cross-sectional regression models were developed to analyze certain independent variables' influence on cumulative average abnormal returns. The contractee model include Tobin's q, relative contract size, log market value, relative intangible assets size, relative R & D size, return on equity, capital intensity, leverage, industry sector, a dummy variable indicating the sequence of the announcement of the contract, and a dummy variable indicating the international or domestic nature of the contract. The regression model had a F-statistic of 1.71, only the relative contract size and relative intangible asset size are statistically significant at one percent and 10 percent level respectively in the while test. Separate regression models were also developed that remove part of the variables that have strongly correlation coefficient with other variables, but the results were not encouraged much. Therefore, relative contract size did have significance in the regression models that include it, but not other variables.

As far as contractor CAAR, the regression models include the same variables as the contractee models expect the dummy variable that indicating the nationality nature of the contractor was replace by the dummy variable indicating the nationality nature of contractee. In these models, the relative R & D size was found to have expected negative and significant coefficient.

In conclusion, the results of this study suggest that the U.S. stock market is reacting to large contract announcements. The study expected, and found abnormal returns for contractees' equity around the announcement period. Although the international nature of contract was not found to earn greater excess returns, the study did find abnormal returns for domestic contracting. Hypotheses built on the asymmetric information and information content hypotheses were accepted, and asymmetric information and information monopolies are believed to exist in the contracts that entered in this study. This phenomenon is especially pronounced when a smaller contractee signs a contract that is relative large as compared to its own size. The market reaction was strongest in this type of contracting situation. Also, firm size seems to influence the market reaction to the contract announcement. When the firm size is smaller, the market reaction is large which seems to indicate that when a

smaller company wins a larger contract, the market interprets that type of announcement as conveying asymmetric information.

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TABLES

Table1: Summary of Hypothesis

Table 1A predicted sign (effect) on equity value of contractee and contractor by Information Asymmetry Hypothesis, Information Content Hypothesis. Table 1B predicted sign on the difference of abnormal returns between contractee and contractor firms above median and below median of their samples by the determinant variables.

1A

Hypothesis	Contractee	Contractor
Information Asymmetry	Significant / positive	Significant / negative
Information Content	Significant / positive	Significant / negative

1B

Determinant Variable	Difference Between Above Median and Below Median	
	Contractee	Contractor
Relative Contract Size	Significant / positive	Significant / negative
Tobin's Q	Significant / positive	Insignificant / NA
LOG (MV)	Significant / negative	Insignificant / NA
Intangible Assets to Total Assets	Significant / positive	Insignificant / NA
R&D to Total Assets	Significant / positive	Insignificant / NA
Returns on Equity	Significant / negative	Insignificant / NA
Leverage 1	Significant / negative	Insignificant / NA
Capital Intensity	Significant / negative	Insignificant / NA
Maturity	Significant / positive	Significant / positive
Service VS Non Service	Significant / positive	Significant / negative
First VS Subsequent Announcement	Significant / positive	Insignificant / NA
National VS International	Significant / negative	Significant / positive

Table2: The Final Sample and the Reason for Deletion

The initial samples of 7137 contract announcements are decreased by four factors described below to a final contractee sample of 984 contracts and contractor sample of 575 contracts. Government Contract is the government as contractor who offer contracts to a corporate contractee. No CRSP Number refers to companies are not listed company or do not have data at the CRSP tape. Contaminated Announcement as used here refers to the company in study has other type of announcement in a 5-days window, such as earning announcements, merger and acquisition announcements, dividend announcements, capital structure change, etc. No CRSP Returns refers to corporate contract announcement without CRSP returns available during the announcement period or the estimation period.

Reason for Deletion	No. of Relevant Announcements	
	Contractee	Contractor
Total Number of Contract Announcement (1990-2000)	7137	7137
Less: Government Contract	(5748)	(5748)
Less: Not Listed (No CRSP Number)	(305)	(693)
Less: Contaminated Announcements	(42)	(31)
Less: No Returns Available in CRSP	(58)	(90)
Equals: Final Sample	984	575

Table3: Frequency Distribution of Contract Announcements

This table reports the number of contracts per year entering the study for period from January 1, 1990 to December 31, 2000, for both contractee and contractor sample. Also, each specific year's contracts are showed as a percentage of all contracts in the respective samples.

Year	Contractee				Contractee			
	N	Cumulated N	Percentage	Cumulated Percentage	N	Cumulated N	Percentage	Cumulated Percentage
1990	87		8.84		60		10.43	
1991	64	87	6.5	8.84	33	60	5.74	10.43
1992	89	151	9.04	15.34	54	93	9.39	16.17
1993	68	240	6.91	24.38	34	147	5.91	25.56
1994	97	308	9.86	31.29	79	181	13.74	31.47
1995	90	405	9.15	41.15	47	260	8.17	45.21
1996	97	495	9.86	50.3	49	307	8.52	53.38
1997	103	592	10.47	60.16	40	356	6.96	61.9
1998	113	695	11.48	70.63	75	396	13.04	68.86
1999	95	808	9.65	82.11	49	471	8.52	81.9
2000	81	903	8.23	91.76	55	520	9.57	90.42
Total	984	984	100.00	100.00	575	575	100.00	100.00

Table4: Summary Statistics for Selected Company Account Data of Contractees

Abbrev. is the abbreviation used to denote the relevant characteristics. N is the number of number of companies in study. Mean (Median) is the arithmetic average (the middle observation) for particular variable displayed. Std Dev is the standard deviation for a given variable. Min and Max are the minimum and maximum value, respectively. \$M is referred to millions of dollar.

Company Account Variable	Abbrev.	N	Mean	Median	Std Dev	Min	Max
Total Assets (\$M)	TA	570	32710.72	9406.00	60531.61	7.577	405199.87
Total Liability (\$M)	TL	570	25620.71	5203.70	53158.48	0.085	357428.99
Long Term Debt (\$M)	LTD	421	2575.60	1095.10	3948.74	-1129.50 ¹	24386.00
Total Intangible Assets (\$M)	TIA	408	3719.96	1092.50	6006.08	0.358	51150.00
Total Sales (\$M)	SALES	565	24491.78	10012.86	34745.63	4.170	173962.99
Research and Development (\$M)	RD	434	1604.84	545.00	1964.33	0.017	8900.00
Earning Before Interest and Tax (\$M)	EBIT	567	2430.73	734.50	4309.29	-7666.00 ²	25956.00
Market Value (\$M)	MV	558	29.54	8.51	50.87	0.012	392.63
Book Value (\$M)	BV	559	6.62	3.19	8.58	-0.943 ³	55.78
Fixed Assets (\$M)	FA	563	7858.00	2450.80	12309.02	0.280	67868.99
Net Incomes (\$M)	NI	565	1095.90	393.00	2220.89	-7987.00 ⁴	11082.00
Contract Amount (\$M)	AM	878	400.91	100.00	1083.84	1.000	15000.00
Maturity (Year)	MAT	343	5.59	5.00	3.58	1.000	20.00
Return on Equity	ROE	568	11.86	14.23	84.76	-1062.39 ⁵	1477.35

¹ Hughes Network Systems Inc has the lowest LTD for its contract announcement in 1996/11/13. Its LTD in the previous 5 years is also negative.

² IBM Co. has a big jump in EBIT in 1993.

³ The negative book value may be caused by the firm's total liability larger than its equity.

⁴ IBM Co. has a big lost in 1993 and 1994.

⁵ LCC International Inc has the lowest ROE because of the negative net income. Ramtron International Corp has the highest ROE.

Table5: Summary Statistics for the Selected Company Account Data of Contractors

Abbrev. is the abbreviation used to denote the relevant characteristics. N is the number of number of contracts in study. Mean (Median) is the arithmetic average (the middle observation) for particular variable displayed. Std Dev is the standard deviation for a given variable. Min and Max are the minimum and maximum value, respectively. \$M is referred to millions of dollar.

Variables	Abbrev.	N	Mean	Median	Std Dev	Min	Max
Total Assets (\$M)	TA	359	41594.85	15784.00	63004.39	10.360	405199.87
Total Liability (\$M)	TL	357	32650.65	9466.00	56275.80	0.103	357429.00
Long Term Debt (\$M)	LTD	250	3268.78	2276.00	4291.58	-1847.56 ⁶	29722.99
Total Intangible Assets (\$M)	TIA	222	4321.52	1777.40	6212.23	0.735	46594.00
Total Sales (\$M)	SALES	348	31854.29	14921.85	41284.90	5.139	176558.00
Research and Development (\$M)	RD	226	1766.55	871.00	2087.99	0.844	8900.00
Earning Before Interest and Tax (\$M)	EBIT	357	3111.99	1434.00	4743.53	-7524.00 ⁷	34298.99
Market Value (\$M)	MV	350	28.23	13.74	51.20	0.036	502.09
Book Value (\$M)	BV	348	9.47	5.48	13.28	-0.136	88.98
Fixed Assets (\$M)	FA	353	13118.41	5951.00	18029.07	2.275	85166.00
Net Incomes (\$M)	NI	355	1335.67	691.71	2452.74	-7987.00 ⁸	22220.00
Contract Amount (\$M)	AM	481	918.06	100.00	9277.20	1.000	200000.00
Mutuality (Year)	MAT	224	5.45	5.00	3.50	1.500	20.00
Return on Equity	ROE	359	13.19	15.51	52.23	-597.04 ⁹	588.67

⁶ Southwest Airlines has the lowest LTD for its contract announcement at 1998/07/24.

⁷ IBM has negative EBIT in both 1993 and 19994.

⁸ IBM has negative Net income in both 1993 and 1994.

⁹ Continental Airlines has the lowest ROE for its contract announcement at 1995/02/01.

Table6: Return Around Contract Announcement Period for Contractees

Mean and Median Abnormal Returns are from the Market Model using the Standardized Residual Method for Contractee Companies for the 984 announcements. N is number of firm returns for a given day. AAR is the average abnormal returns. MAR is the median abnormal returns. Z is the statistic testing for a significant difference of the average abnormal return from 0. Pos.: Neg. shows how many of the firm returns are positive or negative on a given day. Ger. Sign Z is Generalized Sign Z, the non-parametric test statistic for a significant difference from zero, which considers the ratio of positive to negative returns. CAAR are the equally weighted cumulative average abnormal percentage returns. MCAR is the median cumulative abnormal return.

Day	N	AAR (%)	MAR (%)	Pos.: Neg.	Z	Gen. Sign Z
-90	984	0.01	-0.08	466:518	0.732	-0.07
-70	984	0.09	-0.12	460:524	0.917	-0.453
-50	984	0.04	0.03	499:485	1.3	2.037*
-30	984	0.22	-0.01	488:496	1.911\$	1.335
-10	984	0.08	-0.15	460:524	0.218	-0.453
-9	984	0.00	-0.09	470:514	-0.196	0.185
-8	984	-0.14	-0.14	446:538	-0.881	-1.347
-7	984	0.04	-0.04	481:503	1.26	0.888
-6	984	0.18	0.04	504:480	1.793\$	2.356*
-5	984	0.06	-0.04	487:497	0.752	1.271
-4	984	0.04	-0.03	478:506	-0.407	0.696
-3	984	0.28	-0.04	479:505	2.434*	0.76
-2	984	0.11	-0.06	476:508	1.011	0.568
-1	984	1.13	0.22	553:431	7.179***	5.484***
0	984	0.30	0.00	494:490	2.445*	1.718\$
1	984	-0.06	-0.08	463:521	0.006	-0.262
2	983	-0.01	-0.09	467:516	0.047	0.024
3	984	-0.12	-0.17	446:538	-1.798\$	-1.347
4	984	0.07	-0.04	487:497	0.416	1.271
5	983	0.15	0.02	495:488	2.240*	1.813\$
6	982	0.13	-0.01	490:492	1.227	1.524
7	982	-0.07	-0.03	480:502	-0.043	0.885
8	982	-0.17	-0.11	456:526	-1.244	-0.648
9	982	-0.02	-0.17	455:527	-0.354	-0.712
10	981	-0.05	-0.07	475:506	0.201	0.596
30	976	0.04	-0.06	471:505	0.148	0.494
50	967	-0.08	-0.04	467:500	-0.289	0.514
70	959	-0.03	-0.04	468:491	0.245	0.826
90	951	-0.03	-0.09	448:503	-0.511	-0.223
Days	N	CAAR (%)	MCAR (%)	Pos : Neg	Z	Ger. Sign Z
(-1,0)	984	1.43	0.41	566:418	7.137***	6.314***
(-1,+1)	984	1.37	0.52	559:425	6.195***	5.867***
(-2,+2)	984	1.48	0.48	548:436	5.175***	5.165***
(-5,+5)	984	1.95	0.95	555:429	4.855***	5.612***
(-20,+20)	984	1.49	1.27	532:452	2.290*	4.143***
(-90,+90)	984	0.38	-1.78	472:512	0.032	0.313
(-90,-2)	984	1.76	0.93	513:471	1.702\$	2.931**
(+2,+90)	984	-2.76	-1.69	465:519	-2.905**	-0.134

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test.

Table7: Return Around Contract Announcement Period for Contractors

Mean and Median Abnormal Returns are from the Market Model using the Standardized Residual Method for Contractor Companies for the 575 announcements. N is number of firm returns for a given day. AAR is the average abnormal returns. MAR is the median abnormal returns. Z is the statistic testing for a significant difference of the average abnormal return from 0. Pos.: Neg. shows how many of the firm returns are positive or negative on a given day. Ger. Sign Z is Generalized Sign Z, the non-parametric test statistic for a significant difference from zero, which considers the ratio of positive to negative returns. CAAR are the equally weighted cumulative average abnormal percentage returns. MCAR is the median cumulative abnormal return

Day	N	AAR (%)	MAR (%)	Pos.: Neg.	Z	Ger. Sign Z
-90	575	-0.07	-0.11	268:307	-1.192	-0.638
-70	575	0.09	-0.01	284:291	0.836	0.698
-50	575	-0.03	-0.12	266:309	-0.846	-0.805
-30	575	0.19	0.01	291:284	1.211	1.282
-10	575	0.01	-0.08	278:297	-0.244	0.197
-9	575	0.06	-0.08	272:303	0.435	-0.304
-8	575	0.08	-0.01	282:293	1.065	0.531
-7	575	-0.21	-0.29	242:333	-3.112**	-2.808**
-6	575	-0.07	-0.07	278:297	-1.078	0.197
-5	575	0.12	0.05	295:280	1.247	1.616
-4	575	-0.16	-0.20	255:320	-0.969	-1.723\$
-3	575	-0.09	-0.22	258:317	-1.781\$	-1.473
-2	575	0.10	-0.04	277:298	0.651	0.113
-1	575	0.19	-0.02	287:288	1.334	0.948
0	575	-0.16	-0.14	263:312	-1.541	-1.055
1	575	-0.03	-0.03	282:293	0.253	0.531
2	575	-0.10	-0.11	265:310	-0.729	-0.888
3	574	-0.01	-0.22	257:317	-0.6	-1.517
4	574	-0.16	-0.09	272:302	-0.804	-0.264
5	574	-0.26	-0.14	257:317	-1.549	-1.517
6	573	-0.11	-0.12	271:302	-0.947	-0.308
7	572	0.15	0.06	301:271	0.394	2.243*
8	572	-0.05	0.00	287:285	-0.618	1.071
9	572	-0.05	-0.07	278:294	-0.889	0.318
10	572	0.00	-0.10	270:302	-1.019	-0.352
30	571	0.03	-0.03	278:293	0.285	0.358
50	567	0.09	0.00	283:284	0.602	0.941
70	563	-0.25	-0.27	238:325	-2.980**	-2.690**
90	555	-0.01	0.00	277:278	0.907	0.93
Days	N	CAAR (%)	MCAR (%)	Pos : Neg	Z	Ger. Sign Z
(-1,0)	575	0.04	-0.08	277:298	-0.092	0.113
(-1,+1)	575	0.01	-0.13	274:301	0.081	-0.137
(-2,+2)	575	0.00	-0.15	275:300	0.029	-0.054
(-5,+5)	575	-0.56	-0.46	268:307	-1.313	-0.638
(-20,+20)	575	-1.15	-0.72	267:308	-2.223*	-0.721
(-90,+90)	575	-0.64	-1.10	276:299	-1.085	0.03
(-90,-2)	575	-0.25	-0.94	274:301	-0.887	-0.137
(+2,+90)	575	-0.40	-0.35	283:292	-0.791	0.614

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test.

Table8: Returns around Announcement Period for Match Sample of Contractees and Contractors

Mean and Median Abnormal Returns are from the Market Model using the Standardized Residual Method for Contractee Companies for the 441 announcements. N is number of firm returns for a given day. AAR is the average abnormal returns. MAR is the median abnormal returns. Z is the statistic testing for a significant difference of the average abnormal return from 0. Pos.: Neg. shows how many of the firm returns are positive or negative on a given day. Generalized Sign Z is the non-parametric test statistic for a significant difference from zero, which considers the ratio of positive to negative returns. CAAR are the equally weighted cumulative average abnormal percentage returns. MCAR is the median cumulative abnormal return. Diff. AAR refers to the difference between contractee and contractor average abnormal returns.

Day	Contractee						Contractor					Diff. AAR
	N	AAR (%)	MAR (%)	Pos.: Neg.	Z	Sign Z	AAR (%)	MAR (%)	Pos.: Neg.	Z	Sign Z	
-90	441	-0.07	-0.10	204:237	-0.074	-0.614	-0.05	-0.12	208:233	-0.589	-0.366	-0.02
-70	441	0.13	-0.20	198:243	0.623	-1.186	0.10	-0.01	220:221	0.76	0.778	0.03
-50	441	0.09	0.04	227:214	0.753	1.578	-0.02	-0.12	203:238	-0.394	-0.842	0.11
-30	441	0.12	-0.06	215:226	0.233	0.434	0.15	-0.01	220:221	0.793	0.778	-0.03
-10	441	-0.12	-0.20	201:240	-1.169	-0.90	0.00	0.00	220:221	-0.129	0.778	-0.12
-5	441	0.13	0.01	223:218	0.469	1.197	0.14	0.05	227:214	1.23	1.445	-0.01
-4	441	0.12	0.02	223:218	0.199	1.197	-0.15	-0.18	198:243	-0.852	-1.319	0.27
-3	441	0.46	0.11	228:213	2.656**	1.674\$	-0.08	-0.22	199:242	-1.316	-1.223	0.54
-2	441	0.15	-0.05	215:226	1.131	0.434	0.03	-0.09	209:232	0.255	-0.27	0.12
-1	441	1.52	0.33	252:189	5.698***	3.962***	0.14	0.02	226:215	1.156	1.35	1.38
0	441	0.42	0.12	232:209	2.218*	2.055*	-0.04	-0.08	213:228	-0.61	0.111	0.46
1	441	-0.11	-0.07	204:237	-0.102	-0.614	0.01	0.03	223:218	0.546	1.064	-0.12
2	441	0.03	-0.15	201:240	-0.164	-0.9	-0.10	-0.07	207:234	-0.487	-0.461	0.13
3	441	-0.04	-0.06	215:226	-0.227	0.434	-0.02	-0.18	202:238	-0.111	-0.893	-0.02
4	441	-0.02	-0.07	211:230	0.079	0.053	-0.02	-0.03	218:222	0.242	0.634	0.00
5	441	0.18	0.16	229:212	1.18	1.769\$	-0.35	-0.14	199:241	-1.789\$	-1.179	0.53
10	439	-0.16	-0.18	203:236	-1.646\$	-0.62	-0.02	-0.11	203:236	-0.893	-0.752	-0.14
30	439	-0.09	-0.12	205:234	-0.824	-0.429	0.11	-0.03	216:222	0.644	0.536	-0.20
50	436	-0.17	-0.02	213:223	-0.834	0.474	0.09	-0.02	213:222	0.876	0.388	-0.26
70	433	-0.17	-0.12	202:231	-0.925	-0.445	-0.32	-0.29	176:257	-3.591***	-3.077**	0.15
90	429	0.13	0.01	215:214	0.773	0.994	0.02	0.02	219:209	0.71	1.297	0.11

Table 8: Continue

Days	N	Contractee					Contractor					Diff.
		CAAR (%)	MCAR (%)	Pos : Neg	Z	Sign Z	CAAR (%)	MCAR (%)	Pos : Neg	Z	Sign Z	CAR
(-1,0)	441	1.93	0.65	265:176	5.947***	5.201***	0.10	0.02	222:219	0.42	0.969	1.83
(-1,+1)	441	1.83	0.89	264:177	5.147***	5.106***	0.11	-0.01	219:222	0.653	0.683	1.72
(-2,+2)	441	2.00	0.90	266:175	4.321***	5.297***	0.04	0.04	221:220	0.415	0.874	1.96
(-5,+5)	441	2.84	1.84	266:175	4.424***	5.297***	-0.44	-0.09	217:224	-0.524	0.492	3.28
(-20,+20)	441	2.52	1.60	244:197	2.703**	3.199**	-0.70	-0.28	212:229	-1.355	0.016	3.22
(-90,+90)	441	1.39	1.09	224:217	0.654	1.292	-0.43	-1.46	208:233	-1.022	-0.366	1.82
(-90,-2)	441	1.89	1.82	233:208	1.249	2.150*	-0.12	-0.94	209:232	-0.703	-0.27	2.01
(+2,+90)	441	-2.33	-1.16	210:231	-1.253	-0.042	-0.42	-0.54	214:227	-0.854	0.206	-1.91

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test.

Table9: Frequency Distribution of Cumulative Average Excess Returns

This table reports the frequency of cumulative average abnormal returns (CAER) for 2 days window (day t-1 to day t0) and 3 days window (day t-1 to day t+1) for the 984 contractees and 575 contractors. Within the $\pm 10\%$ range, the CAER is categorized by progressively increase (decrease) 2% for both contractee and contractor. The rest sample that CAER smaller than -10% range, categorized into one range for both contractee and contractor. CAER bigger than $+10\%$ is categorized into two ranges for contractee and into one range for contractor.

Range of CAER (%)	Contractee – Number of Announcements		Range of CAER (%)	Contractor- Number of Announcements	
	Day t-1 to Day t0	Day t-1 to Day t+1		Day t-1 to Day t0	Day t-1 to Day t+1
$-25 \leq \text{CAER} < -10$	4	11	$-40 \leq \text{CAER} < -10$	5	6
$-10 \leq \text{CAER} < -8$	3	10	$-10 \leq \text{CAER} < -8$	5	7
$-8 \leq \text{CAER} < -6$	23	27	$-8 \leq \text{CAER} < -6$	2	9
$-6 \leq \text{CAER} < -4$	29	46	$-6 \leq \text{CAER} < -4$	20	39
$-4 \leq \text{CAER} < -2$	96	116	$-4 \leq \text{CAER} < -2$	86	77
$-2 \leq \text{CAER} < 0$	260	211	$-2 \leq \text{CAER} < 0$	176	159
$0 \leq \text{CAER} < 2$	267	232	$0 \leq \text{CAER} < 2$	181	145
$2 \leq \text{CAER} < 4$	124	130	$2 \leq \text{CAER} < 4$	61	84
$4 \leq \text{CAER} < 6$	64	73	$4 \leq \text{CAER} < 6$	27	28
$6 \leq \text{CAER} < 8$	43	46	$6 \leq \text{CAER} < 10$	5	8
$8 \leq \text{CAER} < 10$	24	27	$10 \leq \text{CAER} < 43$	7	13
$10 \leq \text{CAER} < 22$	36	43			
$22 \leq \text{CAER} < 86$	11	12			
N	984	984	N	575	575
Mean	1.46	1.4	Mean	0.05	0.04
Median	0.45	0.54	Median	-0.06	-0.1
Standard Deviation	6.06	6.42	Standard Deviation	4.2	5.07
Minimum	-20.62	-24.75	Minimum	-38.54	-34.41
Maximum	82.95	85.21	Maximum	39.5	42.34

Table10: Frequency Distribution by Initial and Subsequent Announcement for both Contractees and Contractors

ANID refers to the announcement order, which is categorized according to the rule the 1= the first announcement of the company, 2 = the second announcement of the company, 3 = the third announcement of the company, etc. N is the number of firm flow in the ANID category. Also, each specific number of firms in each ANID category is showed as a percentage of all contracts in the respective samples. Cul. N. refers to the cumulated number. Per. refers to percentage. Cul. Per. refers to cumulated percentage.

Contractee					Contractor				
ANID	N	Cul. N	Per.	Cul. Per	ANID	N	Cul. N	Per.	Cul. Per.
1	346		35.16		1	288		50.09	
2	117	346	11.89	35.16	2	103	288	17.91	50.09
3	77	463	7.83	47.05	3	48	391	8.35	68
4	54	540	5.49	54.88	4	33	439	5.74	76.35
5	41	594	4.17	60.37	5	22	472	3.83	82.09
6	33	635	3.35	64.54	6	14	494	2.43	85.92
7	30	668	3.05	67.89	7	10	508	1.74	88.35
8	28	698	2.85	70.94	8	8	518	1.39	90.09
9	26	726	2.64	73.79	9	7	526	1.22	91.48
10	24	752	2.44	76.43	10	5	533	0.87	92.7
11	20	776	2.03	78.87	11	4	538	0.7	93.57
12	17	796	1.73	80.9	12	3	542	0.52	94.27
13	16	813	1.63	82.63	13	3	545	0.52	94.79
14	16	829	1.63	84.26	14	2	548	0.35	95.31
15	16	845	1.63	85.89	15	2	550	0.35	95.66
16	13	861	1.32	87.52	16	2	552	0.35	96.01
17	13	874	1.32	88.84	17	2	554	0.35	96.36
18	12	887	1.22	90.16	18	2	556	0.35	96.71
19	11	899	1.12	91.38	19	2	558	0.35	97.06
20	10	910	1.02	92.5	20	2	560	0.35	97.41
21	8	920	0.81	93.52	21	2	562	0.35	97.76
22	7	928	0.71	94.33	22	2	564	0.35	98.11
23	7	935	0.71	95.04	23	1	566	0.17	98.46
24	7	942	0.71	95.75	24	1	567	0.17	98.63
25	4	949	0.41	96.46	25	1	568	0.17	98.8
26	4	953	0.41	96.87	26	1	569	0.17	98.97
27	4	957	0.41	97.28	27	1	570	0.17	99.14
28	4	961	0.41	97.69	28	1	571	0.17	99.31
29	4	965	0.41	98.1	29	1	572	0.17	99.48
30	2	969	0.2	98.51	30	1	573	0.17	99.65
31	1	971	0.1	98.71	31	1	574	0.17	99.82
32	1	972	0.1	98.81					
33	1	973	0.1	98.91					
34	1	974	0.1	99.01					
35	1	975	0.1	99.11					
36	1	976	0.1	99.21					
37	1	977	0.1	99.31					
38	1	978	0.1	99.41					
39	1	979	0.1	99.51					
40	1	980	0.1	99.61					
41	1	981	0.1	99.71					
42	1	982	0.1	99.81					
43	1	983	0.1	99.91					
Total	984	984	100	100.00	Total	575	575	100	100.00

Table11: Equity Market Reaction to the Contract Announcement Based on Sample Characteristics of Contractees

This table reports the equity market reaction to the contract announcement for the contractee companies based on the firm Characteristics. No is used as a reference label. Sample/Sub Sample Characteristic refers to the firm being analyzed. N is number of returns for a given category. CAAR is the cumulative Average Abnormal Return. MCAAR is the median CAAR. %POS is the percent positive for a given category. Z STAT is the Z-test statistic testing for a significant difference between the CAAR and Zero. GSIGN Z is the (generalized sign z) non-parametric test statistic for a significant difference from zero based on the ratio of positive to negative returns. Relative contract size (RCSIZE) is equal to Contract Amount (AMT) to Total Assets (TA). Maturity (MAT) is the substantive time of the contracts. ANID refers to the announcement orders. LEV1 is measured by Total Liabilities (TL) relative to the sum of TL and Market Value of Equity [TL/(TL+MV)]. LEV2 refers to Total Liabilities relative to Total Assets.

No.	Sample/Subsample Characteristics	N	Day t-1 to Day t0					Day t-1 to Day t+1				
			CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
A	RCSIZE											
	A1. Firms with AMT/TA Above the Median (2.09%)	245	2.53	1.08	64.49	6.193***	5.451***	2.42	1.25	63.67	5.265***	5.195***
	A2. Firms with AMT/TA Below the Median (2.09%)	245	0.13	0.00	50.20	0.325	0.805	0.23	0.19	53.47	1.016	1.829\$
	A3. Firms with AMT/TA unknown	493	1.53	0.40	57.61	5.112***	4.467***	1.42	0.60	55.17	4.169***	3.385***
	A4. Difference (A1-A2)	--	2.40	1.08	14.29	11.558***	--	2.19	1.06	10.20	10.547***	--
B	MAT											
	B1. Firms with MAT Above the Median (5 year)	171	1.05	0.55	59.65	2.833**	3.084**	0.87	0.75	59.65	2.360*	3.084**
	B2. Firms with MAT Below the Median (5 year)	171	2.20	0.45	55.56	3.528***	2.248*	2.36	0.67	55.56	3.580***	2.248*
	B3. Firms with MAT Unknown	641	1.32	0.38	57.41	5.522***	5.033***	1.24	0.46	57.41	4.542***	4.480***
	B4. Difference (B1-B2)	--	-1.15	0.10	4.09	-4.3364***	--	-1.49	0.08	4.09	-5.619***	--
C	ANID											
	C1. First Announcement	346	2.77	0.78	61.27	5.932***	5.336***	2.62	0.92	58.96	5.175***	4.475***
	C2. Subsequent Announcement	638	0.71	0.26	55.49	4.299***	3.913***	0.70	0.36	55.64	3.708***	3.992***
	C3. Difference (C1 -C2)	-292	2.06	0.52	5.79	12.397***	--	1.92	0.56	3.32	11.555***	--

Table 11: Continued

No.	Sample/Subsample Characteristics	N	Day t-1 to Day t0					Day t-1 to Day t+1				
			CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
D	LEV1											
	D1. Firms with LEV1 Above the Median (36.59%)	278	0.66	-0.01	49.64	1.001	0.798	0.74	0.22	53.96	1.392	2.240*
	D2. Firms with LEV1 Below the Median (36.59%)	278	1.69	0.88	62.23	5.037***	4.952***	1.55	0.83	61.51	4.355***	4.712***
	D3. Firms with LEV1 Unknown	428	1.76	0.51	59.58	5.810***	4.939***	1.67	0.76	55.61	4.764***	3.294***
	D4. Difference (D1-D2)	--	-1.03	-0.89	-12.59	-5.472***	--	-0.81	-0.61	-7.55	-4.303***	--
E	LEV2											
	1. Firms with LEV2 Above the Median (64.40%)	285	0.88	0.17	54.39	2.065*	2.299*	0.86	0.29	56.14	2.356*	2.893**
	2. Firms with LEV2 Below the Median (64.40%)	285	1.57	0.76	58.25	4.404***	3.774***	1.51	0.74	59.65	3.588***	4.248***
	3. Firms with LEV2 Unknown	414	1.72	0.48	59.18	5.580***	4.696***	1.63	0.74	55.31	4.624***	3.121**
	4. Difference (1-2)	--	-0.69	-0.59	-3.86	-3.689***	--	-0.65	-0.45	-3.51	-3.475***	--

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test.

Table12: Equity Market Reaction to the Contract Announcement Based on Sample Characteristics of Contractors

This table reports the equity market reaction to the contract announcement for the contractor companies based on the firm Characteristics. No is used as a reference label. Sample/Sub Sample Characteristic refers to the firm being analyzed. N is number of returns for a given category. CAAR is the cumulative Average Abnormal Return. MCAAR is the median CAAR. %POS is the percent positive for a given category. Z STAT is the Z-test statistic testing for a significant difference between the CAAR and Zero. GSIGN Z is the (generalized sign z) non-parametric test statistic for a significant difference from zero based on the ratio of positive to negative returns. Relative contract size (RCSIZE) is equal to Contract Amount (AMT) to Total Assets (TA). Maturity (MAT) is the substantive time of the contracts. ANID refers to the announcement orders. LEV1 is measured by Total Liabilities (TL) relative to the sum of TL and Market Value of Equity [TL/(TL+MV)]. LEV2 refers to Total Liabilities relative to Total Assets.

No.	Sample/Subsample Characteristics	N	Day t-1 to Day t0					Day t-1 to Day t+1				
			CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
A RCSIZE												
A1.	Firms with AMT/TA Above the Median (0.79%)	148	0.70	0.38	56.08	1.905\$	1.907\$	0.48	0.23	53.38	0.943	1.249
A2.	Firms with AMT/TA Below the Median (0.79%)	148	0.09	-0.06	48.65	0.256	0.143	0.04	0.01	50.00	0.172	0.472
A3.	Firms with AMT/TA unknown	278	-0.33	-0.26	43.88	-1.697\$	-1.274	-0.25	-0.39	43.53	-0.676	-1.394
A4.	Difference (A1-A2)	-	0.61	0.44	7.43	2.660**	-	0.44	0.22	3.38	1.919\$	-
B MAT												
B1.	Firms with MAT Above the Median (5 year)	112	0.93	0.31	58.93	2.838**	2.388*	1.16	0.40	56.25	3.061**	1.820\$
B2.	Firms with MAT Below the Median (5 year)	112	-0.61	-0.74	36.61	-2.653**	-2.489*	-0.46	-1.11	38.39	-1.955\$	-2.111*
B3.	Firms with MAT Unknown	351	-0.04	-0.03	48.43	-0.182	0.203	-0.21	-0.10	47.86	-0.284	-0.01
B4.	Difference (B1-B2)	-	1.54	1.05	22.32	5.721***	-	1.62	1.51	17.86	6.018***	-
C ANID												
C1.	First Announcement	288	-0.08	-0.10	48.61	-0.208	0.254	-0.19	-0.35	45.49	-0.296	-0.808
C2.	Subsequent Announcement	287	0.15	-0.05	47.74	0.108	-0.094	0.21	-0.02	49.83	0.403	0.615
C3.	Difference (C1 -C2)	1	-0.23	-0.05	0.88	-1.395\$	-	-0.40	-0.33	-4.34	-2.427*	-

Table 12: Continued

No.	Sample/Subsample Characteristics	N	Day t-1 to Day t0					Day t-1 to Day t+1				
			CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
D	LEV1											
	D1. Firms with LEV1 Above the Median (43.00%)	174	0.52	0.30	53.45	1.441	1.498	0.38	0.19	51.72	0.308	1.042
	D2. Firms with LEV1 Below the Median (43.00%)	174	0.17	-0.20	47.70	0.323	-0.117	-0.11	-0.51	46.55	-0.259	-0.421
	D3. Firms with LEV1 Unknown	227	-0.43	-0.24	44.49	-1.562	-1.028	-0.19	-0.33	45.37	0.078	-0.762
	D4. Difference (D1-D2)	-	0.35	0.50	5.75	1.682\$	-	0.49	0.70	5.17	-4.303***	-
E	LEV2											
	1. Firms with LEV2 Above the Median (64.43%)	178	0.68	-0.02	49.44	1.199	0.492	0.70	0.21	52.25	0.714	1.243
	2. Firms with LEV2 Below the Median (64.43%)	178	0.04	0.24	52.81	0.728	1.205	-0.34	-0.49	47.19	-0.322	-0.295
	3. Firms with LEV2 Unknown	218	-0.49	-0.27	43.12	-1.953\$	-1.424	-0.27	-0.37	44.04	-0.277	-1.153
	4. Difference (1-2)	-	0.64	-0.26	-3.37	-3.689***	-	1.04	0.70	5.06	-3.475***	-

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test.

Table13: Equity Market Reaction to the Contract Announcement Based on Contractee Firm Size

This table reports the equity market reaction to the contract announcement for the contractee companies based on the firm size. No is used as a reference label. Sample/Sub Sample Characteristic refers to the firm being analyzed. N is number of returns for a given category. CAAR is the cumulative Average Abnormal Return. MCAAR is the median CAAR. %POS is the percent positive for a given category. Z STAT is the Z-test statistic testing for a significant difference between the CAAR and Zero. GSIGN Z is the (generalized sign z) non-parametric test statistic for a significant difference from zero based on the ratio of positive to negative returns. Total Assets (TA), Market Value of Equity (MVE), and Total Sales (Sales) refer to total assets, market value of equity, and total sales of the firms in study one year before to the contract announcement.

No.	Sample/Subsample Characteristics	N	Day t-1 to Day t0					Day t-1 to Day t+1				
			CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
A	TA											
	A1. Firms with TA Above the Median (9406M)	285	0.20	0.01	50.88	0.482	1.055	0.37	0.27	56.49	1.555	2.952**
	A2. Firms with TA Below the Median (9406M)	285	2.25	0.81	61.75	5.528***	5.019***	2.01	0.78	59.30	4.175***	4.189***
	A3. Firms with TA unknown	414	1.72	0.48	59.18	5.580***	4.696***	1.63	0.74	55.31	4.624***	3.121**
	A4. Difference (A1-A2)	-	-2.05	-0.80	-10.88	-10.765***	-	-1.64	-0.51	-2.81	-8.612***	-
B	MVE											
	B1. Firms with MVE Above the Median (8.51M)	279	0.31	0.03	51.25	1.256	1.173	0.40	0.27	55.56	1.740\$	2.612**
	B2. Firms with MVE Below the Median (8.51M)	279	2.03	0.72	60.57	4.615***	4.565***	1.87	0.67	59.86	3.842***	4.325***
	B3. Firms with MVE unknown	426	1.78	0.56	59.62	5.862***	4.953***	1.68	0.78	55.63	4.777***	3.304***
	B4. Difference (B1-B2)	-	-1.72	-0.69	-9.32	-9.030***	-	-1.47	-0.40	-4.30	-7.717***	-
C	Sales											
	C1. Firms with Sales Above the Median (10012M)	282	0.27	0.06	52.13	1.079	1.457	0.46	0.37	57.45	2.138*	3.245**
	C2. Firms with Sales Below the Median (10012M)	282	2.19	0.78	60.28	5.009***	4.512***	1.91	0.69	58.16	3.546***	3.796***
	C3. Firms with Sales Unknown	419	1.71	0.49	59.19	5.609***	4.727***	1.63	0.75	55.37	4.729***	3.162**
	C4. Difference (C1-C2)	-	-1.92	-0.72	-8.16	-10.00***	-	-1.45	-0.32	-0.71	-7.552***	-

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test

Table14: Equity Market Reaction to the Contract Announcement Based on Contractor Firm Size

This table reports the equity market reaction to the contract announcement for the contractor companies based on the firm size. No is used as a reference label. Sample/Sub Sample Characteristic refers to the firm being analyzed. N is number of returns for a given category. CAAR is the cumulative Average Abnormal Return. MCAAR is the median CAAR. %POS is the percent positive for a given category. Z STAT is the Z-test statistic testing for a significant difference between the CAAR and Zero. GSIGN Z is the (generalized sign z) non-parametric test statistic for a significant difference from zero based on the ratio of positive to negative returns. Total Assets (TA), Market Value of Equity (MVE), and Total Sales (Sales) refer to total assets, market value of equity, and total sales of the firms in study one year before to the contract announcement.

No.	Sample/Subsample Characteristics	N	Day t-1 to Day t0					Day t-1 to Day t+1				
			CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
A	TA											
	A1. Firms with TA Above the Median (15784M)	179	0.47	0.14	50.84	1.255	0.762	0.29	0.23	51.96	0.222	1.061
	A2. Firms with TA Below the Median (15784M)	179	0.27	0.12	51.96	0.919	1.093	0.10	-0.06	48.60	0.398	0.196
	A3. Firms with TA unknown	216	-0.51	-0.27	43.06	-2.098*	-1.431	-0.30	-0.39	43.52	-0.385	-1.295
	A4. Difference (A1-A2)	-	0.20	0.02	-1.12	0.969	-	0.19	0.29	3.35	0.921	-
B	MVE											
	B1. Firms with MVE Above the Median (13.74M)	175	0.30	-0.19	46.86	0.302	-0.316	0.14	-0.07	49.71	-0.578	0.441
	B2. Firms with MVE Below the Median (13.74M)	175	0.40	0.28	54.29	1.438	1.693\$	0.16	-0.02	49.14	0.666	0.331
	B3. Firms with MVE unknown	225	-0.45	-0.24	44.44	-1.696\$	-1.033	-0.21	-0.35	44.89	-0.027	-0.9
	B4. Difference (B1-B2)	-	-0.10	-0.47	-7.43	-0.483	-	-0.02	-0.05	0.57	-0.097	-
C	Sales											
	C1. Firms with Sales Above the Median (14921M)	174	0.48	-0.01	49.43	1.115	0.333	0.27	-0.05	49.43	0.025	0.333
	C2. Firms with Sales Below the Median (14921M)	174	0.12	0.21	53.45	0.751	1.521	0.00	0.02	50.57	0.353	0.762
	C3. Firms with Sales Unknown	227	-0.37	-0.25	43.17	-1.691\$	-1.442	-0.18	-0.37	44.05	-0.193	-1.176
	C4. Difference (C1-C2)	-	0.36	-0.22	-4.02	1.729\$	-	0.27	-0.07	-1.15	1.296	-

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test

Table15: Equity Market Reaction to the Contract Announcement Based on Information Asymmetry for Contractees

This table reports the equity market reaction to the contract announcement for the contractee companies based on the Information Asymmetry Hypothesis. No is used as a reference label. Sample/Sub Sample Characteristic refers to the firm being analyzed. N is number of returns for a given category. CAAR is the cumulative Average Abnormal Return. MCAAR is the median CAAR. %POS is the percent positive for a given category. Z STAT is the Z-test statistic testing for a significant difference between the CAAR and Zero. GSIGN Z is the (generalized sign z) non-parametric test statistic for a significant difference from zero based on the ratio of positive to negative returns. TIA/TA refers to Total Intangible Assets (TIA) relative to Total Assets (TA). RD/TA refers to Research and Development (R&D) relative to TA. Tobin Q ratio refer to market to book value ratio. Capital Intensity (CAPI) is measured by fixed assets (FA) relative to TA.

No.	Sample/Subsample Characteristics	N	Day t-1 to Day t0					Day t-1 to Day t+1				
			CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
A TIA/TA												
A1.	Firms with TIA/TA Above the Median (10.06%)	204	1.08	0.39	57.84	3.102**	3.028**	1.25	0.52	58.82	3.240**	3.308***
A2.	Firms with TIA/TA Below the Median (10.06%)	204	0.59	0.17	53.43	1.495	1.697\$	0.73	0.23	53.92	2.037*	1.838\$
A3.	Firms with TIA/TA Unknown	576	1.85	0.62	58.85	6.471***	5.441***	1.64	0.74	57.12	4.937***	4.606***
A4.	Difference (A1-A2)	-	0.49	0.22	4.41	2.379*	-	0.52	0.29	4.90	2.525*	-
B RD/TA												
B1.	Firms with RD/TA Above the Median (4.472%)	217	1.88	0.78	62.21	4.426***	4.441***	1.65	0.66	62.67	3.603***	4.577***
B2.	Firms with RD/TA Below the Median (4.472%)	217	1.00	0.16	53.00	1.934\$	1.583	0.99	0.31	54.84	1.683\$	2.127*
B3.	Firms with RD/TA Unknown	550	1.43	0.46	57.45	5.512***	4.662***	1.41	0.68	55.27	4.952***	3.637***
B4.	Difference (B1-B2)	-	0.88	0.62	9.22	4.200***	-	0.66	0.35	7.83	3.150**	-
C Tobin Q Ratio												
C1.	Firms with TQ Above the Median (2.804 Times)	276	0.95	0.39	57.25	2.973**	3.194**	0.94	0.46	58.33	2.932**	3.555***
C2.	Firms with TQ Below the Median (2.804 Times)	276	1.38	0.30	54.35	3.094**	2.454*	1.34	0.36	56.88	2.782**	3.298***
C3.	Firms with TQ Unknown	431	1.76	0.53	59.63	5.859***	4.978***	1.66	0.77	55.68	4.788***	3.339***
C4.	Difference (C1-C2)	-	-0.43	0.09	2.90	-2.288*	-	-0.40	0.10	1.45	-2.128*	-

Table 15: Continued

No.	Sample/Subsample Characteristics	N	Day t-1 to Day t0				Day t-1 to Day t+1					
			CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
D	CAPI											
	D1. Firms with CAPI Above the Median (24.46%)	281	1.00	0.37	55.87	2.396*	2.954**	1.11	0.55	58.36	2.487*	3.790***
	D2. Firms with CAPI Below the Median (24.46%)	281	1.45	0.38	56.58	3.968***	3.039**	1.26	0.43	57.30	3.412***	3.278**
	D3. Firms with CAPI Unknown	421	1.71	0.47	59.14	5.665***	4.707***	1.63	0.75	55.34	4.699***	3.145**
	D4. Difference (D1-D2)	-	-0.45	-0.01	-0.71	-2.385*	-	-0.15	0.12	1.07	-0.795	-

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test.

Table16: Equity Market Reaction to the Contract Announcement Based on Information Asymmetry for Contractors

This table reports the equity market reaction to the contract announcement for the contractor companies based on the Information Asymmetry Hypothesis. No is used as a reference label. Sample/Sub Sample Characteristic refers to the firm being analyzed. N is number of returns for a given category. CAAR is the cumulative Average Abnormal Return. MCAAR is the median CAAR. %POS is the percent positive for a given category. Z STAT is the Z-test statistic testing for a significant difference between the CAAR and Zero. GSIGN Z is the (generalized sign z) non-parametric test statistic for a significant difference from zero based on the ratio of positive to negative returns. TIA/TA refers to Total Intangible Assets (TIA) relative to Total Assets (TA). RD/TA refers to Research and Development (R&D) relative to TA. Tobin Q ratio refer to market to book value ratio. Capital Intensity (CAPI) is measured by fixed assets (FA) relative to TA.

No.	Sample/Subsample Characteristics	N	Day t-1 to Day t0					Day t-1 to Day t+1				
			CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
A TIA/TA												
A1.	Firms with TIA/TA Above the Median (7.67%)	111	0.98	0.35	55.86	2.186*	1.612	1.16	0.25	55.86	2.328*	1.612
A2.	Firms with TIA/TA Below the Median (7.67%)	111	0.44	-0.22	48.65	1.051	0.21	0.07	-0.07	49.55	0.259	0.4
A3.	Firms with TIA/TA Unknown	353	-0.39	-0.21	45.61	-2.136*	-0.877	-0.37	-0.40	44.48	-1.293	-1.304
A4.	Difference (A1-A2)	-	0.54	0.57	7.21	2.021*	-	1.09	0.32	6.31	4.079***	-
B RD/TA												
B1.	Firms with RD/TA Above the Median (3.34%)	113	0.24	-0.11	48.67	0.475	0.117	0.12	-0.13	47.79	-0.069	-0.072
B2.	Firms with RD/TA Below the Median (3.34%)	113	0.02	-0.02	47.79	-0.336	0	-0.17	-0.14	46.90	-0.763	-0.188
B3.	Firms with RD/TA Unknown	349	-0.02	-0.09	48.14	-0.192	0.079	0.03	-0.10	47.85	0.534	-0.028
B4.	Difference (B1-B2)	-	0.22	-0.09	0.88	0.8875	-	0.29	0.01	0.88	1.170	-
C Tobin Q Ratio												
C1.	Firms with TQ Above the Median (2.49 Times)	173	0.60	-0.03	49.13	1.253	0.27	0.31	0.01	50.29	0.375	0.574
C2.	Firms with TQ Below the Median (2.49 Times)	173	0.10	0.08	51.45	0.408	0.938	-0.01	-0.05	49.13	-0.232	0.329
C3.	Firms with TQ Unknown	229	-0.43	-0.22	44.98	-1.642	-0.87	-0.20	-0.35	44.54	-0.003	-1.002
C4.	Difference (C1-C2)	-	0.50	-0.11	-2.31	-2.288*	-	0.32	0.06	1.16	-2.128*	-

Table 16: Continued

No.	Sample/Subsample Characteristics	N	Day t-1 to Day t0				Day t-1 to Day t+1					
			CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
D	CAPI											
	D1. Firms with CAPI Above the Median (34.77%)	176	0.48	0.17	51.70	1.425	0.996	0.35	0.20	51.70	0.618	0.996
	D2. Firms with CAPI Below the Median (34.77%)	176	0.19	-0.03	50.00	0.342	0.555	-0.06	-0.50	47.16	-0.339	-0.199
	D3. Firms with CAPI Unknown	222	-0.43	-0.24	44.14	-1.638	-1.131	-0.20	-0.34	45.05	-0.009	-0.863
	D4. Difference (D1-D2)	-	0.29	0.20	1.70	-2.385*	-	0.41	0.70	4.55	-0.795	-

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test.

Table17: Equity Market Reaction to the Contract Announcement Based on the Historical Profitability of Contractees

This table reports the equity market reaction to the contract announcement for the contractee companies based on the historical profitability. No is used as a reference label. Sample/Sub Sample Characteristic refers to the firm being analyzed. N is number of returns for a given category. CAAR is the cumulative Average Abnormal Return. MCAAR is the median CAAR. %POS is the percent positive for a given category. Z STAT is the Z-test statistic testing for a significant difference between the CAAR and Zero. GSIGN Z is the (generalized sign z) non-parametric test statistic for a significant difference from zero based on the ratio of positive to negative returns. Basic Earning Power (BEP) refers to EBIT relative to Total Assets (TA). ROE is return on equity.

No.	Sample/Subsample Characteristics	N	Day t-1 to Day t0				Day t-1 to Day t+1					
			CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
A	BEP											
	A1. Firms with BEP Above the Median (8.77%)	276	0.95	0.39	57.25	2.973**	3.194**	0.94	0.46	58.33	2.932**	3.555***
	A2. Firms with BEP Below the Median (8.77%)	276	1.38	0.30	54.35	3.094**	2.454*	1.34	0.36	56.88	2.782**	3.298***
	A3. Firms with BEP Unknown	431	1.76	0.53	59.63	5.859***	4.978***	1.66	0.77	55.68	4.788***	3.339***
	A4. Difference (A1-A2)	-	-0.43	0.09	2.90	-2.265*	-	-0.40	0.10	1.45	-2.106*	-
B	ROE											
	B1. Firms with ROE Above the Median (14.23)	284	0.73	0.17	55.28	2.462*	2.618**	0.67	0.28	56.69	2.479*	3.093**
	B2. Firms with ROE Below the Median (14.23)	284	1.71	0.66	57.39	4.022***	3.461***	1.68	0.74	59.15	3.440***	4.056***
	B3. Firms with ROE Unknown	416	1.73	0.48	59.13	5.629***	4.688***	1.64	0.74	55.29	4.644***	3.117**
	B4. Difference (B1-B2)	-	-0.98	-0.49	-2.11	-5.177***	-	-1.01	-0.46	-2.46	-5.336***	-

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test

Table18: Equity Market Reaction to the Contract Announcement Based on the Historical Profitability of Contractors

This table reports the equity market reaction to the contract announcement for the contractor companies based on the historical profitability. No is used as a reference label. Sample/Sub Sample Characteristic refers to the firm being analyzed. N is number of returns for a given category. CAAR is the cumulative Average Abnormal Return. MCAAR is the median CAAR. %POS is the percent positive for a given category. Z STAT is the Z-test statistic testing for a significant difference between the CAAR and Zero. GSIGN Z is the (generalized sign z) non-parametric test statistic for a significant difference from zero based on the ratio of positive to negative returns. Basic Earning Power (BEP) refers to EBIT relative to Total Assets (TA). ROE is return on equity.

No.	Sample/Subsample Characteristics	N	Day t-1 to Day t0					Day t-1 to Day t+1				
			CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
A	BEP											
	A1. Firms with BEP Above the Median (9.12%)	178	-0.13	-0.22	45.51	-0.78	-0.786	-0.30	-0.66	43.82	-0.973	-1.236
	A2. Firms with BEP Below the Median (9.12%)	178	0.87	0.51	56.74	2.549*	2.478*	0.66	0.37	55.62	1.254	2.177*
	A3. Firms with BEP Unknown	218	-0.51	-0.27	43.12	-2.068*	-1.416	-0.27	-0.37	44.04	-0.296	-1.145
	A4. Difference (A1-A2)	-	-1.00	-0.73	-11.24	-2.264*		-0.96	-1.03	-11.80	-2.106*	-
B	ROE											
	B1. Firms with ROE Above the Median (15.51)	179	0.02	-0.23	45.25	-0.392	-0.822	-0.06	-0.49	46.37	-0.578	-0.523
	B2. Firms with ROE Below the Median (15.51)	179	0.72	0.40	56.98	2.326*	2.517*	0.45	0.24	53.63	1.09	1.619
	B3. Firms with ROE Unknown	216	-0.51	-0.27	43.06	-2.098*	-1.431	-0.30	-0.39	43.52	-0.385	-1.295
	B4. Difference (B1-B2)	-	-0.70	-0.63	-11.73	-2.265*		-0.51	-0.73	-7.26	-2.107*	-

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test

Table19: Equity Market Reaction to the Contract Announcement Based on the Nationality for Contractees

No. is used as a reference label. Nationality refers to the nationality of firms being analyzed. N is number of returns for a given category. CAAR is the cumulative Average Abnormal Return. MCAAR is the median CAAR. %POS is the percent positive for a given category. Z STAT is the Z-test statistic testing for a significant difference between the CAAR and Zero. GSIGN Z is the (generalized sign z) non-parametric test statistic for a significant difference from zero based on the ratio of positive to negative returns. Panel A reports the equity market reaction in 2 days window (day t-1 to day t0) and 3 days window (day t-1 to day t+1) to the contract announcement of the contractee companies where the contractee companies are U.S. companies or foreign companies that listed on USA market. Panel B reports the equity market reaction in 2 days window (day t-1 to day t0) and 3 days window (day t-1 to day t+1) to the contract announcement of the contractee companies where the contractor companies are U.S. companies or international companies.

No.	Nationality	N	Day t-1 to Day t0					Day t-1 to Day t+1				
			CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
A Contractee												
A1.	National	928	1.42	0.38	57.11	6.510***	5.936***	1.33	0.45	55.71	5.453***	5.081***
A2.	International	56	1.66	1.54	64.29	3.774***	2.302*	2.09	2.57	75.00	4.631***	3.906***
A3.	Difference (A1-A2)	872	-0.24	-1.16	-7.17	-0.712	-	-0.76	-2.12	-19.29	-2.253*	-
B Contractor												
B1.	National	677	1.65	0.52	59.23	6.837***	6.068***	1.57	0.58	57.90	5.844***	5.375***
B2.	International	307	0.95	0.17	53.75	2.578**	2.293*	0.93	0.39	54.40	2.362*	2.522*
B3.	Difference (B1-B2)	370	0.70	0.35	5.49	4.149***	-	0.64	0.19	3.51	3.794***	-

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test

Table20: Equity Market Reaction to the Contract Announcement based on the Nationality for Contractors

No. is used as a reference label. Nationality refers to the nationality of firms being analyzed. N is number of returns for a given category. CAAR is the cumulative Average Abnormal Return. MCAAR is the median CAAR. %POS is the percent positive for a given category. Z STAT is the Z-test statistic testing for a significant difference between the CAAR and Zero. GSIGN Z is the (generalized sign z) non-parametric test statistic for a significant difference from zero based on the ratio of positive to negative returns. Panel A reports the equity market reaction in 2 days window (day t-1 to day t0) and 3 days window (day t-1 to day t+1) to the contract announcement of the contractor companies where the contractor companies are U.S. companies or foreign companies that listed on USA market. Panel B reports the equity market reaction in 2 days window (day t-1 to day t0) and 3 days window (day t-1 to day t+1) to the contract announcement of the contractor companies where the contractee companies are U.S. companies or international companies.

No.	Nationality	N	Day t-1 to Day t0					Day t-1 to Day t+1				
			CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
A	Contractor											
	A1. National	512	0.11	-0.01	49.22	0.401	0.567	0.08	-0.06	48.63	0.545	0.301
	A2. International	63	-0.52	-0.49	39.68	-1.830\$	-1.273	-0.60	-0.64	39.68	-1.62	-1.273
	A3. Difference (B1-B2)	449	0.63	0.48	9.54	2.399*	-	0.68	0.58	8.95	2.589**	-
B	Contractee											
	B1. National	530	0.07	-0.07	48.30	-0.037	0.176	0.08	-0.07	48.30	0.357	0.176
	B2. International	45	-0.84	-1.13	40.00	-1.382	-1.094	-1.94	-0.95	40.00	-2.241*	-1.094
	B3. Difference (B3-B4)	485	0.91	1.06	8.30	2.980*	-	2.02	0.88	8.30	6.615***	-

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test.

Table21: Equity Market Reaction to the Contract Announcement for Contractees based on Industry Sector

Equity market reaction to the contract announcement for the contractee companies based on different industry sector that category by the first digit of the sic code. INDUSTRY refers to the firms being analyzed belong to which industry. N is number of returns for a given category. CAAR is the cumulative Average Abnormal Return. MCAAR is the median CAAR. Z STAT is the Z-test statistic testing for a significant difference between the CAAR and Zero. %POS is the percent positive for a given category in the given period. GSIGN Z is the (generalized sign z) non-parametric test statistic for a significant difference from zero based on the ratio of positive to negative returns. SIC1 refers to Mining and Construction industry. SIC2 refers to Manufacturing Process Product industry. SIC3 refers to Manufacturing Finished Products industry. SIC4 refers to Transportation and Utility Industry. SIC5 refers to Consumer Product and Wholesale industry. SIC6 refers to Banking and Other Financial Institutions. SIC7 refers Hotel, Motel, Business, Health, and Education Service industry. SIC8 refers to Professional Service industry. SIC9 refers to other remaining industry.

INDUSTRY	N	Day t-1 to Day t0					Day t-1 to Day t+1				
		CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
SIC1	132	1.11	0.35	56.82	3.038**	2.343*	0.99	0.12	51.52	2.272*	0.949
SIC2	24	-0.02	-0.53	41.67	-0.484	-0.562	-1.04	-1.05	33.33	-1.557	-1.379
SIC3	495	1.87	0.55	58.38	6.016***	5.022***	1.82	0.66	58.18	5.390***	4.932***
SIC4	178	0.10	-0.06	48.88	-0.248	0.32	0.14	0.20	54.49	0.308	1.825\$
SIC5	33	1.74	1.26	63.64	2.319*	1.770\$	1.77	1.26	63.64	2.270*	1.770\$
SIC6	18	-0.92	-0.57	38.89	-1.41	-0.905	-0.97	-0.23	38.89	-1.382	-0.905
SIC7	68	3.01	2.01	75.00	3.865***	4.650***	2.46	1.99	67.65	3.424***	3.435***
SIC8	34	2.31	0.75	67.65	2.559*	2.422*	2.63	0.85	64.71	2.333*	2.078*
SIC9	2	0.37	0.37	50.00	0.906	0.114	10.47	10.47	50.00	0.334	0.114

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test.

Table22: Equity Market Reaction to the Contract Announcement for the Contractors based on Industry Sector

Equity market reaction to the contract announcement for the contractor companies based on different industry sector that category by the first digital of the sic code. INDUSTRY refers to the firms being analyzed belong to which industry. N is number of returns for a given category. CAAR is the cumulative Average Abnormal Return. MCAAR is the median CAAR. Z STAT is the Z-test statistic testing for a significant difference between the CAAR and Zero. %POS is the percent positive for a given category in the given period. GSIGN Z is the (generalized sign z) non-parametric test statistic for a significant difference from zero based on the ratio of positive to negative returns. SIC1 refers to Mining and Construction industry. SIC2 refers to Manufacturing Process Product industry. SIC3 refers to Manufacturing Finished Products industry. SIC4 refers to Transportation and Utility Industry. SIC5 refers to Consumer Product and Wholesale industry. SIC6 refers to Banking and Other Financial Institutions. SIC7 refers Hotel, Motel, Business, Health, and Education Service industry. SIC8 refers to Professional Service industry. SIC9 refers to other remaining industry.

INDUSTRY	N	Day t-1 to Day t0					Day t-1 to Day t+1				
		CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ	CAAR (%)	MCAAR (%)	%POS	Z STAT	GSZ
SIC1	29	-0.21	0.00	48.28	-0.239	0.055	-0.43	-0.65	37.93	-0.002	-1.061
SIC2	62	-0.40	-0.07	46.77	-1.681\$	-0.236	-0.82	-0.99	37.10	-1.821\$	-1.760\$
SIC3	221	0.14	-0.05	48.87	0.372	0.243	0.13	0.04	50.23	0.138	0.647
SIC4	138	0.03	-0.20	47.10	0.001	-0.199	-0.02	-0.12	46.38	0.214	-0.37
SIC5	31	0.40	0.20	54.84	1.098	0.803	0.76	0.37	58.06	1.483	1.163
SIC6	47	0.35	-0.17	48.94	0.883	0.175	0.75	0.40	57.45	1.312	1.343
SIC7	31	-1.36	-0.77	35.48	-1.678\$	-1.279	-1.82	-0.96	35.48	-1.501	-1.279
SIC8	14	2.70	1.55	71.43	1.162	1.704\$	3.22	0.23	64.29	0.78	1.169
SIC9	2	-3.08	-3.08	0.00	-2.715**	-1.368	-2.34	-2.34	0.00	-1.337	-1.368

The symbols \$, *, **, and *** denote statistical significance at the 10%, 5%, 1% and 0.1% levels, respectively, using a 2-tail test.

Table23: Summary Statistics for Variables Entered into Regression Analysis of Contractees

Abbrev. is the abbreviation used to denote the relevant characteristics. N is the number of number of contracts in study. Mean (Median) is the arithmetic average (the middle observation) for particular variable displayed. Std Dev is the standard deviation for a given variable. Min and Max are the minimum and maximum value, respectively. Relative Contract Size (RCSIZE = AMT/TA), Intangible Assets to Total Assets (TIA/TA), R&D to Total Assets (R&D/TA), Tobin Q ratio (TQ = MV/BV), Return on Equity, Capital Intensity (CAPI = FA/TA) Leverage 1 (LEV1 = TL/(TL+MV)).

Variables	Abbrev.	N	Mean (%)	Median (%)	Std Dev (%)	Min (%)	Max (%)
Relative Contract Size	RCSIZE	491	17.34	2.09	47.81	0.0022	488.65
Intangible Assets to Total Assets	TIA/TA	408	13.68	10.06	11.44	0.11	76.22
R & D to Total Assets	RD/TA	434	6.073	4.472	5.628	0.00042	53.332
Tobin Q Ratio	TQ	553	4.078	2.804	6.312	-66.34	75.28
Return on Equity	ROE	568	11.86	14.23	84.76	-1062.39	1477.35
Capital Intensity	CAPI	563	30.71	24.46	21.57	0.287	206.36
Leverage 1	LEV1	556	40.20	36.59	22.07	0.0128	93.48

Table24: Summaries of Statistics for Variables Entered into Regression Analysis of Contractors

Abbrev. is the abbreviation used to denote the relevant characteristics. N is the number of number of contracts in study. Mean (Median) is the arithmetic average (the middle observation) for particular variable displayed. Std Dev is the standard deviation for a given variable. Min and Max are the minimum and maximum value, respectively. Relative Contract Size (RCSIZE = AMT/TA), Intangible Assets to Total Assets (TIA/TA), R&D to Total Assets (R&D/TA), Tobin Q ratio (TQ = MV/BV), Capital Intensity (CAPI = FA/TA) Leverage 1 (LEV1 = TL/(TL+MV)).

Variables	Abbrev.	N	Mean (%)	Median (%)	Std Dev (%)	Min (%)	Max (%)
Relative Contract Size	RCSIZE	297	24.19	0.79	169.83	0.00186	2727.75
Total Intangible to Total Assets	TIA/TA	222	12.37	7.67	11.77	0.361	65.09
R & D to Total Assets	RD/TA	226	5.208	3.933	4.476	0.135	27.344
Tobin Q Ratio	TQ	346	3.732	2.489	6.389	-3.177	84.562
Return on Equity	ROE	359	13.19	15.51	52.22	-597.04	588.67
Capital Intensity	CAPI	353	43.42	34.77	30.16	0.916	150.63
Leverage 1	LEV1	348	46.32	43.00	22.74	0.05	93.68

Table25: Correlation Coefficients between Independent Variables of Contractees

Correlation Coefficients between Independent Variables of Contractee Sample enter into Signal Regression. Tobin Q (TQ) is measured as the ratio of market value of equity (MVE) plus total liability to total assets (TA). RCSIZE refers to relative contract size measured as contract amount (AMT) relative to TA. SIZE equals LOG (MV). INTG refers to the ratio of Intangible Assets to Total Assets. RAD refers to the ratio of R & D to TA. ROE is return on equity defined as net income divided by MVE. CAPI is capital intensity defined as fixed assets (FA) to TA. LEV1 is the ratio of total liability (TL) to the sum of TL and MVE. DID is a dummy variable that equals one if the announcement is the first announcement of the firm in study or zero if it is not. DNATLOR is a dummy variable that equals one if the contractor is a U.S. company or zero if it is not.

	RCSIZE	SIZE	INTG	RAD	ROE	CAPI	LEV1	DID	DNATLOR
TQ	-0.07989	0.36044***	0.03334	0.26269***	0.20916***	-0.1612***	-0.04922	-0.2082***	0.09168*
RCSIZE		-0.35412***	0.09091\$	0.05028	0.20277***	-0.06528	-0.03013	0.14066**	0.11827**
SIZE			-0.14619**	0.02238	0.05788	-0.06045	0.0375	-0.44915***	-0.08004\$
INTG				-0.0489	-0.03321	-0.25943***	0.04119	0.12178	0.14454**
RAD					0.30249***	-0.11764*	-0.16083***	0.05418	0.03216
ROE						0.00401	-0.00991	0.01062	0.08228*
CAPI							0.14658***	0.19306***	-0.05162
LEV1								-0.0549	0.05244
DID									0.1238***

The symbols *, **, and *** denote statistical significance at the 5%, 1% and 0.1% levels, respectively.

Table26: Correlation Coefficients between Independent Variables of Contractors

Correlation Coefficients between Independent Variables of Contractor Sample enter into Signal Regression. Tobin Q (TQ) is measured as the ratio of market value of equity (MVE) plus total liability to total assets (TA). RCSIZE refers to relative contract size measured as contract amount (AMT) relative to TA. SIZE equals LOG (MV). INTG refers to the ratio of Intangible Assets to Total Assets. RAD refers to the ratio of R & D to TA. ROE is return on equity defined as net income divided by MVE. CAPI is capital intensity defined as fixed assets (FA) to TA. LEV1 is the ratio of total liability (TL) to the sum of TL and MVE. DID is a dummy variable that equals one if the announcement is the first announcement of the firm in study or zero if it is not. DNATLEE is a dummy variable that equals one if the contractee is a U.S. company or zero if it is not.

	RCSIZE	SIZE	INTG	RAD	ROE	CAPI	LEV1	DID	DNATLEE
TQ	0.05994	0.15446**	0.11145\$	0.12102**	0.02344	-0.15466**	-0.13559*	0.05423	0.03899
RCSIZE		-0.21262***	0.18397**	-0.09559	0.0391	-0.00653	-0.37273***	-0.01086	0.02601
SIZE			-0.12797*	-0.00676	0.12731*	-0.13566*	0.12926*	-0.54958***	-0.07842
INTG				-0.11056	-0.11977\$	-0.22513***	0.09589	0.06335	-0.00501
RAD					-0.05463	-0.29753***	-0.29636***	-0.00345	-0.0684
ROE						0.05335	-0.06145	-0.06345	-0.0094
CAPI							0.1678*	0.11942*	-0.02632
LEV1								-0.0519	-0.02569
DID									0.03288

The symbols *, **, and *** denote statistical significance at the 5%, 1% and 0.1% levels, respectively.

Table27: Univariate Regression Results for Contractees

This table report results from running univariate regressions that attempt to explain the cumulative average abnormal return (CAAR) for firms in the two days window (Day t-1 to Day t0). Exp. Sign refers to the Expected Sign of the independent variables. Par. Est. refers to the Parameter Estimate. Adj. R² refers to the Adjusted R². Tobin Q (TQ) is measured as the ratio of market value of equity (MVE) plus total liability to total assets (TA). RCSIZE refers to relative contract size measured as contract amount (AMT) relative to TA. SIZE equals LOG (MV). INTG refers to the ratio of Intangible Assets to Total Assets. RAD refers to the ratio of R & D to TA. ROE is return on equity defined as net income divided by MVE. CAPI is capital intensity defined as fixed assets (FA) to TA. LEV1 is the ratio of total liability (TL) to the sum of TL and MVE. DID is a dummy variable that equals one if the announcement is the first announcement of the firm in study or zero if it is not. DNATLOR is a dummy variable that equals one if the contractor is a U.S. company or zero if it is not.

Variable	Exp.	INTERCEPT		Independent Variable			R ²	Adj R ²	N
	Sign	Par. Est.	T-stat	Par. Est.	T-stat	F Value			
TQ	-	0.0152	5.14***	-0.0007	-1.6\$	2.41\$	0.0047	0.0029	549
RCSIZE	+	0.0094	3.5***	0.0260	4.91***	24.13***	0.0473	0.0453	490
SIZE	-	0.0208	7.36***	-0.0050	-5.14	26.47***	0.0455	0.0438	556
INTG	+	0.0048	1.49	0.02884	1.58\$	2.48\$	0.006	0.0036	413
RAD	+	0.00372	1.02	0.18987	4.13***	17.07***	0.035	0.0329	472
ROE	-	0.0126	5.38***	0.0000	1.63\$	2.66\$	0.0047	0.0029	567
CAPI	-	0.0165	4.04***	-0.0115	-1.06	1.13	0.002	0.0002	560
LEV1	-	0.0336	0.55	-0.0212	-0.35	0.12	0.0002	-0.0016	553
DID	+	0.00754	3.18***	0.02021	5.06***	25.56***	0.0254	0.0244	984
DNATLOR	-	0.00991	2.87**	0.00688	1.65\$	2.73\$	0.0028	0.0018	984

The symbols *, **, and *** denote statistical significance at the 5%, 1% and 0.1% levels, respectively.

Table28: Univariate Regression Results for Contractors

This table report results from running univariate regressions that attempt to explain the cumulative average abnormal return (CAAR) for firms in the two days window (Day t-1 to Day t0). Exp. Sign refers to the Expected Sign of the independent variables. Par. Est. refers to the Parameter Estimate. Adj. R² refers to the Adjusted R². Tobin Q (TQ) is measured as the ratio of market value of equity (MVE) plus total liability to total assets (TA). RCSIZE refers to relative contract size measured as contract amount (AMT) relative to TA. SIZE equals LOG (MV). INTG refers to the ratio of Intangible Assets to Total Assets. RAD refers to the ratio of R & D to TA. ROE is return on equity defined as net income divided by MVE. CAPI is capital intensity defined as fixed assets (FA) to TA. LEV1 is the ratio of total liability (TL) to the sum of TL and MVE. DID is a dummy variable that equals one if the announcement is the first announcement of the firm in study or zero if it is not. DNATLEE is a dummy variable that equals one if the contractee is a U.S. company or zero if it is not.

Variable	Exp.	INTERCEPT			Independent Variable			R ²	Adj. R ²	N
	Sign	Par. Est.	T-stat	Par. Est.	T-stat	F Value				
TQ	+	0.0060	2.23**	-0.0007	-1.9*	3.59*	0.0103	0.0075	345	
RCSIZE	-	0.0038	1.49	0.0001	0.03	0	0	-0.0034	296	
SIZE	+	0.0031	0.83	0.0002	0.12	0.02	0	-0.0028	349	
INTG	+	0.0051	1.16	0.01484	0.55	0.31	0.0013	-0.0029	241	
RAD	+	0.00208	0.65	-0.04116	-0.81	0.66	0.025	-0.0013	262	
ROE	-	0.0036	1.52	0.0000	0.19	0.04	0.0001	-0.0027	358	
CAPI	+	0.0052	1.28	-0.0044	-0.57	0.33	0.0009	-0.0019	352	
LEV1	+	0.0135	0.23	-0.0102	-0.17	0.03	0.0001	-0.0028	347	
DID	+	0.00151	0.61	-0.00198	-0.56	0.32	0.0006	-0.0012	574	
DNATLEE	-	-0.00498	-0.79	0.00597	0.91	0.84	0.0015	-0.0003	574	

The symbols *, **, and *** denote statistical significance at the 5%, 1% and 0.1% levels, respectively.

Table29: Multivariate Regression Results of Contract Announcement Day Returns by Contractees

This table report results from running two similar cross-sectional, multiple regressions that attempt to explain the cumulative average abnormal return (CAAR) for firms in the two days window (Day t-1 to Day t0). Indp. Var. refers to the Independent Variables. Exp. Sign refers to the Expected Sign of the independent variables. Par. Est. refers to the Parameter Estimate. VIF. refers to variance inflation. Adj. R² refers to the Adjusted R². Tobin Q (TQ) is measured as the ratio of market value of equity (MVE) plus total liability to total assets (TA). RCSIZE refers to relative contract size measured as contract amount (AMT) relative to TA. SIZE equals LOG (MV). INTG refers to the ratio of Intangible Assets to Total Assets. RAD refers to the ratio of R & D to TA. ROE is return on equity defined as net income divided by MVE. CAPI is capital intensity defined as fixed assets (FA) to TA. LEV1 is the ratio of total liability (TL) to the sum of TL and MVE. DID is a dummy variable that equals one if the announcement is the first announcement of the firm in study or zero if it is not. DNATLOR is a dummy variable that equals one if the contractor is a U.S. company or zero if it is not.

Ind. Var.	Model 1					Model 2				Model 3			
	Exp. Sign	Par. Est.	T-stat	VIF	While Test	Par. Est.	T-stat	VIF	While Test	Par. Est.	T-stat	VIF	While Test
Intercept		0.4284	1.35	0	1.604\$	0.440	1.39	0	1.631\$	0.2166	0.66	0	0.450
TQ	-	-0.0024	-6.16***	1.618	-3.715***	-0.002	-6.65***	1.489	-3.842***	-0.0005	-0.9	1.356	-0.653
RCSIZE	+	0.0316	3.72***	1.277	2.314**	0.034	4.37***	1.079	2.654**	0.0167	2.82**	1.172	2.420**
SIZE	-	-0.0009	-0.75	1.715	-0.671	--	--	--	--	-0.0037	-2.67**	1.619	-1.769\$
INTG	+	0.0377	1.86\$	1.135	1.733\$	0.039	1.94*	1.124	1.780\$	--	--	--	--
RAD	+	0.2156	4.3***	1.319	3.350***	0.215	4.3***	1.319	3.372***	--	--	--	--
ROE	-	0.0007	10.71***	1.126	4.143***	0.001	10.71***	1.125	4.117***	0.0002	2.71**	1.091	0.773
CAPI	-	-0.0103	-0.8	1.116	-1.142	-0.010	-0.81	1.116	-1.153	-0.0140	-1.01	1.082	-0.825
LEV1	-	-0.4354	-1.37	1.191	-1.625\$	-0.450	-1.42	1.187	-1.662\$	-0.2000	-0.61	1.141	-0.414
DID	+	0.0016	0.28	1.328	0.264	0.003	0.62	1.127	0.584	0.0079	1.23	1.318	1.247
DNATLOR	-	0.0038	0.86	1.058	0.870	0.004	0.86	1.058	0.852	0.0025	0.45	1.048	0.527
F Value		18.56***				20.59***				5.7***			
R2		0.399				0.397				0.089			
Adj R2		0.377				0.378				0.073			
N		290				290				474			

The symbols *, **, and *** denote statistical significance at the 5%, 1% and 0.1% levels, respectively.

Table30: Multivariate Regression Results of Contract Announcement Day Returns by Contractors

This table report results from running two similar cross-sectional, multiple regressions that attempt to explain the cumulative average abnormal return (CAAR) for firms in the two days window (Day t-1 to Day t0). Indp. Var. refers to the Independent Variables. Exp. Sign refers to the Expected Sign of the independent variables. Par. Est. refers to the Parameter Estimate. Adj. R² refers to the Adjusted R². Tobin Q (TQ) is measured as the ratio of market value of equity (MVE) plus total liability to total assets (TA). RCSIZE refers to relative contract size measured as contract amount (AMT) relative to TA. SIZE equals LOG (MV). INTG refers to the ratio of Intangible Assets to Total Assets. RAD refers to the ratio of R & D to TA. ROE is return on equity defined as net income divided by MVE. CAPI is capital intensity defined as fixed assets (FA) to TA. LEV1 is the ratio of total liability (TL) to the sum of TL and MVE. DID is a dummy variable that equals one if the announcement is the first announcement of the firm in study or zero if it is not. DNATLEE is a dummy variable that equals one if the contractee is a U.S. company or zero if it is not.

Indp. Var.	Exp. Sign	Model 1				Model 2				Model 3			
		Par. Est.	T-stat	VIF	While Test	Par. Est.	T-stat	VIF	While Test	Par. Est.	T-stat	VIF	While Test
Intercept		-0.593	-0.93	0	1.248	-0.559	-0.89	0	-1.696\$	-0.908	-1.73\$	0	-2.814**
TQ	+	-0.001	-2.02*	1.199	-6.930***	-0.001	-1.93*	1.134	-6.121***	-0.0004	-1.01	1.276	-1.334
RCSIZE	-	-0.005	-0.83	1.055	-5.229***	-0.006	-0.86	1.053	-5.479***	-0.007	-1.73\$	1.074	-1.380
SIZE	+	0.005	1.55	1.443	1.703\$	0.004	1.43	1.224	1.410	0.0005	0.25	1.623	0.194
INTG	+	0.060	1.77\$	1.158	2.733\$	0.059	1.73\$	1.152	2.634**	--	--	--	--
RAD	+	-0.012	-0.12	1.144	-0.215	-0.017	-0.18	1.136	-0.302	--	--	--	--
ROE	-	-0.00004	-0.66	1.060	-2.552**	-0.00004	-0.66	1.060	-2.481**	-0.000001	-0.02	1.031	-0.017
CAPI	+	0.022	1.17	1.252	2.337*	0.023	1.23	1.243	2.417**	-0.008	-0.88	1.044	-0.949
LEV1	+	0.584	0.92	1.236	1.884\$	0.553	0.87	1.228	1.648\$	0.913	1.73\$	1.220	2.791**
DID	+	0.006	0.6	1.350	0.997	--	--	--	--	-0.002	-0.26	1.508	-0.402
DNATLEE	-	-0.010	-0.59	1.023	-1.174	-0.009	-0.55	1.019	-1.156	0.007	0.6	1.024	0.982
F Value		1.32				1.44				1.54			
R2		0.097				0.0945				0.0436			
Adj R2		0.024				0.0288				0.0154			
N		133				133				279			

The symbols *, **, and *** denote statistical significance at the 5%, 1% and 0.1% levels, respectively.

Table31: Summary Statistics for Variables Entered into Regression Analysis for Match Sample of Contractees

Abbrev. is the abbreviation used to denote the relevant characteristics. N is the number of number of contracts in study. Mean (Median) is the arithmetic average (the middle observation) for particular variable displayed. Std Dev is the standard deviation for a given variable. Min and Max are the minimum and maximum value, respectively. Contractee Cumulate Abnormal Return (CAR2), Tobin Q ratio ($TQ = MV/BV$), Return on Equity, Relative Contract Size ($RCSIZE = AMT/TA$), SIZE ($LOG(MV)$), Intangible Assets to Total Assets (TIA/TA), R&D to Total Assets (R&D/TA), Capital Intensity ($CAPI = FA/TA$) Leverage 1 ($LEV1 = TL/(TL+MV)$), Contractor Cumulative Abnormal Return (CAR2TOR).

Variable	Abbrev.	N	Mean (%)	Median (%)	Std Dev (%)	Min. (%)	Max. (%)
Contractee Cumulate Abnormal Return	CAR2	421	2.02	0.71	7.54	-20.62	82.95
Tobin's Q Ratio	TQ	234	382.74	285.01	454.75	-1875.00	4278.97
Relative Contract Size	RCSIZE	208	21.33	3.07	50.20	0.01	326.89
LOG (MV)	SIZE	237	1.47	1.856	2.39	-4.61	5.97
Intangible Assets to Total Assets	INTG	177	14.54	10.58	12.85	0.00	76.22
R&D to Total Assets	RAD	178	5.72	3.85	5.90	0.00	34.88
Return on Equity	ROE	242	780.95	1379.00	3754.30	-34704.00	6290.00
Capital Intensity	CAPI	241	30.66	24.46	24.35	0.29	206.36
Leverage 1	LEV1	237	99.62	99.84	0.79	94.34	99.99
Contractor Cumulate Abnormal Return	CAR2TOR	421	0.10	0.00	3.51	-19.92	28.12

Table32: Summary Statistics for Variables Entered into Regression Analysis for Match Sample of Contractors

Abbrev. is the abbreviation used to denote the relevant characteristics. N is the number of number of contracts in study. Mean (Median) is the arithmetic average (the middle observation) for particular variable displayed. Std Dev is the standard deviation for a given variable. Min and Max are the minimum and maximum value, respectively. Contractor Cumulate Abnormal Return (CAR2), Tobin Q ratio ($TQ = MV/BV$), Return on Equity, Relative Contract Size ($RCSIZE = AMT/TA$), SIZE ($LOG(MV)$), Intangible Assets to Total Assets (TIA/TA), R&D to Total Assets ($R\&D/TA$), Capital Intensity ($CAPI = FA/TA$) Leverage 1 ($LEV1 = TL/(TL=MV)$), Contractee Cumulative Abnormal Return (CAR2TEE).

Variable	Abbrev.	N	Mean (%)	Median (%)	Std Dev (%)	Mini, (%)	Max. (%)
Contractor Cumulate Abnormal Return	CAR2	421	0.10	0.00	3.51	-19.92	28.12
Tobin's Q Ratio	TQ	254	375.68	248.94	677.54	-319.12	8442.86
Relative Contract Size	RCSIZE	215	26.32	0.69	194.15	0.00	2727.75
LOG (MV)	SIZE	257	223.26	254.76	171.94	-319.42	621.88
Intangible Assets to Total Assets	INTG	175	11.88	7.36	12.09	0.00	65.09
R&D to Total Assets	RAD	163	5.04	3.67	4.45	0.14	27.34
Return on Equity	ROE	262	1482.60	1606.50	5883.75	-59704.00	58867.00
Capital Intensity	CAPI	256	42.88	34.89	28.81	0.92	150.63
Leverage 1	LEV1	256	99.33	99.88	4.56	33.33	99.99

Table33: Correlation Coefficients between Independent Variables for Match Samples of Contractees

Correlation Coefficients between Independent Variables of Match Contractee Sample enter into Signal Regression. Tobin Q (TQ) is measured as the ratio of market value of equity (MVE) plus total liability to total assets (TA). RCSIZE refers to relative contract size measured as contract amount (AMT) relative to TA. SIZE equals LOG (MV). INTG refers to the ratio of Intangible Assets to Total Assets. RAD refers to the ratio of R & D to TA. ROE is return on equity defined as net income divided by MVE. CAPI is capital intensity defined as fixed assets (FA) to TA. LEV1 is the ratio of total liability (TL) to the sum of TL and MVE. CAR2TOR refers the relative abnormal return of contractor in the two days window (day t-1 to day t0). DID is a dummy variable that equals one if the announcement is the first announcement of the firm in study or zero if it is not. DNATLOR is a dummy variable that equals one if the contractor is a U.S. company or zero if it is not.

	RCSIZE	SIZE	INTG	RAD	ROE	CAPI	LEV1	CAR2TOR	DID	DNATLOR
TQ	-0.0546	0.40247***	-0.06252	0.14907*	0.14972*	-0.14152*	-0.39212***	-0.02795	-0.1914**	-0.01073
RCSIZE		-0.3185***	0.09755	-0.04701	0.03923	-0.08832	-0.05429	-0.01484	0.13981*	-0.00528
SIZE			-0.2007**	-0.23108**	0.27984***	-0.01639	0.0389	0.02384	-0.41918***	-0.12853*
INTG				-0.04201	-0.15756*	-0.28391***	0.02566	0.03701	0.16756*	0.09236
RAD					-0.26297***	-0.18893**	-0.18579**	0.03522	0.20988***	-0.00478
ROE						0.02505	-0.09019	-0.02845	-0.0131	0.1963**
CAPI							0.16606**	0.0421	0.10109	0.07639
LEV1								0.01507	-0.16801**	-0.06378
CAR2TOR									-0.05395	0.06137
DID										0.07661

The symbols *, **, and *** denote statistical significance at the 5%, 1% and 0.1% levels, respectively.

Table34: Correlation Coefficients between Independent Variables for Match Samples of Contractors

Correlation Coefficients between Independent Variables of Contractor Match Sample enter into Signal Regression. Tobin Q (TQ) is measured as the ratio of market value of equity (MVE) plus total liability to total assets (TA). RCSIZE refers to relative contract size measured as contract amount (AMT) relative to TA. SIZE equals LOG (MV). INTG refers to the ratio of Intangible Assets to Total Assets. RAD refers to the ratio of R & D to TA. ROE is return on equity defined as net income divided by MVE. CAPI is capital intensity defined as fixed assets (FA) to TA. LEV1 is the ratio of total liability (TL) to the sum of TL and MVE. DID is a dummy variable that equals one if the announcement is the first announcement of the firm in study or zero if it is not. DNATLEE is a dummy variable that equals one if the contractee is a U.S. company or zero if it is not. CAR2TEE refers to the contractee cumulative abnormal return in the two days window (day t-1 to day t0).

	RCSIZE	SIZE	INTG	RAD	ROE	CAPI	LEV1	DID	DNATLEE	CAR2TEE
TQ	0.05978	0.12683*	0.14239\$	0.10759	0.01455	-0.13852*	-0.115\$	0.09982	0.00708	0.01408
RCSIZE		-0.24793***	0.12869	0.11038	0.04175	0.06069	-0.38288***	-0.02104	0.01498	-0.04135
SIZE			-0.11832	-0.22095**	0.1125\$	-0.14414*	0.15094*	-0.46336***	-0.08722	0.00432
INTG				-0.01034	-0.14089\$	-0.21238**	0.0361	0.04883	-0.09822	0.05095
RAD					-0.00381	-0.21413**	-0.292***	0.06837	0.06972	-0.05401
ROE						0.04135	-0.06353	-0.04222	0.01373	0.0055
CAPI							0.18398**	0.16178**	-0.02104	0.00759
LEV1								-0.04619	-0.01192	0.05069
DID									-0.03162	0.00819
DNATLE										0.0076

The symbols *, **, and *** denote statistical significance at the 5%, 1% and 0.1% levels, respectively

Table35: Univariate Regression Results for Match Samples of Contractees

This table report results from running univariate regressions that attempt to explain the cumulative average abnormal return (CAAR) for firms in the two days window (Day t-1 to Day t0). Exp. Sign refers to the Expected Sign of the independent variables. Par. Est. refers to the Parameter Estimate. Adj. R² refers to the Adjusted R². Tobin Q (TQ) is measured as the ratio of market value of equity (MVE) plus total liability to total assets (TA). RCSIZE refers to relative contract size measured as contract amount (AMT) relative to TA. SIZE equals LOG (MV). INTG refers to the ratio of Intangible Assets to Total Assets. RAD refers to the ratio of R & D to TA. ROE is return on equity defined as net income divided by MVE. CAPI is capital intensity defined as fixed assets (FA) to TA. LEV1 is the ratio of total liability (TL) to the sum of TL and MVE. DID is a dummy variable that equals one if the announcement is the first announcement of the firm in study or zero if it is not. DNATLOR is a dummy variable that equals one if the contractor is a U.S. company or zero if it is not.

Variable	Exp. Sign	INTERCEPT		Independent Variable.		F Value	R ²	Adj R ²	N
		Par. Est.	T-stat	Par. Est.	T-stat				
TQ	-	0.0182	3.24***	-0.0004	-0.44	0.2	0.0008	-0.0035	233
RCSIZE	+	0.0135	2.63***	0.0320	3.39***	11.48***	0.0528	0.0482	207
SIZE	-	0.02614	5.41***	-0.00648	-3.76***	14.16*	0.0568	0.0528	238
INTG	+	0.0033	0.84	0.04249	2.08*	4.33*	0.0242	0.0186	176
RAD	+	0.00958	1.28	0.16749	1.83*	3.35*	0.0187	0.0131	177
ROE	-	0.0199	4.65***	-0.0003	-2.56**	6.54**	0.0265	0.0225	241
CAPI	-	0.0184	2.69**	-0.0022	-0.13	0.02	0.0001	-0.0041	240
LEV1	-	0.1273	0.24	-0.1111	-0.21	0.04	0.0002	-0.0041	236
CAR2TOR	-	0.02029	5.52***	-0.04231	-0.40	0.16	0.0004	-0.0020	420
DID	+	0.00995	1.97*	0.02084	2.94**	8.66**	0.0203	0.0179	420
DNATLOR	-	0.00836	0.76	0.01339	1.15	1.32	0.0031	0.0008	420

The symbols *, **, and *** denote statistical significance at the 5%, 1% and 0.1% levels, respectively.

Table36: Univariate Regression Results for Match Samples of Contractors

This table report results from running univariate regressions that attempt to explain the cumulative average abnormal return (CAAR) for firms in the two days window (Day t-1 to Day t0). Exp. Sign refers to the Expected Sign of the independent variables. Par. Est. refers to the Parameter Estimate. Adj. R² refers to the Adjusted R². Tobin Q (TQ) is measured as the ratio of market value of equity (MVE) plus total liability to total assets (TA). RCSIZE refers to relative contract size measured as contract amount (AMT) relative to TA. SIZE equals LOG (MV). INTG refers to the ratio of Intangible Assets to Total Assets. RAD refers to the ratio of R & D to TA. ROE is return on equity defined as net income divided by MVE. CAPI is capital intensity defined as fixed assets (FA) to TA. LEV1 is the ratio of total liability (TL) to the sum of TL and MVE. DID is a dummy variable that equals one if the announcement is the first announcement of the firm in study or zero if it is not. DNATLEE is a dummy variable that equals one if the contractee is a U.S. company or zero if it is not.

Variable	Exp.	INTERCEPT			Independent Variable				
	Sign	Par. Est.	T-stat	Par. Est.	T-stat	F Value	R ²	Adj R ²	N
TQ	+	0.0059	2.08*	-0.0006	-1.78\$	3.15\$	0.0124	0.0084	253
RCSIZE	-	0.0036	1.39	0.0005	0.36	0.13	0.0006	-0.0041	214
SIZE	+	0.0049	1.21	-0.0006	-0.43	0.19	0.0007	-0.0032	256
INTG	+	0.0086	1.88\$	-0.01501	-0.56	0.31	0.0018	-0.004	174
RAD	+	0.00672	1.94*	-0.09924	-1.92*	3.7*	0.0225	0.0164	162
ROE	-	0.0035	1.40	0.0002	0.46	0.2	0.0008	-0.0035	261
CAPI	+	0.0069	1.55	-0.0084	-0.97	0.95	0.0037	-0.0002	255
LEV1	+	0.0304	0.56	-0.0273	-0.5	0.25	0.001	-0.0029	255
CAR2TEE	-	0.00095	0.54	0.00023	0.01	0	0	-0.0024	420
DID	+	0.00087	0.34	0.000151	0.04	0	0	-0.0024	420
DNATLEE	-	-0.00134	-0.14	0.00237	0.25	0.06	0.0001	-0.0022	420

The symbols *, **, and *** denote statistical significance at the 5%, 1% and 0.1% levels, respectively.

Table37: Multivariate Regression Results of Contract Announcement Day Returns by Match Sample of Contractees

This table report results from running two similar cross-sectional, multiple regressions that attempt to explain the cumulative average abnormal return (CAAR) for firms in the two days window (Day t-1 to Day t0). Indp. Var. refers to the Independent Variables. Exp. Sign refers to the Expected Sign of the independent variables. Par. Est. refers to the Parameter Estimate. Adj. R² refers to the Adjusted R². Tobin Q (TQ) is measured as the ratio of market value of equity (MVE) plus total liability to total assets (TA). RCSIZE refers to relative contract size measured as contract amount (AMT) relative to TA. SIZE equals LOG (MV). INTG refers to the ratio of Intangible Assets to Total Assets. RAD refers to the ratio of R & D to TA. ROE is return on equity defined as net income divided by MVE. CAPI is capital intensity defined as fixed assets (FA) to TA. LEV1 is the ratio of total liability (TL) to the sum of TL and MVE. CAR2TOR refers to the contractor cumulative abnormal returns in the two days window (day t-1 to day t0). DID is a dummy variable that equals one if the announcement is the first announcement of the firm in study or zero if it is not. DNATLOR is a dummy variable that equals one if the contractor is a U.S. company or zero if it is not.

Indp. Var.	Exp. Sign	Model 1				Model 2				Model 3			
		Par. Est.	T-stat	VIF	While Test	Par. Est.	T-stat	VIF	While Test	Par. Est.	T-stat	VIF	While Test
Intercept		1.5337	2.00*	0	2.057*	1.3005	1.79\$	0	2.121*	-0.3748	-0.54	0	-0.341
TQ	-	-0.0006	-0.68	1.891	-0.682	-0.0002	-0.26	1.458	-0.309	0.0014	1.14	1.544	1.441
RCSIZE	+	0.0515	2.98**	1.262	1.846\$	0.0477	2.84**	1.193	1.708\$	0.0256	2.56**	1.169	2.328*
SIZE	-	0.0019	0.95	2.284	0.761	--	--	--	--	-0.0047	-1.81\$	1.753	-1.233
INTG	+	0.0700	2.51**	1.371	1.966*	0.0621	2.33*	1.250	1.829\$	--	--	--	--
RAD	+	0.0158	0.21	1.460	0.223	0.0045	0.06	1.425	0.068	--	--	--	--
ROE	-	0.0001	0.85	1.261	0.956	0.0002	1.32	1.071	1.460	-0.0003	-1.99*	1.220	-2.549**
CAPI	-	0.0096	0.43	1.275	0.550	0.0065	0.3	1.248	0.426	0.0015	0.06	1.067	0.044
LEV1	-	-1.5613	-2.03*	1.665	-2.074*	-1.3219	-1.82\$	1.487	-2.152*	0.3797	0.55	1.381	0.345
CAR2TOR	-	0.0348	0.44	1.092	0.645	0.0368	0.47	1.092	0.682	-0.0334	-0.22	1.029	-0.207
DID	+	0.0022	0.29	1.456	0.288	0.0010	0.14	1.415	0.124	0.0073	0.68	1.328	0.783
DNATLOR	-	0.0138	1.77\$	1.047	2.022*	0.0137	1.76\$	1.047	1.942*	0.0117	0.78	1.133	1.068
F Value		3.08***				3.3***				2.76**			
R2		0.259				0.252				0.115			
Adj R2		0.175				0.176				0.073			
N		108				108				201			

The symbols *, **, and *** denote statistical significance at the 5%, 1% and 0.1% levels, respectively.

Table38: Multivariate Regression Results of Contract Announcement Day Returns by Match Samples of Contractors

This table report results from running two similar cross-sectional, multiple regressions that attempt to explain the cumulative average abnormal return (CAAR) for firms in the two days window (Day t-1 to Day t0). Indp. Var. refers to the Independent Variables. Exp. Sign refers to the Expected Sign of the independent variables. Par. Est. refers to the Parameter Estimate. Adj. R² refers to the Adjusted R². Tobin Q (TQ) is measured as the ratio of market value of equity (MVE) plus total liability to total assets (TA). RCSIZE refers to relative contract size measured as contract amount (AMT) relative to TA. SIZE equals LOG (MV). INTG refers to the ratio of Intangible Assets to Total Assets. RAD refers to the ratio of R & D to TA. ROE is return on equity defined as net income divided by MVE. CAPI is capital intensity defined as fixed assets (FA) to TA. LEV1 is the ratio of total liability (TL) to the sum of TL and MVE. DID is a dummy variable that equals one if the announcement is the first announcement of the firm in study or zero if it is not. DNATLEE is a dummy variable that equals one if the contractee is a U.S. company or zero if it is not.

Indp. Var.	Exp. Sign	Model 1				Model 2			
		Par. Est.	T-stat	VIF	While Test	Par. Est.	T-stat	VIF	While Test
Intercept		2.940	1.89\$	0	2.078*	3.496	2.34*	0	2.972**
TQ	+	-0.003	-3.64***	5.253	-5.161***	-0.002	-3.42***	4.793	-4.022***
RCSIZE	-	0.004	0.19	1.260	0.407	-0.003	-0.14	1.174	-0.256
SIZE	+	0.004	1.21	2.017	0.971	--	--	--	--
INTG	+	0.042	1.75\$	1.086	1.921*	0.039	1.64\$	1.077	1.903\$
RAD	+	-0.152	-1.97*	1.356	-1.755\$	-0.183	-2.5**	1.207	-2.070*
ROE	-	-0.0004	-2.22*	4.160	-3.068**	-0.0003	-1.92*	3.687	-2.199*
CAPI	+	0.021	1.4	1.351	1.327	0.015	1.06	1.211	1.207
LEV1	+	-2.943	-1.9*	2.266	-2.100*	-3.486	-2.34*	2.078	-2.976**
DID	+	0.009	1.16	1.464	1.116	0.005	0.71	1.198	0.707
CAR2TEE	-	0.016	0.65	1.026	1.443	0.013	0.54	1.017	1.225
F Value		2.51**				2.61**			
R2		0.246				0.232			
Adj R2		0.148				0.143			
N		87				87			

The symbols *, **, and *** denote statistical significance at the 5%, 1% and 0.1% levels, respectively.

FIGURES

Figure 1: Frequency Distribution and Relative Frequency Percentage of Contractees Entering into the Study

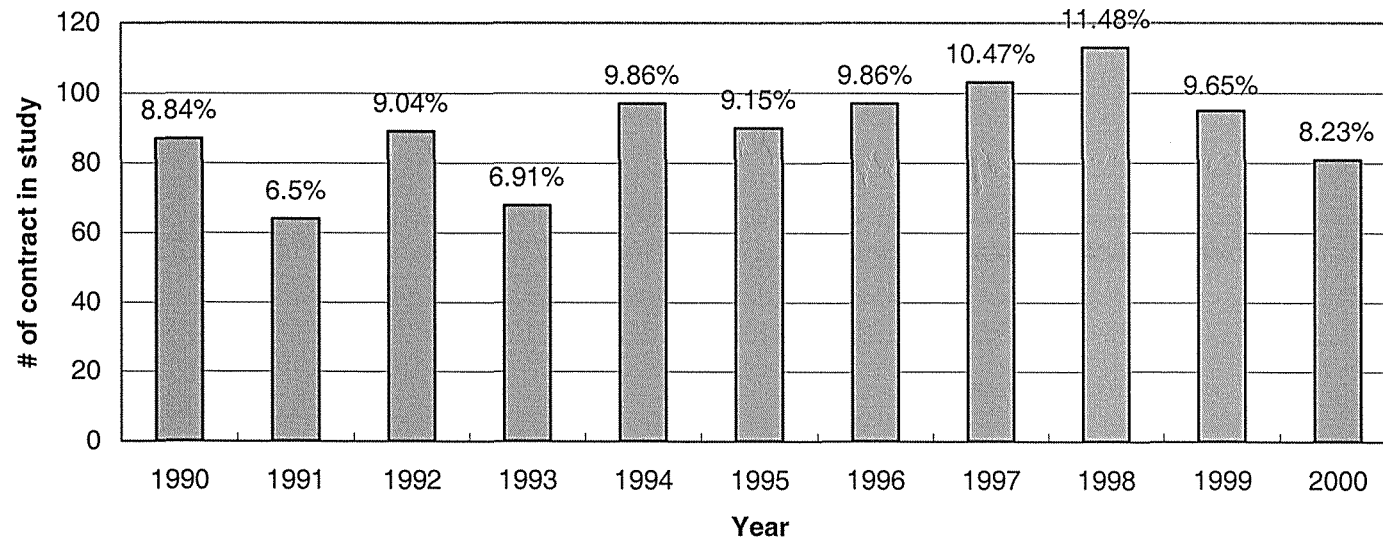


Figure 2: Frequency Distribution and Relative Frequency Percentage of Contractors Entering into the Study

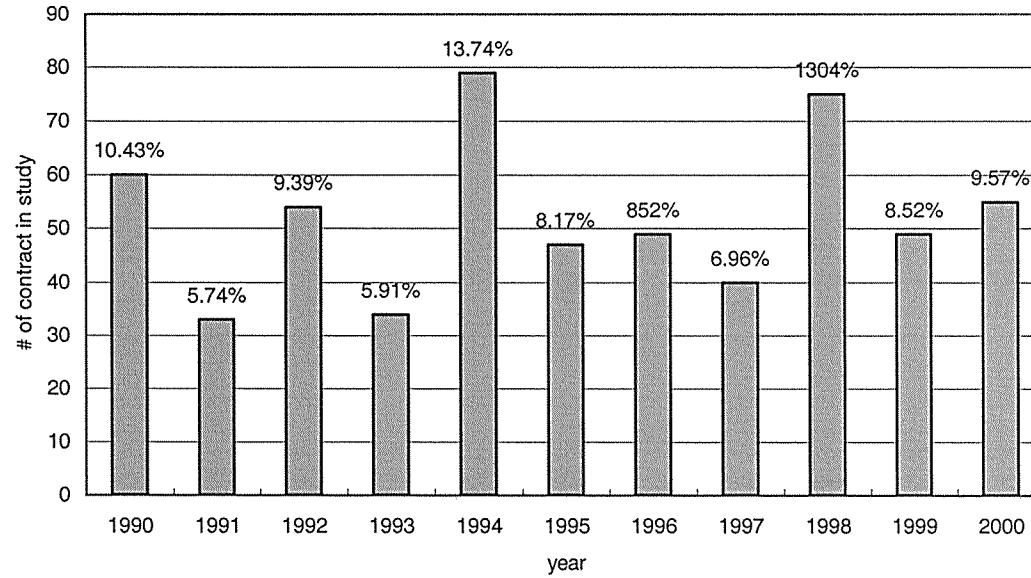


Figure 3: Average Abnormal Returns (AAR) and Cumulative Average Abnormal Returns (CAAR) over the 181 Days Event Period for Contractees

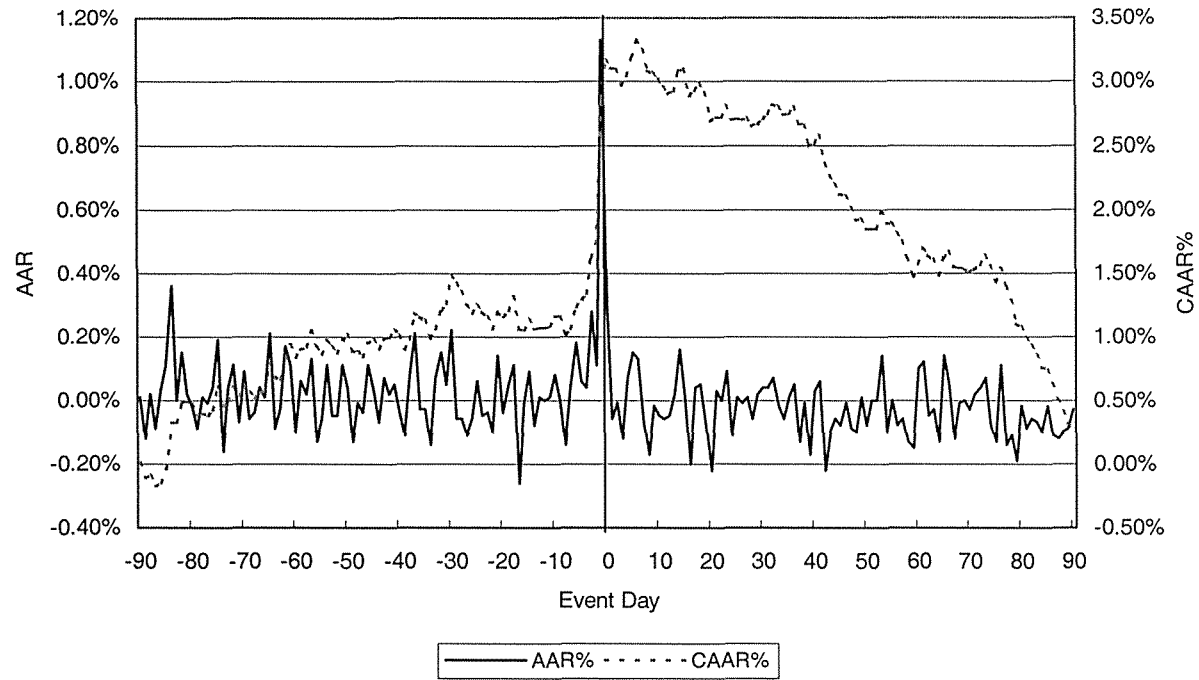


Figure 4: Average Abnormal Returns (AAR) and Cumulative Average Abnormal Returns (CAAR) over the 181 Days Event Period for Contractor

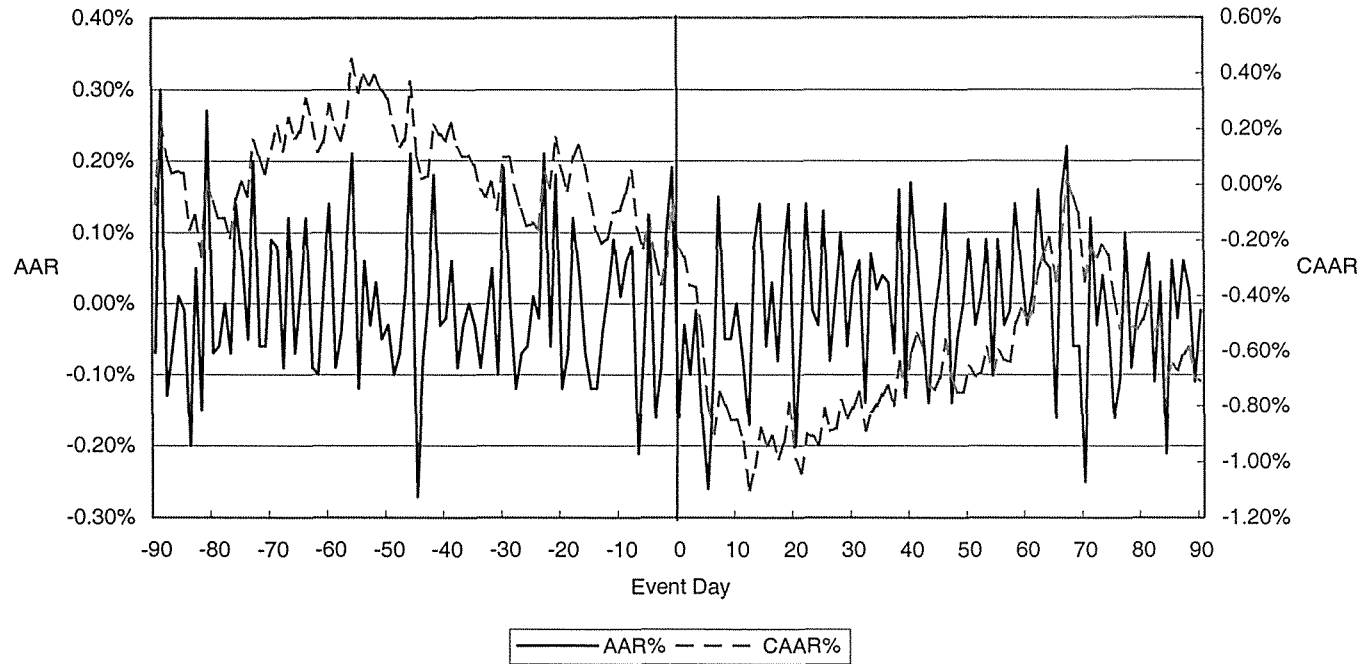


Figure 5: Average Abnormal Returns (AAR) over the 181 Days Event Period for Match Sample of Contractee and Contractor

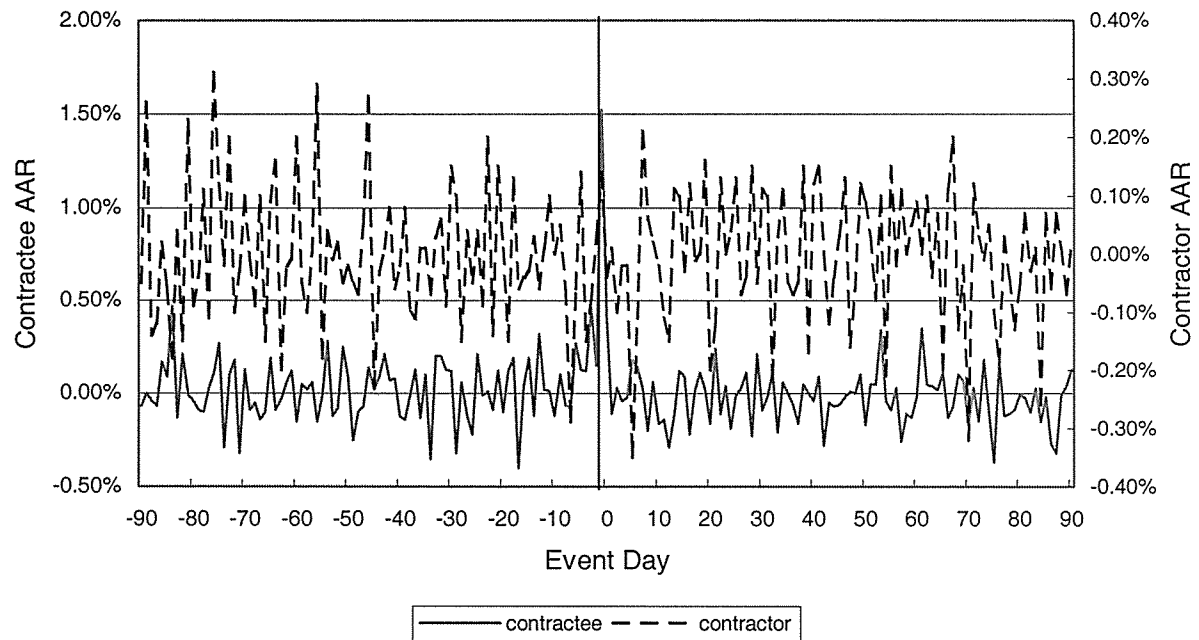


Figure 6: Cumulative Average Abnormal Returns (CAAR) over the 181 Days Event Period for Match Sample of Contractee and Contractor

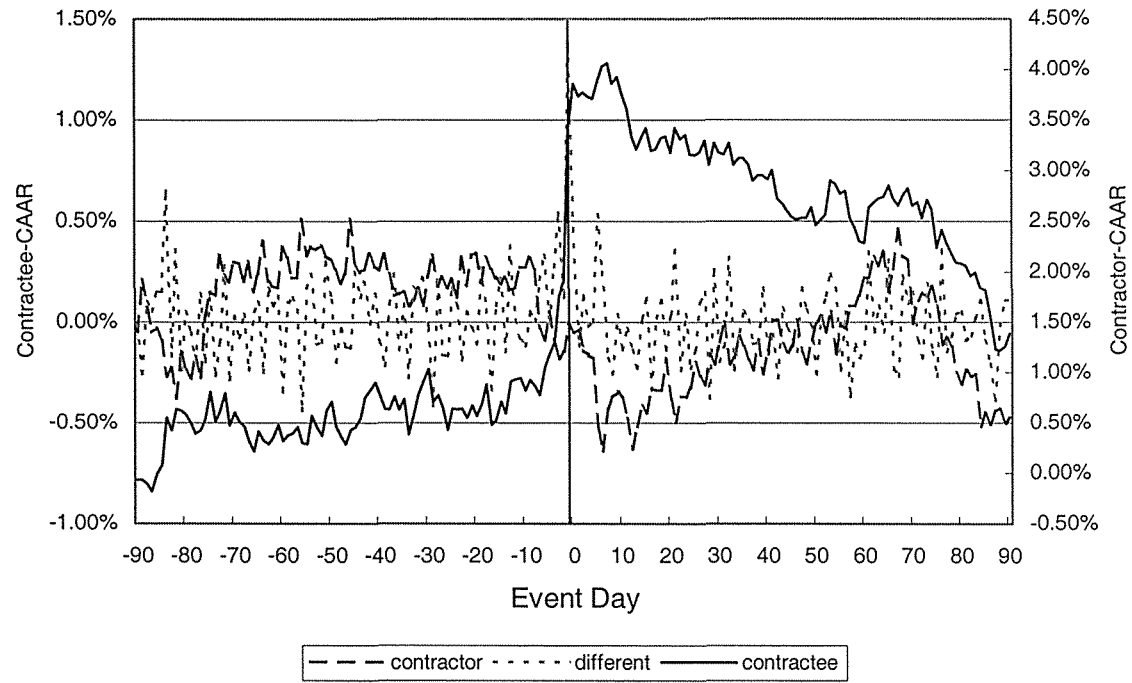


Figure 7: Frequency Distribution of Cumulative Average Abnormal Returns for Contractee

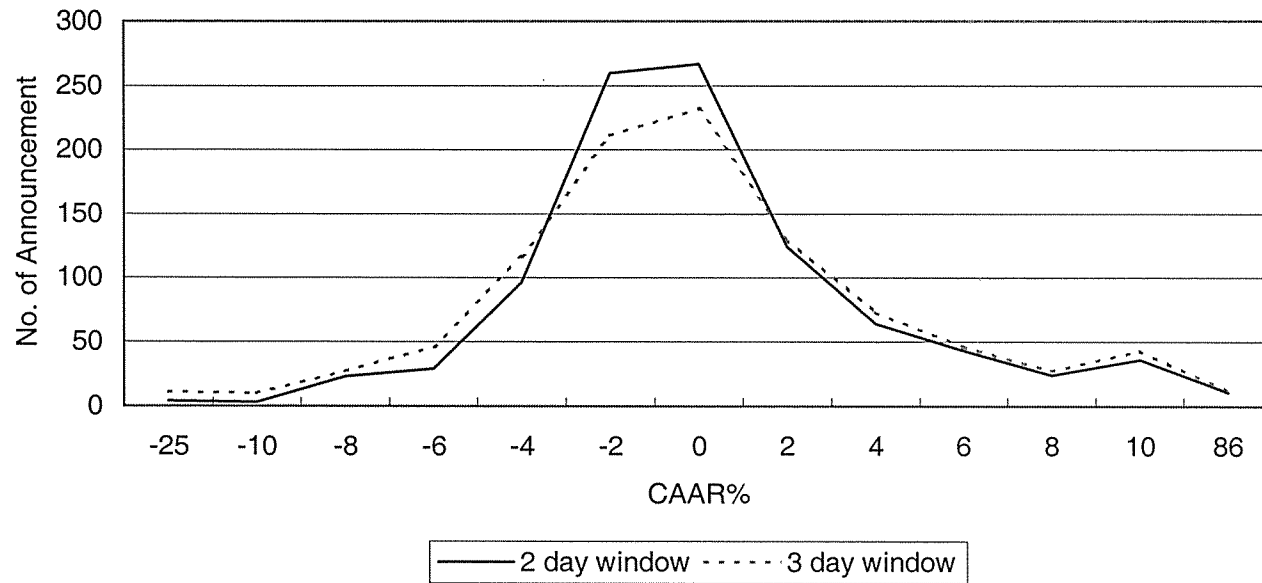
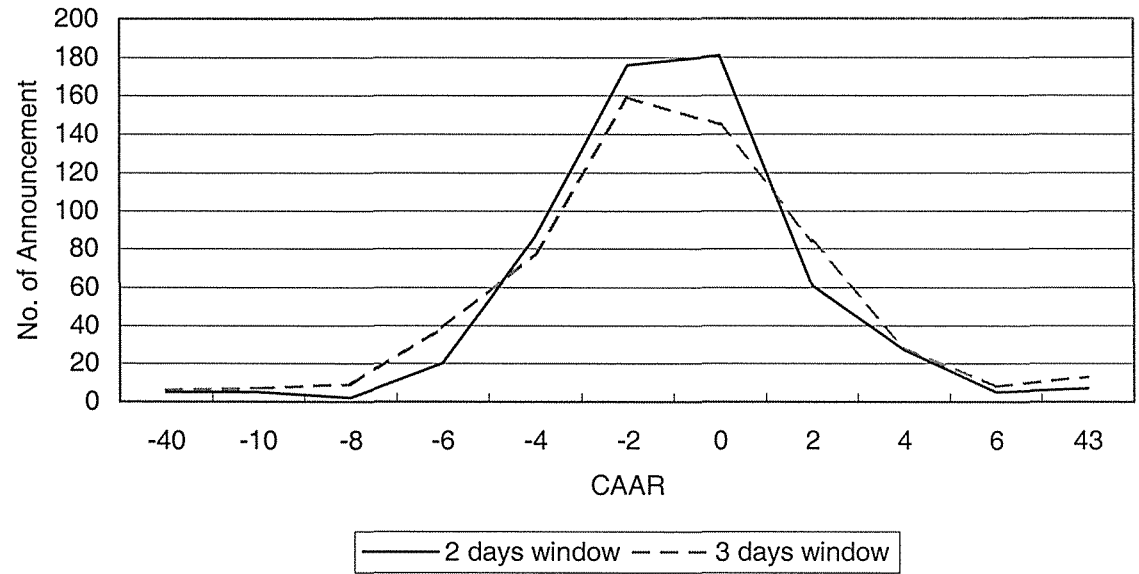


Figure 8: Frequency Distribution of Cumulative Average Abnormal Returns for Contractor



APPENDIX

Examples of Announcement Articles

Rockwell International

Los Angeles Times, 08/31/1990: Rockwell International Corp. in Seal Beach won a \$7-million contract to research a space-based laser-ground-based laser, concept formulation and technology development planning program.

Unit of United Technologies Gets \$1.54 Billion Job

The Wall Street Journal, 04/29/1992: HARTFORD, Conn. -- United Technologies Corp. said it received a five-year, \$1.54 billion contract from the U.S. Army to supply 300 Black Hawk helicopters and related support systems.

Dresser Unit Gets Contract

The Wall Street Journal, 04/28/1992: HOUSTON -- M.W. Kellogg Co., a unit of Dresser Industries Inc., said it and JGC Corp. of Japan signed a contract with the Malaysian national petroleum company, Petronas, to expand a liquefied natural gas plant for \$1.6 billion.

Business Briefs

The Wall Street Journal, 04/24/1992: Computer Sciences Corp. said it signed an estimated \$64 million, 10-year contract with WCI Steel Inc., Warren, Ohio, for data processing work.

Westinghouse Electric Corp. said it won a \$35 million contract from Vattenfall AB Ringhals to supply six low-pressure replacement rotors for the Ringhals 1 nuclear plant near Gothenburg, Sweden.

Jacobs Engineering Group Inc. said it received a contract from Koch Refining Co. to provide construction services for petroleum refining units at its Corpus Christi, Texas, plant. Terms weren't disclosed.

AEROSPACE

Los Angeles Times, 08/22/1996: Northrop Protests Contract Award to Rival: Century City-based Northrop Grumman Corp. has asked the General Accounting Office to revoke a \$619.9-million contract won by Raytheon Co. for airport radar systems. Raytheon said it won the contract to provide the radar systems for civilian and military airports around the country. The contract is being managed by the Air Force and the Federal Aviation Administration. The congressional investigative agency will review the data used to select Lexington, Mass.-based Raytheon as the supplier for up to 213 Digital Airport Surveillance Radar systems by 2007. Raytheon executives declined to comment on Northrop's protest.

Diamond Offshore Gets Contract

The Wall Street Journal, 12/29/1998: HOUSTON -- Diamond Offshore Drilling Inc. said it was awarded a contract from Amoco Corp., Chicago, valued at about \$19.8 million plus certain fees for the drilling of two wells off the coast of West Africa. The contract includes an option to drill two more wells. The deep-water drilling concern said the project would take about 120 days.

BRIEFLY / AEROSPACE Lockheed Wins \$734.5-Million Military Contract

Los Angeles Times, 12/28/2000: Lockheed Martin Corp. won a \$734.5-million contract to supply 12 C-130J transport planes to the U.S. military. Work on the contract is to be completed by 2006. Bethesda, Md.-based Lockheed avoided a costly shutdown of its plant near Atlanta that makes the C-130J earlier this year when Congress authorized purchase of the planes. Separately, Lockheed said the government of Chile plans to buy 10 to 12 of its F-16 jets for up to \$600 million, adding to a string of international sales of the fighter planes. Chile picked Lockheed's F-16s over rival Mirage 2000-5 jets made by France's Dassault Aviation, Gripen jets made by Sweden's Saab and the Boeing F/A-18 fighter plane, Lockheed said. Shares of Lockheed rose 34 cents to close at \$33.26 on the NYSE.