S&P 500 Inclusion Announcements and Downstream Customer Industries

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I examine the effect of Standard and Poor's (S&P) 500 inclusion announcements on downstream customer industries. I find that, when supplier firms are announced into the S&P 500, their downstream customer industries lose value. Multivariate regression results show that customer losses are between $1.8 and $2 million at the firm level and between $17.1 million and $19.6 million at the industry level. These results suggest that (1) wealth transfers explain a portion of the positive returns that accrue to added firms and their industry and (2) S&P 500 inclusion announcements contain information about industries one step down the supply chain.

INTRODUCTION

The spillover effects associated with various events are documented in the finance literature. Shahrur (2005) finds that mergers are associated with positive abnormal returns to the customers of the merged firms. Hertzel, Li, Officer, and Rodgers (2008) find that, when a firm announces bankruptcy, its suppliers experience negative abnormal returns, while its customers' returns are not affected. Menzly and Ozbas (2010) and Cohen and Frazzini (2008) find that the stock returns of U.S.-based customer firms forecast the stock returns of their U.S.-based suppliers. Shahrur, Becker, and Rosenfeld (2010) find that the returns of customer firms predict the returns of supplier firms on an international basis.

In this paper, I examine the effect of supplier firms' inclusion announcements into the Standard and Poor's (S&P) 500 Index on the returns of related downstream customer industries. Investigating this issue is important because S&P 500 inclusion announcements are known to be associated with positive cumulative abnormal returns (CAR) to the firms that are added to the Index (e.g., Shleifer, 1986; Jain, 1987; Denis, et.al., 2003). Also, Cai (2007) finds that, upon a firm's S&P 500 inclusion announcement, its industry rivals also experience positive CARs.

Two possibilities exist regarding the direction of possible CARs to downstream customer firms. On one hand, positive CARs could accrue to customer firms. The reason is that the positive announcement-period CARs to added firms (e.g., Denis, et.al., 2003) and their industry rivals (Cai, 2007) suggest that investors expect the added firm and its industry to comprise a greater share of economic activity. Higher expected profit in the added firm's industry will increase the threat of entry into that industry, particularly if barriers to entry are low (Porter, 1990). If some new firms enter the supplier industry (i.e., the added firm's industry), more supplier firms will compete for the existing customer base. This situation will lead to lower prices of products sold to customer firms, which use those products as inputs into their own production processes. Ceteris paribus, lower input prices for customers will lead to higher profits and, possibly, higher expected dividends and share prices.[1]

On the other hand, customer firms could experience negative CARs when a supplier is added to the S&P 500 because wealth could transfer from the customer industry to the supplier industry. Greater investor awareness of the added firm (Chen, et. al., 2004) and its industry coincides with greater interest in the firms in that industry, leading to higher prices of those firms. Although S&P states that its procedure of analyzing candidate firms for the 500 Index is based on publicly available information and, thus, should not communicate new information about the added firms, several authors document a price increase for the added firms (e.g., Jain, 1987). A possible reason for this phenomenon is that wealth is transferred from customers to supplier firms that are added to the S&P 500 Index.[2]

The primary finding of this study is that downstream customer industries experience lose value when their suppliers are announced for inclusion into the S&P 500 Index. An event study shows that customers experience CARs of -0.8% over a [0, 1] announcement interval. Multivariate regression results show that the typical customer firm loses between $1.8 million and $2.0 million. At an industry level, the losses range from $17.1 million to $19.6 million. These results suggest that (1) the S&P 500 inclusion announcements of supplier firms contain information about customer firms one step down the supply chain and (2) a wealth transfer from customers to suppliers possibly explains the positive CARs that added firms accrue upon announcement into the S&P 500. These results are robust to the business cycle. I use a [0, 1] interval because S&P announces changes to the 500 Index at the end of the trading day, which is denoted Day 0. Thus, Day 0 is the day just before to the announcement, and Day 1 is the day immediately afterwards.

This analysis is similar to Cohen and Frazzini (2008) in that both papers examine returns predictability among customers and suppliers. The key difference, however, is in the direction of analysis. Cohen and Frazzini (2008) examine returns predictability *up* the supply chain from customers to suppliers. I examine returns predictability *down* the supply chain from suppliers to customers. Another difference is in the types of announcements used. Cohen and Frazzini (2008) use many types of announcements in their sample. This study uses only S&P 500 Index-inclusion announcements.

Two unavoidable issues exist in this study. One issue is that I use downstream customer industries instead of specific downstream customer firms. Since firms added to the S&P 500 Index are large firms for which no single customer comprises 10% of revenue, S&P 500 firms are not required by U.S. law to report their customers. As expected, the firms choose to conceal their customers.[3] As a result, only entire customer industries are available. I identify downstream customer industries based on the input-output tables of Fan and Lang (2000) and the Standard Industry Classification (SIC) codes from the Securities and Exchange Commission (SEC).

A second issue inherent in this study is that S&P 500 firms have customers in many industries. In fact, some S&P 500 firms, particularly those that provide services such as technology or electricity, serve customers in virtually all industries. This issue is problematic because including all customer industries in a test of downstream comovement is essentially identical to testing whether S&P 500 inclusion announcements affect the entire market. I remedy this situation in two ways. First, I only use S&P 500 firms that produce a tangible product. Second, for each of those firms, I use a single downstream customer industry that uses that tangible product as input into its own production process. This approach facilitates the clean testing of the information content of S&P 500 inclusion announcements one step down the supply chain, which is the focus of this study.

This paper contributes to the finance literature in three ways. First, by finding a negative effect of S&P 500 Index-inclusion announcements on the added firms' downstream customers, this paper adds to the aforementioned literature on S&P 500 inclusion announcements as well as the literature on returns predictability.[4] Second, this analysis contributes to the literature on co-movement. Barberis, Shleifer, and Wurgler (2005) use stocks added to the S&P 500 Index to test theories of comovement in returns and find support for the view that market frictions or investor sentiment are related to returns. Ambrose, Lee, and Peek (2007) find comovement in the returns of real estate investment trusts (REITs) included in the S&P 500 Index and the returns of REITs not included in the Index. This paper adds to that literature by documenting a relationship among CARs of firms added to the S&P 500 and related downstream firms. Third, by finding a negative stock-price reaction to the customers of firms that are announced for

inclusion into the S&P 500, this paper contributes to the vast literature on announcement effects (e.g., Fama, et.al., 1969; Myers & Majluf, 1984; Lang & Stulz, 1992).

DATA

The analysis in this paper consists of (1) firms slated for addition to the S&P 500 Index as stated in S&P's announcements from 2000 to 2007 and (2) the largest downstream customer industry of each of those firms. This analysis focuses on 563 customer firms associated with 60 added firms that either (1) produce a tangible product or that an identifiable downstream industry uses as input into its processes or (2) provide a service somewhat tailored to one or a few industries (i.e., the service provided is not so general as to apply to practically all firms in the market). As a result, meaningful inferences can be drawn regarding possible downstream comovement associated with announcements of inclusion into the S&P 500 Index.

Based on S&P's announcements, 241 firms were slated for addition to the 500 Index from 2000 to 2007. However, I exclude 33 firms from my sample because of the unavailability of a specific announcement date or other data in CRSP. Date 0 is defined as an added firm's inclusion announcement date. I also exclude one added firm because it is a government contractor. Since that firm provides technology to the government, comovement down the supply chain to a business customer is not likely to occur. Another added firm is excluded because it does not have, on its announcement interval [0, 1], any customer firms with data in CRSP.

Since the goal of this analysis is to examine a relationship in the returns of firms announced for inclusion in the S&P 500 and their customers one step down the supply chain, each added firm must meet two additional criteria to be included in the sample. The first criterion is that each added firm must produce a tangible product. Clearly, services firms do not meet this criterion. The second criterion is that each added firm's product must be used as input into the processes of a clearly-related downstream customer group or as a final product to clearly-related corporate end-customers. For example, a firm that manufactures spark plugs is tightly linked to the vehicle manufacturing industry although it could transact with other industries (e.g., manufacturers of lawn mowers or earth-moving equipment). Thus, an inclusion announcement for a spark-plug manufacturer could affect the vehicle manufacturing industry more than other industries. For that reason, using only added firms with strong product-based ties to a particular downstream customer industry will likely provide the most relevant evidence as to whether vertical comovement is associated with S&P 500 inclusion announcements. Also, as I argue below, enforcing these additional criteria facilitates the clean testing of downstream comovement in returns.

Based on these two additional criteria, I exclude 147 added firms. Most of those firms have a SIC code in the 6000s (financials), 7000s (general services), or 8000s (medical services). These firms provide general services, not tangible products. Also, since practically all industries use these firms' services, the added firms are not tightly linked to any particular customer industry. For example, investment firms, with SIC codes in the 6000s, offer retirement savings plans to employees in many industries (e.g., 401(k) plans for business employees or 403(b) plans for employees of educational institutions). Since such investment firms are no more strongly tied to the consumer products sector than the education or other sector, examining the returns to the consumer products industry upon an investment firm's inclusion in the S&P 500 would not provide any additional information than observing the returns to the education sector or other industry upon an investment firm's addition to the S&P 500. A similar argument can be made for a services firm (e.g., a hotel with a SIC code in the 7000s or a medical lab with a SIC code in the 8000s). For example, a hotel provides lodging and hosting services to firms in several industries and is no more tied to the education sector than the energy or other sector.

As a result, including in this analysis the services-based added firms mentioned above would result in noisy tests of downstream comovement. Including all industries as customers for such added firms would essentially amount to examining comovement in the returns of those firms and the entire market. At the same time, since the firms provide highly general services (e.g., 401(k) investing services) used by practically all industries, no single industry is no more tied to the added firms than any other industry.

Thus, arbitrarily selecting a single downstream customer industry for the added firms would not lead to informative tests of downstream comovement in returns.

While some added firms are eliminated for the aforementioned reasons, others are eliminated because they generate much of their revenue by selling to end customers (i.e., atomistic customers or households). An example of such a firm is an electric utility, which sells to thousands or even millions of households. Since the utility also provides power to many businesses in its region, the utility does not have a single, clearly-dominant customer industry. However, I include energy firms that operate up to an intermediate point in the delivery of energy and, therefore, do not sell to end customers. An example of such a firm is one that drills for oil, as that firm sells to an oil refiner, not to an end customer. Also, one added firm is included in the sample twice because, during the sample period, that firm was announced into, withdrawn from, and re-announced into the Index. Since the first and second re-announcement dates differ, I do not face the problem of duplicate records.

Since the goal of this paper is to examine the effect of S&P 500 Index-inclusion announcements on the customers of firms added to the Index, this paper focuses on the 563 customer firms associated with the 60 added firms that make the final sample. Not surprisingly, the specific customer firms for my sample of firms added to the S&P 500 cannot be identified. The reason is that firms that meet S&P's size requirements for the 500 Index likely have many customers of all sizes, suggesting that no single customer is likely to account for 10% or more of the business of S&P 500 firms. Since U.S. law requires firms to disclose customers that constitute at least 10% of sales, firms added to the S&P 500 will not need to disclose their customers. Also, since firms are typically reluctant to release such information, I expect S&P 500 firms to choose to retain information regarding their customers.

Therefore, to obtain customer firms, I use each added firm's largest customer industry, where an industry is defined by a four-digit SIC code. Two criteria need to be met for an industry to be considered an added firm's largest customer industry. The first criterion is that each largest customer industry must purchase the largest dollar amount of product from the added firm's industry. This criterion is necessary because the Use tables of the Bureau of Economic Analysis (BEA) show that nearly all industries' products flow to almost all other industries. Thus, including practically all industries as customers in the calculation of an announcement-period CAR would be equivalent to using the overall market in the CAR computation and would make the effect of an inclusion announcement on specific customer industries impossible to detect. The second criterion is that a largest customer industry must differ from the added firm's industry. I impose this requirement because using an industry as its largest customer industry in regression analysis would amount to testing for horizontal instead of vertical spillover of announcement-period CARs.

Each firm's largest customer industry is determined based on the BEA's Use table and the input-output tables of Fan and Lang (2000). The BEA's Use table shows the dollar amount of one industry's output that another industry purchases (i.e, supplier-customer relationships). However, the industries shown in the Use table are broadly defined and do not readily correspond with the four-digit-SIC-code industry definitions of the SEC. To bridge this gap, Fan and Lang (2000) construct input-output tables that map the industries in the BEA's Use table to the SEC's four-digit-SIC-code industries.

To identify customer industries, I follow the procedure described here. Starting with the SIC code of an added firm, I use the input-output tables of Fan and Lang (2000) to map that SIC code to the appropriate narrow industry and broad sector as defined by the BEA. I also use the BEA's Use table to determine the broad customer sector that consumes the greatest dollar amount of output from the added firm's broad sector. If an added firm's broad sector is the largest consumer of its own products, I use the second largest customer sector as the largest customer sector. After that, based on the SEC's four-digit SIC code descriptions and the input-output tables of Fan and Lang (2000), I identify the four-digit SIC code that (1) is in the largest customer sector and (2) likely transacts most closely with the added firm's four-digit SIC code.

The customer firms in each year are selected from the added firm's largest downstream customer industry. Each added firm's largest downstream customer industry is the industry, other than itself, that purchases the greatest dollar amount of finished goods from the added firm's industry. Each largest

customer industry is required to differ from the added firm's industry because, if an industry is its own largest customer, using that industry as a customer industry in the analysis would essentially amount to testing for horizontal spillover of inclusion-announcement CARs when the goal of this paper is to analyze vertical spillover of CARs.

A customer industry can be counted more than once in a particular year if more than one firm from the same industry is added to the S&P 500 Index in that year. For example, assume that Firm X is announced for inclusion in the S&P 500 Index in February, 2002, and that its largest customer industry is Industry Z. If Firm Y is announced for inclusion later that same year and is in the same industry as Firm X, Firm Y's largest customer industry is also Industry Z. Since each observation for purposes of analyzing CARs consists of an added firm paired with a customer industry, the Firm-X-Industry-Z observation differs from the Firm-Y-Industry-Z observation although the customer industries are identical.

In the end, 563 customer firms are used. Although I exclude added firms based on SIC codes (equivalently, based on whether an added firm provides a product or a service), I do not similarly restrict customer firms. The reason is that, even if a customer firm exclusively provides services, that firm could often purchase products from suppliers to use in delivering services. For example, a management consulting firm (SIC code 8742) can purchase notebook computers for its consultants to use in delivering consulting services to clients. A mapping of added firms to their downstream customer industries is shown in the Appendix.

Table 1 describes the 60 added firms and the 563 customer firms, which are the firms of interest, used in this analysis. The number of added firms per year reveals a U-shaped pattern, starting at 17 in 2000, reaching a low of two in 2002 and 2003, and rising to 12 in 2007. A similar pattern is found in the customer firms, as the number starts out at 185 in 2000, falls to 25 in 2002, and rises to 76 in 2007.

The average number of firms per customer industry equals the total number of customer firms divided by the number of added firms. This computation makes sense because a one-to-one relationship between an added firm and a downstream customer industry exists in this analysis, implying that the number of added firms equals the number of customer industries. Table 1 also shows the average market value of added and customer firms. The average market value of added firms used in this analysis is $8.6 billion but ranges from $4.2 billion in 2003 to $11.4 billion in 2007. The average market value of a customer industry (firm) is $19.2 billion ($2.0 billion). To find the average market value of a customer firm, I divide each entry in Column (5) by the corresponding entry in Column (3). Market value is defined as the market value of equity plus the book value of debt. For added firms, the market value of equity is the product of the price and the number of outstanding shares as of the close of the announcement date into the S&P 500 Index. For customer firms, the market value of equity is the product of the number of outstanding shares and the closing price, both as of the beginning of the year of the corresponding added firm's inclusion announcement into the S&P 500 Index.

RESULTS

Table 2 shows, for added firms and their customers, market-adjusted CARs on the interval [0, 1] about the added firms' inclusion announcement date. For the full sample, I find 3.3% CARs to added firms. This result is consistent with Shleifer (1986) and Cai (2007), who find announcement-period CARs of 2.8% and 4.1%, respectively, for added firms. Table 2 also shows that, for downstream customer firms, negative announcement-period CARs exist. On average, when S&P announces that a supplier firm will join the 500 Index, its largest downstream customer industry experiences CARs of -0.8%. This result suggests that wealth is transferred from customer industries to added firms and their industries and is consistent with the literature on wealth transfers along the supply chain (e.g., Shahrur, 2005). This result also suggests that S&P 500 inclusion announcements may contain information about the downstream customer industries of added firms.

Table 3 contains the results of OLS regressions that seek to explain CARs to downstream customer industries based on several variables. I estimate the model specified below.

FIGURE 1
ESTIMATED REGRESSION EQUATION

$$CUSTCAR_i = f_i(\text{Added Firm Controls, Customer Firm Controls})$$

The dependent variable, CUSTCAR, is the CAR that a customer industry experiences on the interval [0, 1] about the corresponding added firm's announcement date. The independent variables consist of controls for industry competition, added firms, and customer firms. I use two control variables related to added firms. The first variable is ADDCAR, defined as the CAR that an added firm experiences on its announcement interval. ADDCAR is the variable of primary interest, as its coefficient measures the relationship between the CAR of an added firm and that of its downstream customers. The second control variable related to added firms is AMKTVAL, defined as the log of market value of assets of each added firm. I include these variables because Cai (2007) finds that (1) the magnitude of CARs to the added firm is inversely related to the CARs that accrue to the added firm's competitors and (2) that relationship is related to size, as large added firms tend to have larger CARs. Extending Cai (2007), I conjecture that the size of an added firm's CAR may impact the size of CARs to downstream customer industries.

Regarding customer controls, CUSTMKTVAL is the natural log of each customer firm's market value of assets, defined as described above. If investors expect a downstream customer industry to experience higher profit in the future, they will reasonably expect large customer firms to exploit their economies of scale to capture as much of the additional profit as possible. However, if investors expect the customer industry's profit to fall in the short term, they could expect the profits of large firms to fall. CUSTREVENUE is defined as the natural log of each customer firm's revenue as of the beginning of the year in which the corresponding added firm is announced into the S&P 500. Using CUSTREVENUE as a proxy for size is relevant because large firms typically exploit their economics of scale, allowing them to earn more revenue than small firms. Thus, greater revenue is likely to signify a large firm.

CUSTDEBTRAT is defined as each customer firm's total book value of debt divided by its total book value of assets as of the beginning of the year in which the corresponding added firm's S&P 500 inclusion announcement occurs. The debt ratio effectively proxies for firm size, as Titman and Wessels (1988) confirm that large firms tend to have higher debt ratios than small firms. CUSTGROWTH equals one if the value of Tobin's Q, defined as stated earlier in this paper, exceeds one. Otherwise, CUSTGROWTH equals zero. CUSTGROWTH is relevant to the regression model because investors could interpret the inclusion of a growth firm to the S&P 500 as suggesting that the added firm's industry will grow. A growing supplier industry could impact the expected performance, as reflected in announcement-period CARs, of the customer industry.

To measure competition in each customer industry, I use the Herfindahl Index (HERF). The Herfindahl Index for an industry is computed by summing the squared market shares of each firm in that industry. If an industry has a Herfindahl value below 0.1, that industry is said to have low concentration, implying high competition. If an industry has a Herfindahl value of at least 0.1 but not more than 0.18, that industry is said to have medium concentration. Industries with a Herfinahl value above 0.18 are considered highly concentrated, suggesting low competition. If the addition of a supplier firm is associated with greater market power of the supplier industry but lower market power for the customer industry, a low Herfindahl value for a customer industry should be associated with negative CARs of increasing magnitude to customer firms.

Table 3 shows that the CARs to the added firms (ADDCAR) explain CARs to customer firms (CUSTCAR) in all models. For example, Model 1 shows that, for a 1% increase in ADDCAR, the CARs to customers fall by -0.102%. In economic terms, this result translates into a $2.04 million (|-0.00102| x $2 billion) wealth transfer from a customer firm to the added firm and its industry upon the added firm's S&P 500 inclusion announcement. At an industry level, the wealth transfer is $19.58 million (|-0.00102| x $19.2 billion). Similarly, Model 4 shows that customers' CARs fall by -0.089% for a 1% increase in ADDCAR. This result is equivalent to a $1.78 million (|-0.00089| x $2 billion) wealth transfer from a customer firm to the added firm and its industry. At an industry level, the wealth transfer is $17.09

million (|-0.00089) x $19.2 billion). As all models show, ADDCAR is robust to all added- and customer-firm controls, including the alternative proxies for the size of a customer firm.

Table 3 also shows that CUSTDEBTRAT marginally explains CUSTCAR, as Model 3 shows. For a 1% increase in a customer firm's debt ratio, its announcement-period CAR increases by 0.025%. This result is consistent with the notion of investors could expect large customers to use their size advantage to capture any additional profit to that industry. Also, growth status (CUSTGROWTH) is generally associated with lower CARs to customer firms. This result reflects the greater sensitivity of growth firms' profits to growth opportunities.

Table 4 contains the results of robustness tests based on the business cycle. I identify expansions and recessions based on data from the National Bureau of Economic Research's (NBER) Business Cycle Dating Committee. To control for expansions and contractions, I include the variable EXPANSION in regression models in Table 4. EXPANSION equals one during expansionary periods and zero during contractionary periods. The NBER's Business Cycle Dating Committee defines a contraction (expansion) as starting at the peak (trough) of a business cycle and ending at the next trough (peak). Table 4 shows that the relationship between ADDCAR and CUSTCAR is robust to the strength or weakness of the economy. An expansionary or contractionary state does not influence the effect of ADDCAR on CUSTCAR.

CONCLUSION

In this paper, I examine whether S&P 500 inclusion announcements affect the returns of the downstream customers of the firms to be added to the Index. I find that, at both the industry and firm levels, downstream customers experience negative CARs upon their suppliers' inclusion announcements into the S&P 500 Index. This result suggests that (1) a firm's announcement of inclusion into the S&P 500 contains information about its downstream customers and (2) wealth is transferred from customers to suppliers.

FOOTNOTES

1. Conversations with Jack Rader were useful.
2. Some other explanations of this phenomenon are downward-sloping demand curves of the added firms (Shleifer, 1986), information content of S&P 500 inclusion announcements (Jain, 1987), and greater investor awareness of added firms (Chen et al., 2004).
3. Discussions with Husayn Shahrur were helpful.
4. For additional studies on the S&P 500 Index or other indices, see Vijh (1994), Erwin and Miller (1998), Elliott and Warr (2003), Hegde and McDermott (2003), Becker-Blease and Paul (2006), Elliott, Van Ness, Walker, and Warr (2006), and Becker-Blease and Paul (2010).

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APPENDIX
ADDED FIRMS AND THEIR DOWNSTREAM CUSTOMER INDUSTRIES

Year	Added Firm Industry		Downstream Customer Industry	
2000	2830	Drugs	8060	Services -- hospitals
2000	3670	Electronic tubes, components	3571	Electronic computers
2000	3670	Electronic tubes, components	3576	Computer comm. equipment
2000	3670	Electronic tubes, components	3576	Computer comm. equipment
2000	2830	Drugs	8060	Services -- hospitals
2000	3825	Instruments to measure, test electricity	8734	Testing laboratories
2000	3350	Rolling, drawing, extruding copper	3674	Semiconductors, related devices
2000	1311	Crude petroleum and natural gas	4924	Natural gas distribution
2000	2834	Drugs	8060	Services -- hospitals
2000	1381	Petroleum, gas, mineral exploration	5171	Petroleum bulk stations
2000	3670	Electronic tubes, components	4911	Electric services
2000	1311	Crude petroleum and natural gas	5171	Petroleum bulk stations
2000	2834	Drugs	8060	Services -- hospitals
2000	2830	Drugs	8060	Services -- hospitals
2000	3842	Orthopedic and prosthetic products	8060	Services -- hospitals
2000	4923	Natural gas transportation	4932	Natural gas distribution
2000	1629	Heavy construction	4011	Railroads, line-haul operating
2001	1381	Petroleum, gas, mineral exploration	5171	Petroleum bulk stations
2001	2086	Bottled and canned soft drinks	5411	Retail – grocery stores
2001	5122	Wholesale – drugs	5912	Retail – drug stores
2001	2830	Drugs	8060	Services -- hospitals
2001	2337	Females' skirts, suits, and coats	5311	Retail – department stores
2001	2830	Drugs	8060	Services -- hospitals
2002	1311	Crude petroleum and natural gas	5171	Petroleum bulk stations
2002	2111	Cigarettes	5411	Retail – grocery stores
2003	2096	Potato chips and similar snacks	5810	Eating and drinking places
2003	2830	Drugs	8734	Testing laboratories
2004	2834	Drugs	8734	Testing laboratories
2004	2911	Petroleum refining	5541	Gasoline and convenience store
2004	2830	Drugs	8734	Testing laboratories
2004	5047	Wholesale medical, dental supplies	8060	Services -- hospitals
2004	3171	Women's handbags, purses	5311	Retail – department stores
2004	3674	Semiconductors and related devices	3571	Electronic computers
2004	1311	Crude petroleum and natural gas	2911	Petroleum refining
2005	2082	Malt beverages	5411	Retail – grocery stores
2005	3533	Oil and gas field machinery, equipment	1381	Drilling oil and gas wells
2005	1382	Petroleum and natural gas wells	5171	Petroleum bulk stations
2005	2015	Poultry slaughtering and processing	2011	Meat packing plants
2005	2911	Petroleum refining	5541	Gasoline and convenience store
2005	5990	Retail – retail stores, nec	8060	Services -- hospitals
2006	2844	Perfumes, cosmetics	5311	Retail – department stores
2006	3651	Audio-video equipment	3711	Motor vehicles
2006	2834	Drugs	8060	Services -- hospitals
2006	1311	Crude petroleum and natural gas	5171	Petroleum bulk stations
2006	2026	Fluid milk	5411	Retail – grocery stores
2006	3533	Oil, gas field machinery, equipment	1381	Drilling oil and gas wells
2006	2890	Health products	8060	Services -- hospitals

2006	3559	Special industry machinery, nec	1600	Heavy construction, non-bldg.
2007	1381	Petroleum, gas, mineral exploration	5171	Petroleum bulk stations
2007	2329	Men's and boys' clothing, nec	5311	Retail – department stores
2007	3845	Electromed., electrotherapy apparatus	8060	Services -- hospitals
2007	2099	Food preparations, nec	5411	Retail – grocery stores
2007	3674	Semiconductors and related devices	3576	Computer comm. equipment
2007	3670	Electronic tubes, components	3576	Computer comm. equipment
2007	2911	Petroleum refining	5541	Gasoline and convenience store
2007	1381	Petroleum, gas, mineral exploration	5171	Petroleum bulk stations
2007	3341	Smelting, refining of nonferrous metals	3721	Aircraft
2007	3531	Construction machinery, equipment	1540	General bldg. contractors
2007	4899	Communication services, nec	4812	Radio, telephone comm.
2007	1381	Petroleum, gas, mineral exploration	5171	Petroleum bulk stations

Note: The mapping of the added firms' industries to the customer firms' industries is shown below. Each added firm's four-digit SIC code represents its industry and is obtained from CRSP. Each added firm's four-digit-SIC-code customer industry is the customer industry most likely to transact with the added firm's industry, as determined by (1) the input-output tables of Fan and Lang (2000) and the BEA's Use tables or (2) the SEC's SIC code descriptions. NEC stands for "not elsewhere classified," signifying a "catch-all" category.

TABLE 1
SUMMARY STATISTICS

	N			Avg. Mkt. Value		
Year Added to S&P 500	Added Firms (1)	Cust. Firms (2)	Customer Firms per Industry (3) = (2)/(1)	Added Firms ($Billions) (4)	Customer Industries ($Billions) (5)	Customer Firms ($Billions) (6) = (5)/(3)
2000	17	185	10.9	$9.9	$12.6	$1.2
2001	6	58	9.7	6.7	26.0	2.7
2002	2	25	12.5	5.6	6.0	0.5
2003	2	48	24.0	4.2	1.0	0.04
2004	7	58	8.3	7.2	48.8	5.9
2005	6	47	7.8	5.8	7.3	0.9
2006	8	66	8.3	8.2	21.7	2.6
2007	12	76	6.3	11.4	23.5	3.7
All	60	563	9.4	$8.6	$19.2	2.0

TABLE 2
CUMULATIVE ABNORMAL RETURNS

	Added Firms		Customer Firms	
	CAR (%)	N	CAR (%)	N
Full Sample	3.26***	60	-0.764**	538
	(5.91)		(-2.16)	

*** Significant at the 0.01 level.
** Significant at the 0.05 level.

Note: T-values are in parentheses.

TABLE 3
FULL-SAMPLE REGRESSIONS

	Model 1	Model 2	Model 3	Model 4
Intercept	-0.001	-0.001	-0.005	-0.005
	(-0.25)	(-0.22)	(-0.90)	(-0.95)
ADDCAR	-0.102**	-0.098*	-0.096*	-0.089*
	(-2.01)	(-1.92)	(-1.88)	(-1.73)
CUSTMKTVAL	0.001*	0.001*		
	(1.91)	(1.91)		
CUSTREVENUE				0.001
				(1.56)
CUSTDEBTRAT	0.026***		0.025***	
	(2.84)		(2.74)	
CUSTGROWTH	-0.016***	-0.018**	-0.015**	-0.011*
	(-2.69)	(-2.19)	(-2.43)	(-1.70)
HERF			0.011	0.015
			(1.13)	(1.52)
N	542	542	542	538
R^2	0.023	0.015	0.025	0.017

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.

TABLE 4
ROBUSTNESS TESTS BASED ON THE BUSINESS CYCLE

	Model 1	Model 2	Model 3	Model 4
Intercept	-0.001	-0.007	-0.006	-0.006
	(-0.12)	(-0.95)	(-0.77)	(-0.82)
ADDCAR	-0.097*	-0.090*	-0.097*	-0.091*
	(-1.85)	(-1.72)	(-1.85)	(-1.72)
CMKTVAL	0.001*	0.001**		
	(1.90)	(2.07)		
CREVENUE				0.001
				(1.56)
CDEBTRAT			0.025***	
			(2.74)	
CUSTGROWTH	-0.018**	-0.018**	-0.015**	-0.011*
	(-2.19)	(-2.18)	(-2.43)	(-1.70)
HERF		0.015	0.011	0.015
		(1.57)	(1.14)	(1.52)
EXPANSION	-0.001	0.001	0.001	0.001
	(-0.06)	(0.05)	(0.11)	(0.14)
N	542	542	542	538
R^2	0.015	0.020	0.025	0.017

*** Significant at the 0.01 level.
** Significant at the 0.05 level.
* Significant at the 0.10 level.