Buyer Power in Conglomerate Acquisitions

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ABSTRACT

We examine buyer power as a source of value creation in conglomerate acquisitions. We find that an increase in buyer power is positively related to the combined wealth effect of merging firms and negatively related to both the wealth effect of supplier firms and acquirer rival firms. We document post-acquisition decreases in both output prices for supplier industries and cogs-to-sales for merging firms. Our results cannot be explained by asset complementarities between merging firms, pre-acquisition declining trends in output prices in supplier industries, or negative demand shocks in acquiring firm industries. Overall, our evidence supports buyer power in conglomerate acquisitions.

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1. Introduction

In this paper, we examine whether buyer power is a source of value creation in conglomerate acquisitions. Understanding the sources of value creation in corporate takeovers has been a topic of interest for financial economists over several decades (see, e.g., Betton, Eckbo and Thorburn (2008) for a survey of this literature). One stream of research explores whether value creation in acquisitions is attributable to efficiency or market power. For example, Eckbo (1983) finds little evidence that wealth effects in horizontal acquisitions can be explained by anti-competitive effects. More recently, researchers have shed additional insights into the sources of gains in corporate acquisitions by taking a broader product markets approach that includes an examination of suppliers and customers. While Fee and Thomas (2004), Shahrur (2005) and Bhattacharyya and Nain (2011) focus their attention on horizontal acquisitions, Shenoy (2012) conducts an in-depth study of vertical acquisitions. The sources of gains in conglomerate acquisitions have not, however, received the same amount of attention partly because an influential view in the financial economics literature was that they are primarily symptomatic of severe agency problems between managers and shareholders in the acquiring firm (see, e.g., Jensen, 1986; Morck, Shleifer, and Vishny, 1990; and Hart and Moore, 1995).

This view has been challenged in recent times. For example, Graham, Lemmon, and Wolf (2002) find a decrease in excess value after firm diversification through an acquisition, but conclude that this is attributable to the acquirer buying a discounted firm and not because diversification destroys value. In addition, recent studies conclude that conglomerate acquisitions are not harmful to shareholder value (e.g., Andrade, Mitchell, and Stafford, 2001; Betton, Eckbo, and Thorburn, 2008; Akbulut and Matsusaka, 2010). Further, Maksimovic and Phillips (2001, 2002) and Maksimovic, Phillips, and Prabhala (2011) examine plant-level data and document evidence that conglomerate firms exhibit growth across industry segments that is consistent with

optimal profit-maximizing behavior. In related papers, Campa and Kedia (2002) and Villalonga (2004) document that the diversification discount disappears once self-selection is accounted for in the test design.

Financial economists, regulators, and practitioners have proposed that possible sources of gains in a conglomerate acquisition can be attributable to either an increase in efficiency derived from the benefits of having complementary assets, complementary and/or neighboring products, financial synergies, spreading of overheads, etc., or to increased anti-competitive opportunities like tying, bundling, and portfolio effects that result in reciprocity (e.g., Lewellen, 1971; Montgomery, 1994; Church, 2004; Rhodes-Kropf and Robinson, 2008; and Hoberg and Phillips, 2010a). There is, however, no mention of the possibility that a conglomerate acquisition can result in increased monopsony power, i.e., increased buyer power of the combined firm against common suppliers of goods and services to the acquiring and target firms. This is likely due to the fact that, unlike in horizontal acquisitions, increased buyer power of merging firms vis-à-vis their supplier firms is not readily apparent in conglomerate acquisitions.

Earlier studies have documented that bigger buyers and more concentrated buyer industries are associated with lower profit margins for suppliers (e.g., Lustgarten, 1975; McGuckin and Chen, 1976; and Schumacher, 1991).[1] Snyder (1996, 1998) theoretically shows that a merger between two buyers of a common input will lead to countervailing power which will enable the buyers to bargain for cheaper input prices from the supplier that provides the

[1] The Robinson-Patman Act (RPA) was passed by Congress in 1936 to protect small retailers from the buying power of large chain stores. Section 2 (a) of the RPA limits the ability of sellers to charge differential prices to competing customers for goods of similar quality or grade particularly if the price discrimination has a detrimental effect on competition. Section 2 (f) of the RPA forbids buyers from knowingly inducing or receiving discriminatory prices prohibited by other provisions of the RPA. The liability of the buyer is, however, derivative. Specifically, a plaintiff has to establish a violation of section 2 (a) by the seller to prove that a violation of section 2 (f) occurred. The buyer is not liable if it can demonstrate that it did not know that the price discrimination it induced or received was illegal. While the RPA continues to impose significant compliance costs on firms and private plaintiffs do bring suit under its provisions, the Department of Justice and the Federal Trade Commission have by-and-large ceased enforcement over the past few decades.

common input. While most of the existing empirical studies focus on the increase in buyer power in horizontal acquisitions (e.g., Fee and Thomas, 2004; Shahrur, 2005; and Bhattacharyya and Nain, 2011), it is plausible that similar economic forces are at play in conglomerate acquisitions.

Consider the merger between Oshkosh Truck Corp. and JLG Industries, Inc. in 2006. Oshkosh Truck manufactures specialty trucks and military vehicles and belongs to the Motor vehicles & passenger car bodies industry (SIC code 3711) and JLG industries manufactures aerial work platforms and belongs to the construction machinery & equipment industry (SIC code 3531). Upon announcement of the merger, Robert G. Bohn, the Chairman, President, and CEO of Oshkosh stated, "we expect to realize substantial purchasing and logistical synergies" and a trade publication (RERMAG, 2006) wrote that "the acquisition also gives the combined companies enhanced buying power, buying more than $4 billion worth of raw materials, parts and supplies per year." Thus, to the extent that the acquirer and target firm in a conglomerate deal source inputs from common supplier industries, the combined firm will have a greater bargaining advantage over these supplier industries after the acquisition. The resultant decrease in input prices will be a source of value creation for the merging firms, and consequently result in a reduction in the value of the common suppliers. Our focus in this paper is to study whether buyer power is a source of gains in conglomerate acquisitions.

We identify a sample of 785 conglomerate acquisitions over the period 1986 – 2010 to test the buyer power hypothesis. We define conglomerate acquisitions as transactions in which the bidder and target did not operate in the same four-digit SIC industry code and did not have a vertical relatedness coefficient greater than 1% using the benchmark input-output accounts for

the U.S. economy published by the *Bureau of Economic Analysis*. In other words, conglomerate acquisitions are defined as acquisitions that are not classified as either horizontal or vertical.[2]

We construct a novel proxy for the increase in buyer power using all the common supplier industries that supply inputs to both the bidder's and target's industry. Specifically, for each common supplier industry in the deal, we use the benchmark input-output accounts to compute two vertical relatedness coefficients – the proportion of acquirer industry input that was sourced through the common supplier industry ($V_{C,A}$) and the proportion of the target industry input that was sourced through the common supplier industry ($V_{C,T}$). We define the increase in buyer power, Δ*Buyer Power*, vis-à-vis that common supplier industry as the product of the two vertical relatedness coefficients of the common supplier industry with respect to the acquirer and target industry, $V_{C,A}$ x $V_{C,T}$. This measure attempts to capture the increase in buying concentration with respect to that common supplier industry. Finally, for each conglomerate acquisition, we identify the supplier industry that has the largest increase in downstream buyer power, i.e., the common supplier industry with the greatest value for Δ*Buyer Power*, and use this value as our measure of increase in buyer power.[3] We call this supplier industry the main common supplier industry. Using the above procedure, in the Oshkosh and JLG example, we identify the Motor vehicles parts manufacturing industry (IO Code 336300) as the main common supplier industry. Intuitively, it makes sense that this industry will be a key supplier industry for both specialty truck manufacturers and aerial work platform manufacturers.

[2] In robustness tests, we alleviate concerns that our results are influenced by the inclusion of some potentially horizontal acquisitions in our sample. We do so by removing all deals from our full sample of 785 conglomerate acquisitions in which there is a match between: (i) any two segments of the merging firms at the four-digit SIC level, (ii) the primary SIC code of the acquirer and target at the three-digit SIC level, and (iii) the primary SIC code of the acquirer and target at the two-digit SIC level. We repeat our tests on these three samples of deals. The results from these tests are qualitatively similar to those reported for our full sample of 785 conglomerate acquisitions.

[3] We also use a variant of the Δ*Buyer Power* measure where we explicitly account for the size of the acquirer and target. Our results with this alternative measure are qualitatively similar.

The buyer power hypothesis predicts that the integrated firm can extract larger price concessions from firms in the main common supplier industry if Δ*Buyer Power* is higher. Therefore, we should observe a positive relation between the announcement-period wealth effects to the merging firms (CWE) and Δ*Buyer Power* and a negative relation between cost of goods sold over sales and Δ*Buyer Power*.

There are two possible avenues through which a conglomerate acquisition can impact supplier industry output prices and supplier value effects. First, the price concession extracted by the merging firms can set the "standard" or "reference price" for negotiations by acquirer rival firms with their suppliers.[4] Thus, rival firms will also try to negotiate to get similar price cuts. To the extent their bargaining power vis-à-vis the main common supplier industry firms is less than that of the merging firms, the price concessions they may get will be lower. Regardless, there will be pressure on all supplier firms to reduce prices. This reduction in input prices is likely to be efficiency enhancing if the supplier industry exerted some market power vis-à-vis the acquirer industry. We call this the pure monopsony power version of the buyer power hypothesis.

Second, the merged conglomerate firm is likely to meet its competitors in multiple markets. As a result, these firms will recognize their interdependence and compete less vigorously with each other.[5] Thus, the combined firm in a conglomerate acquisition can collude in ways similar to in a horizontal acquisition except that its multimarket contacts with competitors may give it more opportunities to do so particularly in markets where it has more market power. Specifically, the integrated firm can then collude with its rival firms to limit

[4] For example, rival firms may have either best price or redetermination provisions in their contracts with suppliers. Best price provisions will give them either meet-or-release and/or most-favored customer protection. A meet-or-release clause requires the supplier to meet a lower price offered to the customer firm or release it from the contact, while a most-favored contact clause ensures that the customer firm receives the lowest price offered by the supplier to any of its customers. In a redetermination provision, the price offered by the supplier is established by some formula, for example, it may be tied to some price index.

[5] See, e.g., Edwards (1955), Gribbin (1976), Bernheim and Whinston (1990), and Montgomery (1994) for arguments along these lines.

aggregate purchases to monopsony levels, thereby resulting in lower input prices for these firms (see, e.g., Fee and Thomas, 2004; and Robinson, 1933). We call this the monopsonistic collusion version of the buyer power hypothesis.

Based on the above arguments, both versions of the buyer power hypothesis predict a negative relation between the announcement-period wealth effects to common supplier industry firms (*Supplier CAR*) and Δ*Buyer Power* due to the price concessions extracted by the downstream firms. In addition, we predict that the output price for the main common supplier industry should decline around the conglomerate acquisition relative to supplier industries either less affected or unaffected by the conglomerate acquisition.

The relation between announcement-period wealth effects to acquirer rival firms (*Rival CAR*) and Δ*Buyer Power* is nuanced. Under the pure monopsony power version of the buyer power hypothesis, acquirer industry rival firms cannot negotiate the same price concessions and, thus, are at a relative cost disadvantage compared to the merging firms. We will then observe a negative relation between *Rival CAR* and Δ*Buyer Power* as rivals are at a competitive disadvantage relative to the combined firm. On the other hand, if enhanced buyer power of the combined firm leads to monopsonistic collusion between the merged firm and acquirer rivals, then we should observe a significant positive relation between *Rival CAR* and Δ*Buyer Power.* A summary of our predictions is provided in Table 1.

In our empirical tests, we first examine the relationship between *CWE, Supplier CAR*, and *Rival CAR* with Δ*Buyer Power*. We find that there is a significantly positive relation between *CWE* and Δ*Buyer Power*, a significantly negative relation between *Supplier CAR* and Δ*Buyer Power*, and a significantly negative relation between *Rival CAR* and Δ*Buyer Power*.[6] Based on

[6] In untabulated results, we also find a significantly positive relation between the wealth effect to the target (acquirer) firm and Δ*Buyer Power*.

our coefficient estimates, the above documented results are economically meaningful. Specifically, a one standard deviation increase in Δ*Buyer Power* results in *CWE* increasing by 0.75% – 0.92%, *Supplier CAR* decreasing by 0.30% – 0.50%, and *Rival CAR* decreasing by 0.28% – 0.43% depending on the event window examined. Taken together, these results are consistent with the notion that the merging firms benefit from an increase in buyer power, main common supplier firms lose due to the increase in the buyer power of the merging firms, and the acquirer's industry rival firms are worse off possibly because they are now at a competitive disadvantage.[7] The rival result is, however, inconsistent with the monopsonistic collusion version of the buyer power hypothesis.[8]

A possible concern with the above interpretation of our results is that unobserved firm characteristics drive both our change in buyer power measure and the wealth effects in conglomerate acquisitions. It is conceivable that merging firms that source inputs from overlapping supplier industries likely have a higher value for Δ*Buyer Power* and are also more likely to have a higher degree of asset complementarities. Thus, these deals may take place because of technological synergies due to R&D or patents (Bena and Li, 2013) or from securing gains from the development of new products (Hoberg and Phillips, 2010a), and possibly have little to do with an increase in buyer power. We address this particular concern by dividing our full sample of conglomerate acquisitions into two sub-samples based on whether there is either

[7] In unreported results, we do not find any relation between customer firm wealth effect and Δ*Buyer Power*, suggesting that any gains to the merging firms from an increase in buyer power is not being passed on to customer firms.

[8] Buying in larger volumes from a supplier can increase efficiency in input procurement and raw material handling for the combined firm (purchasing efficiency). In addition, selling to a larger customer can also lead to greater supplier operating efficiency (selling efficiency). This purchasing/selling efficiency argument unambiguously predicts a positive relation between *CWE* and Δ*Buyer Power*. Importantly, the predicted relation between *Supplier CAR* and Δ*Buyer Power* will be either zero if suppliers pass on all of their selling efficiency gains and positive if they just pass on some of these gains to the combined firm. Under this hypothesis, the predicted relation between *Rival CAR* and Δ*Buyer Power* will be negative because rivals will be at a competitive disadvantage. The significant negative relation that we document between *Supplier CAR* and Δ*Buyer Power* is inconsistent with this hypothesis. Since the buyer power and purchasing/selling hypothesis are not mutually exclusive, at a minimum, our results suggest that the buyer power effect is the dominant force here.

any technology overlap between the merging firms or whether they use similar product market language in their 10-K filings. We find a significant positive relation between *CWE* and Δ*Buyer Power*, and a significantly negative relation between both *Supplier CAR* and *Rival CAR* with Δ*Buyer Power* in the sub-sample of deals in which the merging firms are unlikely to have any asset complementarities. As an additional test, we investigate whether the buyer power effects get stronger when the common supplier industry sells its output to a fewer number of customer industries. In particular, we construct a measure of the main common supplier industry's selling concentration. We find that, as expected, our full sample results are stronger for the sub-sample of firms where the main common supplier industry is dependent on only a few customer industries for its sales. These tests make it less likely that our results can be attributable to spurious correlations.

Another possible concern is that our results can be explained by negative demand shocks to acquiring firm industries. Specifically, if the market's outlook for the acquirer was negative due to the impact of a negative demand shock to its industry, then merging firms will get a positive response if the announcement of the merger indicates that these firms have figured out how to gain cost efficiencies vis-à-vis the common supplier industries. Acquirer rival firms unable to gain from these cost efficiencies lose in the face of the strengthened competitor. Further, the common supplier industries are worse off due to reduced demand from the downstream industry because of the negative demand shock. Note that this alternative explanation for our results is attributable to cost efficiencies and decreased demand but is unrelated to buyer power. Contrary to this explanation, we find that conglomerate acquisitions do not cluster in acquirer industries with negative demand shocks. Further, we obtain qualitatively similar results for the relation between *CWE*, *Supplier CAR*, and *Rival CAR* with Δ*Buyer Power*

to those discussed earlier for a sub-sample of deals *not* impacted by negative demand shocks to the acquirer industry.

We also examine the evolution of output prices for firms in the main common supplier industry around conglomerate acquisitions to see whether they conform to the predictions of the buyer power hypothesis. We generally follow the methodology presented in Bhattacharyya and Nain (2011) to test for the effect of downstream conglomerate acquisitions on supplier output prices using the *Producer Price Index* (*PPI*) constructed by the *Bureau of Labor and Statistics* (*BLS*). Under the buyer power hypothesis, the supplier industry output prices should drop around the conglomerate merger. We follow a difference-in-differences approach to compare changes in output prices of the main common supplier industry to changes in output prices of other common supplier industries for which the increase in buyer power is less pronounced. We expect output prices to drop more after a conglomerate acquisition for the main common supplier industry (the supplier industry that experiences the largest increase in buyer power) than for the other common supplier industries (supplier industries that experience the 8^{th}, 9^{th}, and 10^{th} largest increases in buyer power).[9] In both our univariate and multivariate tests, we find that this is indeed the case.

To examine whether the above results are somehow spurious, we conduct a falsification exercise that replaces announcement dates of acquisitions with random announcement dates. We find that the decline in output prices is insignificant when we conduct 100 replications of the above multivariate analysis using random announcement dates. As an additional test, we follow the approach in Gormley and Matsa (2011), and find that our output price results are not attributable to a continuation of a differential trend between the main common supplier industry and control supplier industries from before-to-after the conglomerate acquisition. Specifically,

[9] Our results are robust to alternative definitions of the control group.

the trend is upward sloping in the years prior to the acquisition before turning negative around the year of the acquisition (See Figure 1). As such, this trend goes against the explanation that our results are driven by a declining price trend in the main common supplier industry which is taken advantage of by the merging firms. Thus, we can conclude with some confidence that the decrease in the supplier prices of firms in the main common supplier industry relative to the supplier prices of firms in supplier industries less likely to be affected by the increase in buyer power is indeed attributable to conglomerate acquisitions.

Finally, if the input prices of the merging firms decline after the acquisition, then the input costs of the combined firm should also fall. These reduced costs should show up, for example, in a decline in cost of goods sold-to-sales. We, therefore, also examine the changes in the cost of goods sold for the acquirer and target firms involved in conglomerate acquisitions. As a measure of pre-acquisition cost of goods sold, we use the weighted average of the cost of goods sold-to-sales (*COGS/Sales*) ratio of the acquirer and target where the relative weights are based on the pre-acquisition sales of the acquirer and target firms. We benchmark the combined firm against a pseudo-combined firm formed from the median firms in the three-digit SIC industry of the acquirer and target. We examine changes in benchmark-adjusted *COGS/Sales* over the (*t-1*, *t+1*) window. This procedure allows us to find a difference-in-differences for the ratio of *COGS/Sales* between the sample of actual combined firms and the sample of pseudo-combined firms based on the median firms in the merging industries. Our univariate and multivariate results from this difference-in-differences analysis suggest that the benchmark-adjusted change in *COGS/Sales* around the conglomerate acquisition is significantly negatively related to Δ*Buyer Power*, thereby providing additional corroborating evidence consistent with the buyer power hypothesis. Consistent with our earlier argument that there will be a decline in the common

supplier industry output prices, we find that *COGS/Sales* for the pseudo-conglomerate firms decline around the conglomerate acquisition as well, although the decline is less than the decline of the merging firms. This result is consistent with the negative relation between *Rival CAR* and Δ*Buyer Power*. Our battery of tests consistently demonstrates that an increase in pure monopsony power is a source of gains in a conglomerate acquisition. Our tests, however, do not preclude the other sources of value creation in conglomerate acquisitions that we list earlier.

Our paper makes the following contributions. First, until recent papers (e.g., Rhodes-Kropf and Robinson, 2008; and Hoberg and Phillips, 2010a), there was a paucity of evidence on the sources of gains in conglomerate acquisitions. We focus our attention on buyer power as one source of gain for shareholders of merging firms and find consistent support for the buyer power hypothesis. Second, our study complements the existing literature on buyer power of larger customer firms (Lustgarten, 1975; McGuckin and Chen, 1976; and Schumacher, 1991) and buyer power in horizontal acquisitions (Fee and Thomas, 2004; Shahrur, 2005; and Bhattacharyya and Nain, 2011) and suggests that it can also be one of the drivers of wealth creation in a conglomerate context. Further, consistent with this literature, we also take a broader product markets perspective in making the case that our results are indeed attributable to buyer power effects. Third, we derive new measures that aim to proxy for the increase in buyer power and show that these measures have an impact on the wealth effects to the merging firms, main common supplier industry firms, acquirer rival firms, changes in output prices of the main common supplier industry, and changes in cost of goods sold-to-sales for the merging firms in a manner predicted by the buyer power hypothesis. In the process, we provide *direct* evidence of the existence of buyer power in conglomerate acquisitions. Finally, our paper can possibly be of interest to policy makers and regulators because it suggests that an increase in pure monopsony

power need not only occur in horizontal acquisitions, but that merging firms can take advantage of it in conglomerate acquisitions too. Importantly, however, we do not find support for monopsonistic collusion in conglomerate acquisitions.

The rest of the paper is structured as follows. Section 2 presents our sample selection procedure, measures of change in buyer power, and sample summary statistics. Section 3 examines the relation between wealth effects of conglomerate acquisitions on the merging firms, supplier firms, and rival firms with the change in buyer power. In Sections 4, we discuss results from an examination of key supplier industry price changes around conglomerate acquisitions using a difference-in-differences approach. We examine the relation between the change in cost of goods sold-to-sales for the merging firms and our measure of the change in buyer power also using a difference-in-differences approach in Section 5. In Section 6, we examine whether our results are robust to alternative definitions of conglomerate acquisitions. Section 7 concludes the paper.

2. Sample selection, measures of buyer power, sample summary statistics, and univariate results

2.1. Overall merger sample

We use the Mergers & Acquisitions section of the Securities Data Company (*SDC*) database between 1986 and 2010 to obtain our initial sample of acquisitions. We include deals which meet the following characteristics in our sample: (i) the deal should not be classified as a spin-off, repurchase, recapitalization, divestiture, leveraged buyout, or self-tender offer and (ii) the 'form' of the deal should not be classified as "Acquisition of remaining interest", "Acquisition of assets" or "Buyback". We only include deals where both the acquirer and target are U.S. public firms. We also exclude deals where the acquirer is a financial firm (four-digit SIC code between 6000 and 6999). We define a contest for each target in our sample to include

all bids for that target such that the period between two consecutive bids is less than a year. Generally consistent with Bradley, Desai, and Kim (1983) and Kale, Kini, and Ryan (2003), successful bids are identified as those where the acquirer owned less than 15% of the target shares prior to deal announcement and owned at least 50% of the target shares after the contest. For each contest, we obtain the following dates: (i) the announcement date of the first bid in the contest, (ii) announcement date of the first bid by the successful acquirer, and (iii) the announcement date of the successful bid. These criteria lead to an initial sample of 2,089 takeovers during the period 1986 – 2010.

2.2. Identifying conglomerate acquisitions

Based on Kahle and Walkling (1996), we use the historical four-digit SIC code of the acquirer (target) to identify its primary industry classification. For each successful bid in our sample, we find the historical SIC code (Compustat SICH) for the acquirer and target during the year of acquisition announcement. We exclude deals where the bidder and target were either horizontally or vertically related. In particular, we drop horizontal acquisitions from our sample by dropping acquisitions where the acquirer and target have the same four-digit SIC code. Additionally, to identify vertical relations between bidder and target firms, we use the benchmark input-output accounts for the U.S. economy published by the *Bureau of Economic Analysis* (Fan and Goyal, 2006). The *Use table* from the benchmark accounts provides a matrix of commodity flows between different pairs of input-output (IO) industries. For example, for a given IO industry 'i', we can obtain the dollar commodity flow from IO industry 'j' required to produce the total output of industry 'i'. We use the SIC-IO concordance table of Fan and Lang (2000) to map the four-digit SIC codes of the acquirers and targets to the six-digit IO codes.[10]

[10] If the historical SIC code of the firm cannot be matched to the IO tables then we use the four-digit SIC code of the segment with the largest sales to identify the firm's IO industry.

As the input output coefficients can vary over time, we use the 1987, 1992, 1997, and the 2002 *Use tables* to identify vertical relations in acquisitions taking place during the periods 1986 to 1990, 1991 to 1995, 1996 to 2001, and 2002 to 2010 respectively. The 1997 (2002) benchmark input-output accounts incorporate the 1997 (2002) NAICS system instead of the SIC system of industry classification. Hence, for acquisitions during 1996 to 2010, we first map the four-digit SIC codes of acquirers and targets to their six-digit NAICS codes using the *Bridge tables* provided by the *Bureau of Census*. We then find their respective IO industries using the NAICS-IO concordance table provided in the 1997 (2002) benchmark input-output accounts.

Our vertical relatedness measure is based on Fan and Goyal (2006) and calculated as follows: (i) For every dollar of the acquirer industry total output, find the dollar flow from the acquirer (target) to the target (acquirer) industry, and (ii) For every dollar of the target industry total output, find the dollar flow from the acquirer (target) to the target (acquirer) industry. Then, the vertical coefficient is the maximum of the four coefficients. We classify an acquisition as vertical if the vertical relatedness coefficient is greater than 1%. From our initial sample of 2,089 takeovers during the period 1986 - 2010, 911 are deleted because they are classified as horizontal deals and 393 are deleted because they are classified as vertical deals. The remaining 785 takeovers are classified as conglomerate acquisitions and form the sample for this study.[11]

2.3. Measures of increase in buyer power in conglomerate acquisitions

To test the buyer power hypothesis, we develop a proxy for the increase in buyer power in conglomerate acquisitions. We posit that the combined firm after the acquisition has increased

[11] For this sample of 785 conglomerate acquisitions, we find that the mean (median) percentage of acquirer and target sales accounted for by the primary segment are 77.4% (88.1%) and 96.9% (100.0%), respectively. We, therefore, believe that classifying acquisitions based on the primary SIC code is reasonable. Nevertheless, in robustness tests, we delete all observations from the above sample if there is a match at the four-digit SIC level between *any* two segments of the acquirer and the target and when there is a match between the three- and two- digit primary SIC codes of the bidder and target. We find qualitatively similar results from *all* the tests that follow in this paper based on these samples. The results are reported in Table 15.

bargaining power vis-à-vis the common supplier industries that were supplying inputs to the acquirer and target industries. To develop our measure, we rely on the *Use Table* and find all benchmark input-output supplier industries from which the acquirer and target industries purchase their inputs. Some of these identified supplier industries are common suppliers to both the acquirer and target industry. For each common supplier industry in a deal, we then find two vertical relatedness coefficients as follows – the commodity flow from the common supplier industry to the acquirer industry divided by the total output of the acquirer industry ($V_{C,A}$) and likewise the commodity flow from the common supplier industry to the target industry divided by the total output of the target industry ($V_{C,T}$).

Finally, we define our increase in buyer power measure, Δ*Buyer Power,* as the product of the two vertical relatedness coefficients of the common supplier industry vis-à-vis the acquirer and target industry, $V_{C,A}$ x $V_{C,T}$. We use the product instead of the sum of the vertical relatedness coefficients as taking the product is most analogous to an increase in buying power, i.e., an increase in purchasing concentration from an industry. Finally, for each conglomerate acquisition, we identify the supplier industry that has the largest increase in downstream buyer power, i.e., the common supplier industry with the greatest value for Δ*Buyer Power*. [12,13]

[12] In unreported robustness tests, we also use variants of the Δ*Buyer Power* measure including: (i) the sum (rather than maximum value) of Δ*Buyer Power* across all common supplier industries, and (ii) the weighted sum of Δ*Buyer Power* across all common supplier industries, where the weights are the industry's sales over the sum of all common industries' sales as alternative measures of the change in buyer power. Our results with these alternative measures of increase in buyer power are qualitatively similar.

[13] We also attempt to identify whether the bidder and target have any common supplier firms. Firms are required by *FASB* No. 14 to report the identities of key customers who account for at least 10% of their sales. We obtain this data from the Compustat segment file. We are able to identify key suppliers for acquirers in 328 (40%) deals and for targets in 58 (7%) deals. Given the firms only need to report the identities of key customers who account for at least 10% of their sales and that target firms tend to be much smaller than acquirer firms, it is not surprising that we can only identify some actual supplier firms for about 40% of acquirers and only about 7% of targets. We find that there are common supplier firms for the acquirer and target in only 9 deals. While we believe it is the nature of this data that is responsible for the small overlap of the actual suppliers of acquirer and bidder firm, an alternative interpretation is that this is by itself evidence of there being no meaningful buyer power effects in conglomerate acquisitions. To investigate this issue further, we also examine the extent of common suppliers in horizontal deals for reference purposes because recent studies have documented evidence consistent with buyer power in horizontal

2.4. Summary statistics of the conglomerate acquisition sample and buyer power measure

Table 2 presents the distribution of conglomerate acquisitions by year. We find that the period 1998 – 2000 accounted for more than 23% of the sample deals while the other deals were generally evenly distributed over the sample period. Table 3 presents the descriptive statistics for our sample of conglomerate deals. All variables are described in the Appendix. About 42% of the conglomerate acquisitions in our sample are financed with cash only and the remaining with stock only or a combination of cash and stock. About 3% of the conglomerate deals were coded as hostile by the SDC Platinum database and the remaining as non-hostile. The acquirers were significantly larger than the targets. Specifically, the mean (median) book value of assets for acquirer firms is $9,529 million ($2,073 million) and that of target firms is $616 million ($146 million). The mean (median) value of Δ*Buyer Power* is found to be 0.0032 (0.0021).

In Panel A and B of Table 4, we provide the acquirer and target industries (at the four-digit SIC industry level) that most commonly appeared in the conglomerate deal sample. Pharmaceutical preparations, prepackaged software, computer integrated systems design, computer processing and data preparation and processing services, electromedical and electrotherapeutic apparatus, and information retrieval industries are the acquirer industries that were most frequently represented in our sample of deals. Interestingly, firms belonging to prepackaged software, information retrieval services, computer integrated systems design, and electromedical and electrotherapeutic apparatus industries show up frequently both as acquirers and targets in conglomerate acquisitions.

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acquisitions (see, e.g., Fee and Thomas, 2004; Shahrur, 2005; and Bhattacharyya and Nain, 2011). In our initial sample of acquisitions, we identify 911 horizontal deals. We are able to identify key suppliers for acquirers in 348 (38%) deals and for targets in 138 (15%) deals. Thus, even in horizontal deals, we can only identify common suppliers for the merging firms in only 29 horizontal deals. We, therefore, decided not to pursue this avenue to examine the buyer power hypothesis because the small sample size of common key supplier firms in conglomerate acquisitions will not yield reliable inferences.

In Panel C of Table 4, we identify the supplier industries (IO code) common to the bidder and target industry for which our increase in buyer power measure (Δ*Buyer Power*) is amongst the top five across all deals in our sample. Our data seems to capture intuitively the supplier relations in conglomerate acquisitions. For example, for a conglomerate acquisition involving an acquirer in Iron & ferroalloy ores & miscellaneous metal (IO industry=050001) and a target in Primary aluminum (IO industry=380400), the main common supplier industry is Electric service utilities (IO industry=680100). It seems plausible that electricity is an important input for both the metal mining and aluminum production industries. Further, for a conglomerate acquisition involving an acquirer in Household audio & video equipment (IO industry=560100) and a target in Telephone & telegraph apparatus (IO industry=560300), the main common supplier industry is Other electronic components (IO industry=570300). Again, this is an intuitive finding as electronic components are likely to be important inputs in both the Household audio and video equipment industry and the Telephone apparatus industry. Finally, we would expect the Motor vehicle parts industry (IO industry=336300) to be an important supplier industry for both Automobile & light truck manufacturing industry (IO industry=336110) and the Motor homes manufacturing industry (IO industry=336213).

3. Wealth effects of conglomerate acquisitions on merging firms, rival firms, and supplier firms

3.1. Event study methodology

We use the market model to calculate the parameter estimates of the return generating process of the acquirer and target. We use the daily returns for 240 trading days beginning 300 days before the announcement of the first bid by the successful acquirer as the estimation period. Further, we require a minimum of 30 daily return observations during estimation period. We then calculate the cumulative abnormal returns for the acquirer over the windows (-5, +5) and (-10,

+10) trading days around the period between the announcement of the first bid by the successful acquirer and the announcement of the successful bid by that acquirer in the contest. We compute the cumulative abnormal returns for the target over the windows of (-5, +5) and (-10, +10) trading days around the period between the announcement of the first bid by any acquirer in the contest and the announcement of the last bid by the successful acquirer in the same contest.[14] Consistent with Bradley, Desai, and Kim (1988), we measure the combined wealth effect (*CWE*) of the acquisition as the value-weighted cumulative abnormal return to the acquirer and target. The weights are the market capitalizations of the acquirer and target firms fifteen trading days prior to the first announcement used to calculate the acquirer and target returns.[15]

3.2. Rival firms and common supplier firms in conglomerate acquisitions

We identify acquirer rivals as all firms on Compustat with the same primary four-digit SIC code as the acquirer during the year of acquisition announcement. To identify firms in the common supplier industry with the largest increase in buyer power (Δ*Buyer Power*) in each conglomerate acquisition, we identify firms on Compustat with a primary historical SIC code that belongs to this common supplier IO industry during the year of acquisition announcement.

For every conglomerate acquisition, we combine the acquirer rivals and supplier firms into separate equally-weighted portfolios. This approach is advocated in Eckbo (1983), Song and Walkling (2000), Fee and Thomas (2004), and Shahrur (2005) to account for the contemporaneous cross-correlation in returns. We calculate abnormal returns to the rival and supplier portfolios for windows (-5, +5) and (-10, +10) trading days around the announcement of

[14] The successful acquirer's first bid date and last bid date are the same in over 98% of the sample. The first bid date by any acquirer and last bid date by the successful acquirer are the same in 82% of the sample.

[15] We arrive at similar inferences if we use either event window (-1, +1) or (-2, +2) to compute *CWE*. Nevertheless, we believe that the slightly longer windows are more appropriate because there is leakage of information prior to the announcement of the takeover and there remains some uncertainty about the takeover that still needs to be resolved after the announcement.

the first bid by the successful acquirer. Cohen and Frazzini (2008) show that there is a delay in material information about a firm being incorporated into the stock prices of related third parties such as customers and suppliers. Based on their results, we believe that it is important and particularly appropriate to use the longer event windows for all the related parties in our sample of conglomerate deals.

3.3. Wealth effects of the merging firms, rival firms, and firms in the main common supplier industry

We report the average announcement period wealth effects for the merging firms, rival firms, and firms in the main common supplier industry in Table 5. For the overall sample of 785 conglomerate acquisitions, we find that the average combined wealth effect for the merging firms (*CWE*) is 1.612% over the (-5, +5) window. Similarly, over the (-10, +10) event window, the average combined wealth effect for the merging firms (*CWE*) is found to be 1.223%. For both the windows, the combined wealth effects are statistically significant at the 1% level. As such, this evidence suggests that conglomerate acquisitions are value creating events. Also, this evidence is consistent with Matsusaka (1993), Andrade, Mitchell, and Stafford (2001), and Akbulut and Matsusaka (2010), who report that conglomerate acquisitions create value for the merging firms.

As a preliminary test for the buyer power hypothesis, we report the combined wealth effect for the merging firms (*CWE*) based on our proxy for increase in buyer power Δ*Buyer Power*. In particular, we separate our sample of conglomerate deals into above sample median vs. below sample median based on the Δ*Buyer Power* variable. We report these results in Panel A. We find that conglomerate deals that were in the above sample median sub-group for Δ*Buyer Power* are associated with an average combined wealth effect of 3.023% (2.429%) over the (-5, +5) ((-10, +10)) event window. In contrast, the deals in the below sample median sub-group for

Δ*Buyer Power* are associated with an average combined wealth effect of only 0.198% (0.017%) over the (-5, +5) ((-10, +10)) event window. The difference in abnormal returns between the high vs. low Δ*Buyer Power* sub-groups is statistically significant at the 1% level.[16] These results indicate that the greater the increase in buyer power vis-à-vis the main common supplier industry, the greater is the value creation for the merging firms. As such, this evidence provides preliminary evidence consistent with the buyer power hypothesis.

In Panel B, we report the univariate results for firms in the main common supplier industry in conglomerate acquisitions. As argued above, conglomerate acquisitions increase the buyer power of the merging firms vis-à-vis the main common supplier industry. This enables the integrated firm to extract price concessions after the acquisition and this leads to value losses for the firms in the main common supplier industry. For the overall sample of conglomerate acquisitions, we find that the main common supplier firms experience insignificant announcement wealth effects. For example, over the (-5, +5) window, the average wealth effect is 0.094% and over the (-10, +10) window the average wealth effect is 0.003%. Both of these wealth effects are statistically insignificant. In addition, we find that conglomerate deals in the below sample median sub-group for Δ*Buyer Power* are associated with an average main common supplier firms wealth effect of 0.253% (0.415%), while the deals in the above sample median sub-group for Δ*Buyer Power* are associated with an average main common supplier firms wealth effect -0.07% (-0.425%) over the (-5, +5) ((-10, +10)) event window. The difference in wealth effects between the above median vs. below median sub-sample based on Δ*Buyer Power* is significantly negative for the (-10, +10) event window at the 10% level, but is insignificant for the (-5, +5) event window. The lower average wealth effect for main common supplier industry

[16] Our inferences are similar using either the smaller (-1, +1) or (-2, +2) event windows. For example, CWE (-1, +1) is 1.8621% for the full sample, and is 2.6896% and 1.0325% for the above and below sample median sub-group for Δ*Buyer Power*, respectively with the difference being statistically significant at the 1% level.

firms in the above median Δ*Buyer Power* sample is consistent with predictions of the buyer power hypothesis.[17] This evidence goes hand in hand with our earlier evidence that merging firms experienced greater value gains in the sub-sample of conglomerate acquisitions where the increase in buyer power was greater.

In Panel C, we report the univariate results for the acquirer rival firms in conglomerate deals. We posit that conglomerate acquisitions increase buyer power of the merging firms vis-à-vis the common supplier industries which enables the integrated firm to extract price concessions after the acquisition. There can be two effects on the acquirer's rivals. On the one hand, acquirer rival firms can be at a competitive disadvantage compared to the conglomerate firm if they cannot extract the same price concessions from suppliers, and, hence, experience a negative announcement-period wealth effect. Alternatively, it is possible that the merged firm is likely to meet its rivals in multiple markets after the merger which can lead these firms to compete less aggressively. If this is the case, then the acquirer rivals are expected to experience a positive wealth effect due to the monopsony level of purchases and resulting lower input prices.

For the overall sample of conglomerate acquisitions, we find that the acquirer rivals experience insignificant announcement wealth effects. For example, over the (-5, +5) window we find that the average wealth effect is 0.044% and over the (-10, +10) window the average wealth effect is 0.017%. In addition, we find that conglomerate deals that are in the below sample median sub-group for Δ*Buyer Power* are associated with an average combined wealth effect of 0.14% (0.456%), while the deals in the above sample median sub-group for Δ*Buyer Power* are associated with an average combined wealth effect -0.052% (-0.423%) over the (-5, +5) ((-10,

[17] The sample size for the common supplier firms belonging to the industry with the largest increase in Δ*Buyer Power* is smaller because a significant number of these suppliers belong to IO industry 550000 (Management of companies and enterprises). There is no financial information available for firms in this industry on CRSP and Compustat.

+10)) event window. We find that difference in abnormal returns between the two sub-groups is significantly negative at the 10% level for the (-10, +10) event window, but is insignificant for the (-5, +5) event window. The lower average wealth effect in the above median Δ*Buyer Power* sample for acquirer rival firms is consistent with the pure monopsony power version of the buyer power hypothesis where rivals remain at a competitive disadvantage due to the increased buyer power for the merging firms vis-à-vis the common supplier industries. This evidence is inconsistent with monopsonistic collusion in conglomerate acquisitions.

3.4. Determinants of the combined wealth effect to merging firms

In this section, we investigate the determinants of the combined wealth effect (*CWE*) to the merging firms in conglomerate acquisitions. We propose the following weighted least squares regression model given by Equation (1) to examine the determinants of the combined wealth effect (*CWE*). The weights used are the inverse of the standard deviation of the market model residuals.

$$
\begin{aligned}
&CWE\ (-t,+t)\\
&= \beta_0 + \beta_1 * \Delta Buyer\ Power + \beta_2 * Acquirer\ FCF + \beta_3 * Acquirer\ FCF * Tobin's\ Q\ dummy + \beta_4\\
&* Hostile\ Deal + \beta_5 * All\ Cash\ Deal + \beta_6 * Relative\ size + \beta_7 * Ln\ (Acquirer\ size) + \beta_8\\
&* Ln(Target\ size) + \beta_9 * Target\ FCF + \beta_{10} * Target\ Tobin's\ Q\\
&+ Year\ dummies \qquad (1)
\end{aligned}
$$

In the above model, *CWE* is the value-weighted abnormal return to the acquirer and target firms. Δ*Buyer Power* is the proxy for the increase in buyer power with respect to the most important common supplier industry. *Acquirer FCF* (*Target FCF*) is the acquirer (target) cash flow, *Acquirer FCF * Tobin's Q dummy* is the interaction between the acquirer cash flow and a dummy variable that equals one if acquirer's Tobin's Q is less than one, and zero otherwise, and *Target Tobin's Q* is the target Tobin's Q. *Hostile Deal* is an indicator variable set to 1 for deals

coded as hostile by SDC Platinum. *All Cash Deal* is an indicator variable set to 1 for deals that were financed entirely with cash, and 0 for deals that were financed with stock or a combination of cash and stock. *Ln(Acquirer Size)* and *Ln(Target Size)* are the natural logarithm of market value of equity for the acquirer and target firm, respectively. Finally, *Relative Size* is the relative size of the target to acquirer market value of equity.

As explained earlier, for each conglomerate acquisition, we identify the supplier industry that has the largest increase in downstream buyer power, i.e., the main common supplier industry. Our main independent variable of interest is Δ*Buyer Power*. If conglomerate acquisitions lead to increases in buyer power with respect to the main common supplier industry supplying to the acquirer and target industry, then input prices will go down after the acquisition, and consequently there will be greater value creation for the merging firms. Accordingly, we expect a positive relation between Δ*Buyer Power* and *CWE*.

To investigate whether agency problems in acquirers lead to value destruction in conglomerate acquisitions, we include as control variables *Acquirer FCF* and an interaction between *Acquirer FCF* and a dummy variable that equals one if acquirer's Tobin's Q is less than one, and zero otherwise (*Acquirer FCF * Tobin's Q dummy*). This approach is consistent with Lang, Stulz, and Walkling (1991). Under the agency cost of free cash flow hypothesis (Jensen, 1986), cash rich acquirers with low Tobin's Q are more likely to engage in value-destroying acquisitions. Accordingly, we expect a negative sign on *Acquirer FCF * Tobin's Q dummy* as the higher the cash flows with a low Q acquirer, the greater is the extent of value destruction. Further, as in Lang, Stulz, and Walkling (1991), we include the target Tobin's Q as another independent variable (*Target Tobin's Q*). We expect a negative sign on it as targets with low Tobin's Q have poor quality of current management, and, hence, the higher will be the potential

gains from a change in control. We also control for the source of financing (*All Cash Deal*) because financing even partly through an exchange of stock can signal that the bidder's stock is overvalued and, consequently, we expect the sign on *All Cash Deal* to be positive.

We report the results for the determinants of the combined wealth effect to the merging firms in Table 6. In Models 1 and 2, *CWE* is measure over the (-5, +5) event window, while in Models 3 and 4, *CWE* is measured over the (-10, +10) window. Consistent with the buyer power hypothesis, we find a positive and significant relationship between our proxy for increase in buyer power, Δ*Buyer Power* and the combined value creation in the acquisition in all four models. Specifically, the coefficient associated with Δ*Buyer Power* is 212.508, 212.515, 262.221, and 258.488 in Model 1, 2, 3, and 4, respectively, and is significantly positive at the 1% level in all four models.[18] In terms of economic significance, a one standard deviation increase in Δ*Buyer Power* results in *CWE* increasing by 0.7459%, 0.7459%, 0.9204%, and 0.9073% based on the coefficient on Δ*Buyer Power* in Models 1, 2, 3, and 4, respectively. These numbers translate into abnormal dollar wealth gains of approximately between $115 – 142 million. Thus, this result is consistent with the notion that the greater the increase in buyer power of the merging firms vis-à-vis their main common supplier industry firms, the higher is the value created in the deal.

The coefficient associated with *Acquirer FCF * Tobin's Q dummy* is insignificant in all four estimated models, thereby suggesting that these acquisitions are not, on average, motivated by agency problems. We find that the coefficient associated with *All Cash Deal* is positive in all the four estimated models, and significantly different from zero at the 1% level in Models 1 and 2. These results are consistent with those reported in the extant literature (e.g., Andrade,

[18] We replicate these results using *CWE* computed over the shorter (-1, +1) and (-2, +2) windows as the dependent variables and find that the coefficient on Δ*Buyer Power* is significantly positive at the 1% level in both cases.

Mitchell, and Stafford, 2001). Further, the coefficient associated with *Hostile Deal* is positive in all four models, but is only statistically significant at the 5% level in Models 3 and 4. We find that the coefficient associated with *Relative Size* is significantly positive at the 1% level in all four models. The fact that the average *CWE* is positive (Table 5, Panel A) and *CWE* is increasing in relative size indicates that the average conglomerate acquisition in our sample is motivated by synergistic reasons.[19] Finally, we find a weak negative relation between *Target Tobin's Q* and *CWE* (significant at the 10% level in Model 4). This result is consistent with the notion that the potential for improvement in the target's performance is higher and, as a result the wealth created in the deal will be greater, when the target is not well-managed, i.e., its Tobin's Q is smaller.

While the documented positive relation between *CWE* and Δ*Buyer Power* is consistent with both versions of the buyer power hypothesis, it is also consistent with a purchasing/selling efficiency argument. Specifically, we can obtain the same relation if: (i) there are economies of scale in the procurement of inputs after the acquisition because the merging firms can coordinate their purchases of the inputs and/or (ii) there are economies of scale for the common suppliers because they are selling to a larger customer and they pass on some of these gains to the merging firms in the form of price concessions. In contrast to the buyer power hypothesis, this purchasing/selling efficiency argument will predict a zero or positive relation between *Supplier CAR* and Δ*Buyer Power*. We also examine this alternative explanation in the next sub-section.

3.5. Determinants of the wealth effects to firms in common supplier industries

We next investigate the determinants of the wealth effects of the conglomerate acquisition on the firms in the main common supplier industry (the supplier industry where the increase in buyer power in a particular conglomerate acquisition was the highest). Specifically,

[19] See Mulherin and Boone (2000) for a similar interpretation in their study of acquisitions and divestitures. Note that their sample of acquisitions includes horizontal, vertical, and conglomerate transactions.

we propose the following weighted least squares model given by Equation (2) to examine the determinants of *Supplier CAR*. The weights used are the inverse of the standard deviation of the market model residuals.

$$\begin{aligned} Supplier\ CAR\ = \beta_0 + \beta_1 * \Delta Buyer\ Power + \beta_2 * CWE + \beta_3 * Hostile\ Deal + \beta_4 * All\ Cash\ Deal \\ + \beta_5 * Relative\ size + \beta_6 * Ln\ (Acquirer\ size) + \beta_7 * Ln\ (Target\ size) + \beta_8 \\ * Target\ FCF + \beta_9 * Target\ Tobin's\ Q \\ + Year\ dummies \end{aligned} \quad (2)$$

If the combined firm can exert greater buyer power over firms in their main common supplier industry, then we should observe a negative relation between *Supplier CAR* and Δ*Buyer Power*. On the other hand, there can be greater economies of scale for these supplier firms in selling to the combined (and larger) firm. If that is indeed the case, then we should observe a zero (positive) relation between *Supplier CAR* and Δ*Buyer Power* depending on whether supplier firms pass on all (some) of the selling efficiency gains to the combined firm. Notice that we include *CWE* in the estimated models. A positive relation between *Supplier CAR* and *CWE* will imply that if there are greater synergies created in the deal, then the firms in the main supplier industry will be better off. For example, in a product extension conglomerate acquisition, the combined firm can possibly offer a more balanced product line and, as a result, consumers may purchase more of each product. In that case, the supplier firms will be better off because more inputs will be sourced from them.

The results are reported in Table 7. The dependent variable is *Supplier CAR* measured over the (-5, +5) window in Models 1 and 2 and measured over the (10, +10) window in Models 3 and 4. Due to limitations in matching IO industries to Compustat and CRSP data, we are able to calculate *Supplier CAR* for 585 out of 785 conglomerate deals. We find that the coefficient on Δ*Buyer Power* is -86.471, -88.951, -140.063, and -142.709 in Model 1, 2, 3, and 4, respectively,

and is significant at least at the 5% level in all four estimated models.[20] In terms of economic significance, a one standard deviation increase in Δ*Buyer Power* results in *Supplier CAR decreasing* by 0.3035%, 0.3122%, 0.4916%, and 0.5001% based on the coefficient on Δ*Buyer Power* in Model 1, 2, 3, and 4, respectively. The significant positive relation between *CWE* and Δ*Buyer Power* as shown earlier in Table 6 in conjunction with the significant negative relation between *Supplier CAR* and Δ*Buyer Power* provide consistent support for the buyer power hypothesis in the context of conglomerate acquisitions. This result is, however, inconsistent with the purchasing/selling efficiency argument.

The coefficient associated with *CWE* is significantly positive at the 1% level in all four estimated models in Table 7 – thereby indicating the greater value creation in a conglomerate deal (unless it comes from buyer power) results in larger and positive spillover effects for firms belonging to the main common supplier industry. Hoberg and Phillips (2010a) find that there are substantial asset complementarities even in conglomerate deals, which lead to significant gains to the merging firms through the creation of new products that enhance product differentiation. Thus, it appears that synergies in conglomerate deals, some of which can arise due to asset complementarities, have positive spillover effects for the main common supplier industry. In untabulated results, we find that the relation between *Supplier CAR* and Δ*Buyer Power* continues to be significantly negative when we do not include *CWE* in the regression models. Thus, our conclusions that buyer power exists in conglomerate acquisitions remains unchanged without the inclusion of *CWE* in our estimated regressions.

[20]As noted earlier in footnote 16, the sample size is lower because of the unavailability of financial information for IO code 550000. In robustness tests, we replace this supplier industry with the supplier industry which has the next highest Δ*Buyer Power*. Consequently, the sample size increases to 746. Consistent with the results reported above, the coefficient associated with Δ*Buyer Power* is significantly negative at the 5% level for both event windows.

3.6. Determinants of the wealth effects to acquirer rival firms

To examine the wealth effects of announcements of conglomerate acquisitions on the industry-rival firms of the acquirers, we estimate the following weighted least squares regression with the *Rival CAR* as the dependent variable. The weights used are the inverse of the standard deviation of the market model residuals.

$$\begin{aligned} Rival\ CAR\ = \beta_0 + \beta_1 * \Delta Buyer\ Power + \beta_2 * CWE\ + \beta_3 * Hostile\ Deal + \beta_4 * All\ Cash\ Deal \\ + \beta_5 * Relative\ size + \beta_6 * Ln\ (Acquirer\ size) + \beta_7 * Ln\ (Target\ size) + \beta_8 \\ * Target\ FCF + \beta_9 * Target\ Tobin's\ Q \\ + Year\ dummies \end{aligned} \quad (3)$$

The specification is identical to that used in our examination of the determinants of *Supplier CAR* with the only exception being that the dependent variable here is *Rival CAR*. The predicted effect of Δ*Buyer Power* on *Rival CAR* is nuanced. As highlighted in Table 1, if acquirer industry rival firms cannot negotiate similar price concessions, the greater buyer power of the integrated firm will place them at a competitive disadvantage. We should then observe a significant negative relation between *Rival CAR* and Δ*Buyer Power*. On the other hand, if a greater increase in buyer power due to the conglomerate acquisition in conjunction with more coordination between the integrated firm and its rivals due to enhanced multimarket contact with rivals results in monopsony level industry output and lower input prices, then we should observe a significant positive relation between *Rival CAR* and Δ*Buyer Power*.

The results are reported in Table 8. We estimate four regression models. In the first two models, *Rival CAR* is estimated over the (-5, +5) window, whereas in the second two models, it is estimated over the (-10, +10) window. We find that the coefficient on Δ*Buyer Power* is -81.522, -79.462, -122.704, and –122.652 in Model 1, 2, 3, and 4, respectively, and is significant at least at the 5% level in all four estimated models. In terms of economic significance, a one standard deviation increase in Δ*Buyer Power* results in *Rival CAR decreasing* by 0.2861%,

0.2789%, 0.4307%, and 0.4305% based on the coefficient on Δ*Buyer Power* in Model 1, 2, 3, and 4, respectively. Thus, it appears that the increase in buyer power places the acquirer's industry-rival firms at a competitive disadvantage and, therefore, does not support the monopsonistic collusion version of the buyer power hypothesis. Note that the relation between *Rival CAR* and *CWE* is significantly positive at the 1% level in all four models, thereby implying that there is other positive information also being released on announcement of the acquisition that can be gainfully exploited by rival firms too.

In summary, we find that an increase in buyer power generates value for the merging firms, and that this value creation comes at the expenses of suppliers and industry-rival firms. Taken together, these results support the pure monopsony power version of the buyer power hypothesis.

3.7. Is Δ Buyer Power picking up efficiency gains due to complementary assets?

A possible concern is that unobserved firm characteristics may be driving both our buyer power measure and the wealth effects in conglomerate acquisitions. It is possible that merging firms that source inputs from overlapping supplier industries, i.e., have a higher value for Δ*Buyer Power*, are more likely to have common patent citations, and also a higher degree of industry similarity and asset complementarities. As such, these deals may take place because of technological synergies due to R&D or patents (Bena and Li, 2013) or from securing gains from the development of new products (Hoberg and Phillips, 2010a), and conceivably have little to do with an increase in buyer power. Thus, a possible alternative explanation for our wealth effects results is that acquisitions in which our change in buyer power measure is higher result in the combined firms becoming more efficient due to higher degree of industry similarity or asset complementarities. The increased efficiency of the merged firm will reduce the demand for

inputs and drive down supplier prices. The falling input prices will be beneficial for rivals but those gains may be offset by increased competitiveness of the merging firms.

We address this issue by dividing our full sample of conglomerate acquisitions into sub-samples based on whether there are or are not any asset complementarities between the merging firms. Thus, if the above line of reasoning is correct, then the buyer power effects documented earlier should *only* be observed in the sub-sample of deals with high asset complementarities. We use two different approaches to identify complementary assets. First, we view the acquirer and the target as having complementary assets if there is some technological overlap between them. We are guided by the technological overlap measures in Bena and Li (2013) to determine whether the acquirer and target have complementary assets. Specifically, we define a dummy variable, *Dum_Tech_Overlap* that takes the value of one if either the acquirer cites the target's patents, or the target cites the acquirer's patents, or the acquirer's and target's patents both cite the same patents over the award years *t -5* to *t-1*, and equals zero otherwise. Second, we deem the merging firms to have complementary assets if they have the same text-based network industry classification (*TNIC*) as defined by Hoberg and Phillips (2013).[21] Hoberg and Phillips (2013) show that this classification scheme captures relatedness/asset complementarities between firms and the ability of firms to develop differentiated products. We, thus, define a dummy variable, *DUM_TNIC* that takes the value of one if both the acquirer and the target have the same *TNIC*, and equals zero otherwise. Note that the sample size is appreciably smaller in these tests because data on *TNIC* is only available over the period 1996 – 2008.

[21] This industry classification method is based on firm pairwise similarity scores obtained from textual analysis of product descriptions in 10K reports. See Hoberg and Phillips (2013) for a detailed description of this classification scheme.

The results from this analysis are reported in Table 9. The dependent variable is *CWE (-5, +5)*, *Supplier CAR (-5, +5)*, and *Rival CAR (-5, +5)* in Panels A, B, and C, respectively.[22] In Panels A, B, and C, the regression specifications are the same as those in Tables 6, 7, and 8, respectively. We do not report the coefficients on the control variables for ease of presentation. In each panel, we estimate two sets of regressions based on whether the sub-samples are created using *Dum_Tech_Overlap* (Models 1 and 2) or *Dum_TNIC* (Models 3 and 4). In each pair of regressions, the first one reports coefficients for the sub-sample of deals without any asset complementarities, while the second one reports the coefficients for the sub-sample of deals where there are asset complementarities.

In Panel A, where the dependent variable is *CWE*, the coefficient associated with Δ*Buyer Power* is significantly positive at the 1% level in the sub-samples of deals with no asset complementarities (Models 1 and 3). In contrast, in the sub-samples of deals with asset complementarities (Models 2 and 4), the coefficient associated with Δ*Buyer Power* is insignificantly different from zero. In Panel B, where the dependent variable is *Supplier CAR*, the coefficient associated with Δ*Buyer Power* is significantly negative at the 5% level in Model 1 and at the 10% level in Model 3 (the sub-samples of deals with no asset complementarities). The coefficient associated with Δ*Buyer Power* is insignificantly different from zero in the sub-samples of deals with technological overlap (Model 2), but significantly negative in the sub-sample of deals in which the merging firms have the same *TNIC* (Model 4). Finally, in Panel C, we find that the coefficient on Δ*Buyer Power* is significantly negative at the 1% level in Models 1 and at the 10% level in Model 3 (no complementarities sub-samples), while it is insignificantly different from zero in Models 2 and 4 (asset complementarities sub-samples). The

[22] Our results are similar when we use the (-10, +10) event window to measure these wealth events. We do not report these results for brevity.

fact that the Δ*Buyer Power* is statistically significant in the low asset complementarity sub-samples in all three panels suggests that the documented findings in Tables 6, 7, and 8 are not spurious correlations arising due to asset complementarities, but are indeed due to buyer power effects.

3.8. Buyer power or cost efficiencies in the face of negative demand shocks to merging firms' industries

Another alternative explanation for our results is that conglomerate acquisitions are a response to the acquirer industry facing negative demand shocks. Specifically, if the market's outlook for the acquirer was negative due to the impact of a negative demand shock to its industry, then merging firms will get a positive response if the announcement of the merger indicates that these firms have figured out how to gain cost efficiencies vis-à-vis the common supplier industries. Acquirer rival firms unable to gain from these cost efficiencies lose in the face of the strengthened competitor. Further, the common supplier industries are worse off due to reduced demand from the downstream industry because of the negative demand shock. Note that this alternative explanation for our results is attributable to cost efficiencies and decreased demand but is unrelated to buyer power.

To examine this alternative explanation, we first investigate whether the acquirer firms tend to operate in industries which are expected to experience negative demand shocks. We define a negative demand shock as a decline of 10% or more in industry median sales in any of the three years after the merger.[23] As a benchmark, we find that 13.1% of four-digit SIC code industry-years experience a negative demand shock in the full Compustat universe. In our

[23] We also repeat these tests by defining a negative demand shock as: (i) a decline of 10% or more in industry median sales in any of the three years before the merger and (ii) a decline of 10% or more in industry median Tobin's q in the year before the announcement of the acquisition. Our results are robust to these alternative definitions of negative demand shocks.

sample, 9.8% of acquirer industries experience a negative demand shock. Thus, the acquirer firms in our sample do not appear to cluster in industries with negative demand shocks.

To investigate this issue further, we re-estimate the regressions reported in Table 6 (*CWE*), Table 7 (*Supplier CAR*), and Table 8 (*Rival CAR*) for a sub-sample of conglomerate acquisitions where the acquirer industry does not face a negative demand shock. Note that the negative demand shock explanation should not be pertinent for this sub-sample of deals. We find evidence consistent with what is reported in earlier tables – a positive relation between *CWE* and Δ*Buyer Power*, a negative relation between *Supplier CAR* and Δ*Buyer Power,* and a negative relation between *Rival CAR* and Δ*Buyer Power*.[24] We, thus, conclude that our results are due to buyer power effects and unlikely to be driven by negative demand shocks to the acquiring firm industries. We do not tabulate these results for brevity.

3.9. Buyer power effects based on main common supplier industry selling concentration

The determinants of wealth effects in conglomerate acquisitions documented earlier should be contingent not only on buyer power, but also supplier power. Specifically, we expect to see a dampened effect of conglomerate mergers on buying power if the main common supplier industry is sufficiently diversified, i.e., it sells to a number of customer industries, and vice-versa. To test this proposition, we again create sub-samples based on a measure of main common supplier industry selling concentration. Specifically, we define a variable, *Supplier_VRC_HHI* that represents the main common supplier industry *C*'s selling concentration and is computed as $\sum_{j=1}^{N} V_{j,C}^2$, where $V_{j,C}$ represents the proportion of main common supplier industry *C*'s output sold to industry *j* and *N* is the number of I-O industries in the I-O Table. A higher value for *Supplier_VRC_HHI* indicates that the supplier industry sells to a few customer

[24] In alternative regression specifications, we interact Δ*Buyer Power* with a negative demand shock dummy. The interaction term is consistently insignificant, thereby suggesting that our results are not driven by the negative shock sub-sample.

industries, and vice-versa. We divide our full sample of deals into two groups based on whether *Supplier_VRC_HHI* is higher or lower than its median value. We expect that the buyer power effects documented earlier should be stronger in the high *Supplier_VRC_HHI* sub-sample, i.e., deals where the common supplier industry sells it output to fewer customer industries.

The results are reported in Table 10. The dependent variable is *CWE*, *Supplier CAR*, and *Rival CAR* in Panels A, B, and C, respectively. In each panel, we report two sets of regressions – one for wealth effects computed over the (-5, +5) window and the other for the (-10, +10) window. In each set of regressions, the first (second) is for the sub-sample of deals in which *Supplier_VRC_HHI* is above (below) its median value. The key independent variable in all these regressions is Δ*Buyer Power*. Again, we do not report the coefficients associated with the control variables for brevity.

In Panel A, we find that the coefficient on Δ*Buyer Power* is 353.98 (significant at the 1% level) for the sub-sample where the main common supplier industry selling concentration is above its median value (Model 1), and is 106.23 (insignificantly different from zero) in the sub-sample where the main common supplier industry selling concentration is below its median value (Model 2). Thus, the relation between *CWE (-5, +5)* with Δ*Buyer Power* is stronger if the main common supplier industry is dependent on fewer customer industries for its sales. We observe a similar pattern when the dependent variable is *CWE (-10, +10)*. In Panel B, the relation between *Supplier CAR* and Δ*Buyer Power* for both event windows is significantly negative (at least at the 5% level) only in the sub-sample where *Supplier_VRC_HHI* is above its median value, and is insignificantly different from zero in the sub-sample where *Supplier_VRC_HHI* is below its median value.[25] In Panel C, the relation between *Rival CAR* and

[25] We estimate these regressions based on the median level of *Supplier_VRC_HHI* for deals where *Supplier CAR* is not missing. The results remain qualitatively similar.

Δ*Buyer Power* for both event windows is significantly negative (at least at the 5% level) only in the sub-sample where *Supplier_VRC_HHI* is above its median value, and is insignificant in the sub-sample where *Supplier_VRC_HHI* is below its median value. Thus, as expected, we find that the buyer power effects are mainly observed in the sub-sample of deals where supplier firms in the main common supplier industry depend on a few customer industries for selling their outputs.

3.10. Robustness to size-adjusted measure of change in buyer power

Our primary measure of the change in buyer power (Δ*Buyer Power*) is based solely on the product of the proportion of inputs from a supplier industry being sourced to the acquirer and target industries. This measure, however, does not account for the size of the acquirer and target firm. Arguably, the change in buyer power measure should depend not only on the degree of vertical connections at the industry level, but also on the size of the merging firms too. To address for this concern, we construct the variable, Δ*Buyer Power (size-adjusted)* as the natural logarithm of ($V_{C,A}$*Acquirer sales*$V_{C,T}$*Target sales), where $V_{C,A}$ ($V_{C,T}$) is the proportion of acquirer (target) industry output that was sourced through the main common supplier industry.[26] We then examine whether our wealth effect tests are robust to this size-adjusted measure of change in buyer power.

The results from this analysis are presented in Table 11. The dependent variable is *CWE* in Models 1 and 2, *Supplier CAR* in Models 3 and 4, and *Rival CAR* in Model 5 and 6.For each dependent variable, the event window is (-5, +5) in the first model and (-10, +10) in the second model. We find a significantly positive relation between *CWE* and Δ*Buyer Power (size-adjusted)* for both windows. For example, the coefficient on Δ*Buyer Power (size-adjusted)* is 0.4395

[26] Note that this measure is the same as the natural logarithm of (Δ*Buyer Power*Acquirer sales*Target sales)*. It is also *approximately* the natural logarithm of (Dollar amount of inputs purchased by the bidder from the main common supplier industry*Dollar amount of inputs purchased by the target from the main common supplier industry).

(0.4312) over the event window (-5, +5) ((-10, +10)) and is significant at the 1% (5%) level. This is consistent with our prediction that the greater the change in buyer power, the value created for shareholders of the merging firms should be higher. Again, as predicted by the buyer power hypothesis, we find a significant negative relation between *Supplier CAR* and Δ*Buyer Power (size-adjusted)*. Specifically, the coefficient is -0.1250 (significant at the 10% level) for the (-5, +5) window and is -0.2295 (significant at the 5% level) for the (-10, +10) window. Finally, the relation between *Rival CAR* and Δ*Buyer Power (size-adjusted)* is negative for both windows, but is only statistically significant at the 5% level for the (-10, +10) window, weakly indicating that the increase in the merging firms buyer power places the acquirer's rival firms at a competitive disadvantage. Overall, the above results with this new change in buyer power measure that explicitly accounts for the size of the acquirer and the target are in line with those documented earlier using Δ*Buyer Power*.[27]

4. Changes in supplier industry prices around conglomerate acquisitions

We follow Bhattacharyya and Nain (2011) to test for the effect of downstream conglomerate acquisitions on supplier prices using the *Producer Price Index* (*PPI*) constructed by the *Bureau of Labor and Statistics* (*BLS*). Under the buyer power hypothesis, the main common supplier industry prices should drop around the conglomerate acquisition. According to the *BLS*, the *PPI* reflects price movements for the net output of producers at the industry level. Monthly *PPI* data are adjusted for inflation by the *Gross Domestic Product* deflator to obtain the *Real PPI* (*RPPI*). Data at the four-digit SIC code level are matched to 1987 and 1992 IO industries and data at the six-digit NAICS level are matched to 1997 and 2002 IO industries. In a few cases, three-digit SIC code level data and four-digit NAICS level data are matched to IO

[27] We obtain similar results if we use cost of goods sold instead of sales as the measure of firm size in computing Δ*Buyer Power (size-adjusted)*.

industries when finer data cannot be matched. When more than one SIC or NAICS code matches an IO industry, the *RPPI* data are averaged within the IO industry. The natural logarithm transformation of monthly *RPPI* is used to construct supplier price variables in our tests.

For each supplier industry, we calculate the average *Ln* (*RPPI*) over the 36 months before the announcement of the downstream acquisition, over the 36 months after the announcement of the acquisition, as well as the difference between these two variables. A minimum of 18 months of data is required for the pre- and post-average *Ln* (*RPPI*) calculation. The three months centered on the month of announcement of the acquisition are excluded from this calculation. We repeat this analysis over the 24 months and 12 months around the acquisition announcement.

As explained earlier, for every acquisition we identify the supplier industry that has the largest change in downstream buyer power. Our empirical strategy compares changes in output prices of common supplier industries that experience the largest increase in buyer power to changes in output prices of common supplier industries that had substantially smaller changes in buyer power. This difference-in-differences approach allows us to test whether the prices of common suppliers fall by more if the change in buyer power is larger. The control group comprises of common supplier industries that had the 8^{th}, 9^{th}, or 10^{th} largest increase in buyer power.[28] In robustness tests, we also use a control group comprised of the ten common supplier industries with the lowest changes in buyer power. The median value for the change in buyer power in this control group is zero. Our results are generally robust to the choice of this alternative control group.

Data are available for 328 supplier industries that comprise the group of main common supplier industries, i.e., common supplier industries that experienced the largest increase in buyer

[28] Note that the increase in buyer power for the common supplier industries with the 8^{th}, 9^{th}, and 10^{th} largest increase in buyer power is 0.00006, 0.00005, and 0.00004, respectively. These values are all very small and close to zero.

power. We identify at least one control industry that experiences a smaller change in buyer power for each the 328 main common supplier industries. A total of 537 control industries are identified. The results from our univariate analysis are reported in Table 12. The event window is (-36, +36) months around the acquisition announcement in Panel A. It shows that supplier industry prices fall significantly after an acquisition for all 865 common supplier industries in the sample. However, the decline is significantly larger for common supplier industries that have the greatest increase in buyer power (-0.076), i.e., the main common supplier industry, than for industries with a smaller change in buyer power (-0.021), and this difference-in-differences (-0.055) is significant at the 1% level. In Panel B, we use a (-24, +24) month window, and we observe that prices fall significantly more for the main common supplier industry (-0.053) than for the control group of common supplier industries (-0.021), with the difference-in-differences significant at the 1% level. A similar pattern emerges in Panel C for the (-12, +12) month window. However, while the decline in prices for the main common supplier industry (-0.032) is larger than that for other common supplier industries (-0.016), the difference is not significant.

We use a multivariate setting to control for changes to input prices or demand shocks in the economy that are likely to affect supplier prices. The dependent variable in the regressions in Table 13 is $\Delta Ln(RPPI)$, which is the average $Ln(RPPI)$ over the 36 months after the acquisition announcement less the average $Ln(RPPI)$ over the 36 months before the acquisition announcement. The key independent variable is a dummy variable, *Main Common Supplier Dummy*, which takes a value of one if the supplier industry had the largest increase in buyer power, and zero if the supplier industry had the 8^{th}, 9^{th}, or 10^{th} largest increase in buyer power. If output prices of supplier industries that experienced a greater increase in buyer power fall more

than output prices of industries that had substantially smaller changes in buyer power, then the coefficient on *Main Common Supplier Dummy* will be negative and significant.

The control variables in our tests are constructed in the same manner as in Bhattacharyya and Nain (2011). Each control variable is calculated as the average value over the 36 months after the acquisition announcement less the average value over the 36 months before the acquisition announcement, in a manner similar to the calculation of the dependent variable. For each supplier industry, we identify the industries that provide the largest fraction of inputs using the IO tables. *Input Price* is the change in *Ln*(*RPPI*) for each of these input industries, measured over the same time period as the dependent variable.[29] We include one input industry in the regression (in untabulated tests we add a second input industry and the results are similar, although the sample size becomes substantially smaller). *IO Industry Wage* is the change in monthly natural logarithm of wage levels (using *BLS* data) for each IO industry. *Aggregate Wage* is the change in monthly natural logarithm of wage levels using aggregate wage data from *BLS*. When IO industry level wage data is not available (less than 15% of observations), we use the aggregate wage level data. To control for economy wide changes, we download the *Industrial Production Index* from the Board of Governors of the Federal Reserve System website. *Total Production Index* is the change in *Ln* (*Industrial Production Index*) around the acquisition announcement.

The results in Table 13 show that *Main Common Supplier Dummy* has a coefficient of -0.040 and is significant at the 1% level (t-stat = -6.153). The result is similar when using *Aggregate Wage* rather than *IO Industry Wage*. Consistent with the univariate results, the

[29] The inability to obtain input prices for our common supplier industries results in a decrease in the group of main common supplier industries from 328 to 240 observations and the control group of common supplier industries from 537 to 400 observations in our multivariate regressions. Our inferences do not change when we estimate the regressions reported in Table 13 without controlling for input prices.

evidence indicates that output prices fall by more for suppliers that faced the largest increase in buyer power than suppliers that faced substantially smaller increases in buyer power.[30] In untabulated results, we repeat these tests for the (-24, +24) month and (-12, +12) month event windows. For the 24 month window, the coefficient on *Main Common Supplier Dummy* is -0.027 and is statistically significant at the 1% level, while for the 12 month window, the coefficient on *Main Common Supplier Dummy* is -0.009 and is insignificantly different from zero (t-stat = -1.177). These results mirror the univariate results reported in Table 12. A possible explanation for the stronger longer term effects is that only the merging firms and perhaps a few of their rivals get the price discounts in the months after the acquisition, but that there is continued downward pressure on supplier output prices as "reference" pricing starts to more generally take effect. Thus, the cumulative price decline over the longer window will be greater than over the shorter windows.

To test whether our results are spurious or not, we conduct a falsification exercise where we recalculate the change in *Ln*(*RPPI*) using random acquisition announcement dates rather than actual acquisition announcement dates. For each deal in the sample, we assign a random acquisition announcement date between January 1, 1986 and December 31, 2010. Then we calculate the change in *Ln*(*RPPI*) around the random acquisition announcement date. Each control variable is recalculated relative to the random acquisition announcement date as well. We re-estimate our regression and expect a statistically insignificant coefficient on *Main Common*

[30]A significant number of observations for the group of main common supplier industries, i.e., common supplier industries with the largest Δ*Buyer Power*, belong to wholesale and retail trade. This is attributable to the fact that the input-output classification system defines these categories very broadly (Fan and Lang, 2000; Acemoglu, Johnson, and Mitton, 2009). To investigate whether the inclusion of these supplier industries has a meaningful impact on our results, we conduct the following robustness tests: (i) analyze the sample of observations where the group of main common supplier industries is not wholesale and retail trade, (ii) analyze the sample of observations after replacing all observations where the group of main common supplier industries is wholesale and retail trade with the supplier industry with the second largest increase in Δ*Buyer Power*, and (iii) analyze the sample of observations where the main common supplier industries belong to wholesale and retail trade. In all three robustness tests, we find that the coefficient on the *Main Common Supplier Dummy* is significantly negative.

Supplier Dummy. We perform this exercise 100 times, each time drawing a new random date for every deal in the sample. The average coefficients, t-statistics, and number of observations are shown in Table 13. With 100 replications of the random date exercise, the average coefficient on *Main Common Supplier Dummy* is -0.003 and the average t-stat is -0.371. Thus, this randomization experiment suggests that there is no difference in the change in output prices between main common supplier industries and control industries around the random event dates.

To provide additional evidence that our difference-in-differences results are due to conglomerate acquisitions, we follow the approach in Gormley and Matsa (2011) to examine whether there is a trend of declining output prices prior to the acquisition that merely continues following the event. If there is such a trend, then we cannot with any confidence attribute the decrease in output prices detected in our difference-in-differences tests to the acquisition. To discern a trend, we estimate separate regressions with *ΔLn(RPPI)* as the dependent variable for each event year *t–3*, *t–2*, *t–1*, *t+1*, *t+2*, and *t+3* (around the acquisition quarter) against an indicator variable set to one for the group of main common supplier industries and zero for the common supplier industries that had the 8th, 9th, or 10th largest increase in buyer power. For this exercise, the variable *ΔLn(RPPI)* is defined as the difference between *Ln(RPPI)* at the beginning of the event year and *Ln(RPPI)* at the end of the event year. The point estimate from each event year regression for *ΔLn(RPPI)* is plotted in Figure 1. In this figure, we find that the growth in output prices increases for the main common supplier industries compared to the other common supplier industries (control group) from event year *t–3* to *t–1*. After the acquisition, however, the growth in output prices of the main common supplier industry group relative to control group experiences a sharp decline, increases slightly from event year *t+1* to *t+2*, and in a slightly more pronounced fashion from event year *t+2* to *t+3*. Overall, this figure illustrates that our results are

not just due to a continuation of a differential trend in output prices between the main common supplier industry group and the control group of supplier industries from before the conglomerate acquisition, and supports the contention that the results from our difference-in-differences approach are due to the conglomerate acquisition.

This experiment gives us confidence that the reduction in common supplier prices we documented earlier is in fact attributable to the conglomerate acquisition. Thus, it appears that downstream conglomerate acquisitions have a significant negative impact on common supplier prices when there is a large increase in buyer power.[31]

While the combined wealth gains to the merging firms and their industry rivals should clearly depend on what percentage of their inputs are obtained from firms in the common supplier industries, it makes sense to also examine the effect of buyer power for the common supplier industry that supplies the greatest proportion of its output to the acquirer and target industries, i.e., the main dependent common supplier industry. In this context, for each common supplier industry in a deal, we again compute two vertical relatedness coefficients – the proportion of the common supplier industry output that was sold to the acquirer industry ($V_{A,C}$) and likewise the proportion of the common supplier industry output that was sold to the target industry ($V_{T,C}$). We then define the increase in buyer power measure, Δ*Buyer Power*, as the product of the two vertical relatedness coefficients of the acquirer and target industry vis-à-vis the common supplier industry, $V_{A,C}$ x $V_{T,C}$. The common supplier industry with the largest value for Δ*Buyer Power* is the main common dependent supplier industry.

[31] To examine the possibility that concentrated supplier industries are more likely to charge non-competitive prices prior to the acquisition and, thus, will be most adversely affected by the increased buyer power from a conglomerate acquisition, we interact the *Main Common Supplier Dummy* with a *Concentration Dummy*. The *Concentration Dummy* takes the value one if the supplier industry concentration is above the median value, and zero otherwise. We use the Hoberg and Phillips (2010b) fitted HHI as the measure of industry concentration. In unreported results, we find the coefficient on the interaction term is significantly negative at the 5% level.

In untabulated results, we examine the impact of the conglomerate takeover on the output prices in the main common dependent supplier industry relative to the dependent common supplier industries that had the 8th, 9th, or 10th largest increase in buyer power. In both the univariate and multivariate analyses, we again find that the decline in output prices is larger for the common supplier industry that has the greatest increase in buyer power (main dependent common supplier industry) than for dependent common supplier industries with a smaller change in buyer power. Thus, we find evidence consistent with a decrease in industry output prices for the main common supplier industry regardless of whether we focus on an increase in buyer power from the perspective of the merging firm industries or their common supplier industries.

5. Changes in cost of goods sold-to-sales for merging firms

In this section, we examine the changes in the cost of goods sold for the acquirer and target firms in conglomerate acquisitions. We seek to provide additional corroborating evidence for the hypothesis that an increase in buyer power and the resultant decrease in input prices enables the combined firm to improve operating profits through a reduction in the cost of goods sold. We use cost of goods sold (Compustat item *COGS*) scaled by net sales (Compustat item *REVT*) as our measure. As a measure of pre-acquisition cost of goods sold, we use the sales-weighted ratio of cost of goods sold-to-sales of the acquirer and target for year *t-1*. For post-acquisition performance, we use the cost of goods sold-to-sales of the combined firm for year *t+1*. For each conglomerate acquisition, we identify a matching firm for the acquirer (target) based on the median firm in the three-digit SIC industry of the acquirer (target) firm. For each year in consideration, we find the ratio of cost of goods sold-to-sales of a pseudo-combined firm as the sales-weighted cost of goods sold-to-sales of the median firm in the acquirer and target industry, where the relative weights are the based on the sales of the acquirer and target firms for

year *t-1*. This pseudo-combined firm serves as the benchmark for us. We examine changes in benchmark-adjusted operating performance of the acquirer and target firms over the (*t-1, t+1*) window. This procedure lets us compute a difference-in-differences for the ratio of costs of goods sold-to-sales between the group of actual combined firms and the control group of pseudo-combined firms comprised of the median firm in the acquirer and target industry. We call this variable Δ*Adjusted COGS/Sales*. Note that in Tables 12 and 13, we documented a significant decline in output prices for the main common supplier industry relative to common supplier industries less likely to be affected by the acquisition, and that this effect gets stronger as the post-acquisition event window becomes longer. It is important to note that the control group of firms in the tests here are rival firms who are also likely to be beneficiaries of lower input prices. Thus, we are investigating whether the decline in cost of goods sold-to-sales in larger for the merging firms than for their industry rival firms.

Under the buyer power hypothesis, we expect that the decrease in cost of goods sold to revenues to be more acute for the group of actual combined firms than the group of pseudo-combined firms. Consistent with our earlier findings that the producer price index for the main common supplier industry falls subsequent to the acquisition, in untabulated results, we find that the mean value of Δ*COGS/Sales* for the combined acquirer and target firms is -0.0113 and for the pseudo-combined firms is -0.0033, and both are significantly negative at the 1% level. More importantly, we observe that the mean value of difference-in-differences for the ratio of cost of goods sold-to-sales (Δ*Adjusted COGS/Sales*) to be -0.0063 for the (*t-1*, *t+1*) window, where year *t* is the acquisition announcement year. This difference-in-differences is found to be statistically significant at the 5% level.[32] As such, this provides some preliminary evidence that cost of goods

[32] We find that over the (-2, +2) year window, the difference-in-differences is -0.0084, and is also statistically significant at the 1% level.

sold-to-sales decreases after the acquisition more for the merging firms than for the median firms in the acquirer and target industry who are not *direct* beneficiaries of lower input prices because of increases in buyer power. These results bolster our earlier findings that were based on announcement-period wealth effects and the change in the producer price index in the common supplier firm industries around conglomerate acquisitions.

In our cross-sectional regression analyses, we explore how our proxy for increase in buyer power is related to the change in cost of goods sold-to-sales from pre- to post-acquisition. In particular, the dependent variable is the difference-in-differences calculated as the change in cost of goods sold-to-sales to the merging firms less the change in the pseudo-combined firm's cost of goods sold-to-sales (Δ*Adjusted COGS/Sales*). Our main independent variable of interest is the increase in buyer power, Δ*Buyer Power*. Further, we include *Acquirer Tobin's Q, Target Tobin's Q, Relative Size, Ln(Acquirer size),* and *Ln(Target size)* as additional independent variables in all the estimated models.

Table 14 presents results for the determinants of changes in cost of goods sold-to-sales in conglomerate acquisitions. Consistent with the wealth effect and *PPI* findings, we find a negative and significant relation between the increase in buyer power, Δ*Buyer Power*, and difference-in-differences variable, Δ*Adjusted COGS/Sales* in Models 1 – 5. This result indicates that the larger the increase in buyer power and the resultant increase in bargaining power for the merging firms over the main common supplier industry, the greater is the decrease in cost of goods sold-to-sales for the merging firms relative to their rival firms.[33]

[33] We also conduct the same tests over the (*t-2, t+2*) year window. The coefficient on Δ*Buyer Power* is negative, but is statistically insignificant (t = -1.39) for the full specification (equivalent of Model 5 in Table 14). This result is not entirely unexpected because we are measuring the difference-in-differences relative to rival firms. These firms are also beneficiaries of lower input prices and the differential input prices between the merging firms and these rival firms will increasingly narrow as time elapses when reference pricing starts to kick in for them.

Thus, our battery of tests provides consistent support for the buyer power hypothesis in conglomerate acquisitions. Specifically, we find that gains to the merging firms are higher when the increase in buyer power is larger. The converse is true for firms in the main common supplier industry. Thus, the gains to the merging firms from an increase in buyer power are coming at the expense of firms in the main common supplier industry. In particular, the increase in buyer power has the effect of reducing the input prices for supplies sourced from the main common supplier industry and this shows up as a reduction in cost of goods sold-to-sales after the acquisition for the merging firms.

6. Robustness to alternative definitions of conglomerate acquisitions

In this section, we try to alleviate any concern that our results are partly attributable to the inclusion of potentially horizontal acquisitions in our sample and, therefore, our measure of input commonality is actually a proxy for the commonality between bidder and target operations arising from their industry relatedness. We attempt to achieve this goal by replicating our tests for samples of deals that are highly unlikely to contain horizontal acquisitions and, thus, are almost entirely comprised of pure conglomerate acquisitions. The results from these tests are reported in Table 15. In Panel A, we remove all deals from our full sample of 785 conglomerate acquisitions in which there is any overlap between the segments of the acquirer and target at the four-digit SIC level. This additional data restriction results in a reduced sample of 671 conglomerate acquisitions. In Panel B (C), we remove all deals in which there is a match between the primary SIC code of the acquirer and target at the three-digit (two-digit) SIC level. This additional data restriction results in a reduced sample of 662 (553) conglomerate acquisitions. Note that the existing literature largely identifies a deal as a horizontal acquisition if the acquirer and target operate in the same four-digit SIC industry. We are, thus, using broader

definitions of horizontal acquisitions and, as a consequence, much stricter definitions of conglomerate acquisitions in the tests reported in this section.

The structure of all three panels in Table 15 is the same. In Columns (1) and (2), we examine the relation between *CWE* and Δ*Buyer Power* for the event windows (-5, +5) and (-10, +10), respectively. In Columns (3) and (4), we examine the relation between *Supplier CAR* and Δ*Buyer Power* for the event windows (-5, +5) and (-10, +10), respectively. In Columns (5) and (6), we examine the relation between *Rival CAR* and Δ*Buyer Power* for the event windows (-5, +5) and (-10, +10), respectively. In Column (7), we examine the relation between Δ*Adjusted COGS/Sales* and Δ*Buyer Power*. Finally, in Column (8), we examine the relation between *ΔLn(RPPI*) and *Main Common Supplier Dummy*. The control variables are identical to those used in earlier tables. We do not report the coefficients on these variables for brevity.

In all three panels, we find a significantly positive relation between *CWE* and Δ*Buyer Power*, a significantly negative relation between *Supplier CAR* and Δ*Buyer Power*, a negative and generally significant relation between *Rival CAR* and Δ*Buyer Power*, a significantly negative relation between Δ*Adjusted COGS/Sales* and Δ*Buyer Power*, and a significantly negative relation between *ΔLn(RPPI*) and *Main Common Supplier Dummy*. These results are qualitatively similar to those reported for our full sample of 785 conglomerate acquisitions and, as such, are also consistent with the presence of buyer power in conglomerate acquisitions. Thus, these results allow us to conclude with greater confidence that buyer power effects are present in conglomerate acquisitions, and that our earlier full sample results are not just attributable to the possible inclusion of horizontal acquisitions.[34]

[34] In additional robustness tests, we remove all deals from our sample if the four-digit SIC code of either the acquirer or the target ends with a zero. The results from this analysis are similar to those reported for various sub-samples in this table and also to our full sample results.

7. Summary and conclusions

In this paper, we examine whether an increase in buyer power is a source of gains for merging firms in conglomerate acquisitions. There is a burgeoning literature in financial economics that finds evidence consistent with buyer power in horizontal acquisitions. In contrast, the possibility that conglomerate acquisitions can also result in increased buyer power has received no attention from financial economists, policy makers, or regulators. We contend that acquirer and target firms can also source their inputs from some common supplier industries in conglomerate deals. Thus, the combined firms after the acquisitions will have greater bargaining advantage over the common supplier industries. The resultant decrease in input prices will be a source of value creation for the merging firms, and consequently lead to a reduction in the value of the common suppliers due to lower input prices on account of increased bargaining power of the combined firms. We conduct our analysis by first identifying a sample of 785 conglomerate acquisitions over the period 1986 – 2010.

In our analysis, we propose a measure that captures the increase in buyer power in a conglomerate acquisition, and find that it is significantly positively related to the combined wealth effect of the merging firms and significantly negatively related to the wealth effect of supplier firms and acquirer rival firms around acquisition announcements. Using a difference-in-differences approach, we document a significant decrease in the industry producer price index for supplier industries that are most likely to be affected by the increased buyer power of the merging firms. Again using a difference-in-differences approach, we find that the decrease in cogs-to-sales is higher for merging firms relative to a pseudo-combined firm that attempts to mimic the merged firm when the increase in buyer power is greater. Finally, the negative relation between acquirer rival wealth effects and the increase in buyer power of the merging firms is

inconsistent with the idea that the buyer power effects documented in this paper are attributable to monopsonistic collusion. Overall, our battery of tests provides evidence consistent with the pure monopsony power version of buyer power in the context of conglomerate acquisitions.

Our paper should be of interest to financial economists, practitioners, policy makers and regulators in the following ways. First, the sources of gains in conglomerate acquisitions have not been well-researched and appear to be even more elusive than for horizontal and vertical acquisitions. We focus our attention on buyer power as one source of gain for shareholders of merging firms and find consistent support for the buyer power hypothesis. Second, our study complements the extant literature on buyer power in horizontal acquisitions and suggests that it can also be a driver of gains in a conglomerate context. Consistent with this literature, we also take advantage of a broader product markets perspective in making a consistent case for buyer power. Third, we derive measures that aim to proxy for the increase in buyer power in a conglomerate acquisition context and show that these measures have an impact on the wealth effect to the merging firms, main common supplier firms, acquirer rival firms, changes in input prices of the main common supplier industry, and changes in cost of goods sold-to-sales in a manner predicted by the buyer power hypothesis. In the process, we provide *direct* evidence of the existence of pure monopsony power in conglomerate acquisitions. Finally, our paper should be of interest to policy makers and regulators as it finds evidence that is inconsistent with monopsonistic collusion in conglomerate acquisitions.

Appendix. Variable Descriptions

Variable	Definition
Acquirer Size	Acquirer share price multiplied by shares outstanding, 15 days before announcement of the deal. Adjusted by Consumer Price Index.
Target Size	Target share price multiplied by shares outstanding, 15 days before announcement of the deal. Adjusted by Consumer Price Index.
Relative Size	*Target Size* / *Acquirer Size* Both variables defined above.
Combined Wealth Effect (CWE)	Value weighted cumulative abnormal return of the acquirer and target, weighted by *Acquirer Size* and *Target Size.*
Supplier CAR	CAR around announcement of the deal for the equal-weighted portfolio of firms in supplier's IO industry.
Rival CAR	CAR around announcement of the deal for the equal-weighted portfolio of firms in the acquirer's four digit SIC code.
Δ*Buyer Power*	Product of the two vertical coefficients of the main common supplier industry vis-à-vis the acquirer and target industry.
Δ*Buyer Power(size-adjusted)*	Natural logarithm of ($V_{C,A}$*Acquirer sales*$V_{C,T}$*Target sales), where $V_{C,A}$ ($V_{C,T}$) is the proportion of acquirer (target) industry output that was sourced through the main common supplier industry. This measure is the same as natural logarithm of (Δ*Buyer Power* *Acquirer sales*Target sales).
Acquirer or Target Total Assets	Total Assets (AT) adjusted by Consumer Price Index
Acquirer or Target FCF	Cash flow scaled by book value of assets (OIBDP-XINT-(TXT-TXDITC + TXDITC_lag)-DVP-DVC)/AT.
Acquirer or Target Tobin's Q	Market value of assets divided by book value of assets (AT+(CSHO*PRCC_F)-CEQ)/AT
Acquirer FCF x Tobin's Q dummy	Acquirer FCF * (Dummy that is 1 if Tobin's Q is greater than 1).
Hostile Deal	Dummy that equals 1 if SDC defines the acquirer's successful bid as hostile
All Cash Deal	Dummy that equals 1 if the value of cash divided by deal value is greater than/equal to 0.99.
RPPI	PPI deflated by GDP. This is a monthly index value for each IO industry.
Δ*Ln(RPPI)*	Natural logarithm of *RPPI* averaged over the 36 months after deal announcement subtract natural logarithm of RPPI averaged over the 36 months before deal announcement. The 3 months centered on the announcement are excluded from the calculation.
Input Price	Δ *Ln (RPPI*) for upstream industry of the supplier industry.
IO Industry Wage	Natural logarithm of IO industry wage averaged over the 36 months after deal announcement less natural logarithm of IO industry wage averaged over the 36 months before deal announcement. The 3 months centered on the announcement are excluded from the calculation. When IO industry wage is not available, the observation is filled in with Aggregate Wage.
Aggregate Wage	Natural logarithm of aggregate wage averaged over the 36 months

	after deal announcement less natural logarithm of aggregate wage averaged over the 36 months before deal announcement. The 3 months centered on the announcement are excluded from the calculation.
Total Production Index	Index (INDPRO_20120615) is from the Board of Governors of the Federal Reserve System, retrieved from the ALFRED database. Natural logarithm of index averaged over the 36 months after deal announcement less natural logarithm of index averaged over the 36 months before deal announcement. The 3 months centered on the announcement are excluded from the calculation.
Dum_Tech_Overlap	Dummy variable that takes the value of one if either the acquirer cites the target's patents, or the target cites the acquirer's patents, or the acquirer's and target's patents both cite the same patents over the award years *t -5* to *t-1*, and equals zero otherwise. Data is obtained from NBER's patent database.
Dum_TNIC	Dummy variable that takes the value of one if both the acquirer and the target have the same text-based network industry classification (*TNIC*), and is zero otherwise. See Hoberg and Phillips (2013) for a detailed description of this classification scheme.
Supplier_VRC_HHI	Represents the main common supplier industry *C*'s selling concentration and is computed as $\sum_{j=1}^{N} V_{j,C}^2$, where $V_{j,C}$ represents the proportion of main common supplier industry *C*'s output sold to industry *j* and *N* is the number of I-O industries in the I-O Table.
Δ*Adjusted COGS/Sales*	The change in cost of goods sold-to-sales to the merging firms less the change in the pseudo-combined firm's cost of goods sold-to-sales.

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Table 1. Summary of predictions under the pure monopsony power and monopsonistic collusion versions of the buyer power hypothesis

	Buyer Power Hypothesis	
	Pure Monopsony Power	Monopsonistic Collusion
Merging Firms	Combined purchasing power leads to lower input prices.	Coordination with rivals due to contacts in multiple markets leads to limited purchases and lower input prices.
	Δ*Buyer Power* is positively related to *CWE* and negatively related to the change in cost of goods sold-to-sales	Δ*Buyer Power* is positively related to *CWE* and negatively related to the change in cost of goods sold-to-sales
Supplier Firms	Combined purchasing power of downstream merging firms leads to lower output prices. Other downstream firms can receive lower prices as well due to reference price effects.	Coordination by downstream firms (acquiring firm and its rivals) leads to reduced output prices.
	Δ*Buyer Power* is negatively related to *Supplier CAR*.	Δ*Buyer Power* is negatively related to *Supplier CAR*.
	Output prices (*RPPI)* decline more when Δ*Buyer Power* is higher.	Output prices (*RPPI)* decline more when Δ*Buyer Power* is higher.
Rival Firms	Rival firms may benefit from lower supplier output prices due to reference price effects. Merging firms, however, are likely to obtain relatively lower input prices which will leave rivals at a competitive disadvantage.	Coordination between conglomerate firms meeting in multiple markets leads to monopsonistic level of purchases and lower input prices.
	Δ*Buyer Power* is negatively related to *Rival CAR*.	Δ*Buyer Power* is positively related to *Rival CAR*.

Table 2. Annual distribution of conglomerate acquisitions

Annual distribution of 785 conglomerate acquisitions announced between 1986 and 2010. Conglomerate acquisitions are defined as acquisitions where the acquirer and target do not share a four-digit SIC industry code and the vertical relatedness coefficient is less than 1%. Both the acquirer and target firm are public firms.

Year Announced	Frequency	Percent
1986	44	5.61
1987	37	4.71
1988	30	3.82
1989	28	3.57
1990	19	2.42
1991	11	1.40
1992	10	1.27
1993	12	1.53
1994	22	2.80
1995	42	5.35
1996	47	5.99
1997	47	5.99
1998	68	8.66
1999	65	8.28
2000	53	6.75
2001	38	4.84
2002	30	3.82
2003	24	3.06
2004	20	2.55
2005	24	3.06
2006	27	3.44
2007	29	3.69
2008	17	2.17
2009	18	2.29
2010	23	2.93
All years	785	100.00

Table 3. Summary statistics for acquirer and target firms

This table presents summary statistics for conglomerate acquisitions announced between 1986 and 2010. Conglomerate acquisitions are defined as acquisitions where the acquirer and target do not share a four digit SIC code and the vertical coefficient is less than 1%. Both the acquirer and target firm are public firms. Continuous variables are winsorized at the 1st and 99th percentiles. All dollar values are adjusted for inflation by the Consumer Price Index to represent 2005 dollars. Variables are defined in the Appendix.

Variable	N	Mean	Std. Dev.	p25	p50	p75
Acquirer Total Assets ($ m.)	785	9,529.72	20,949.17	432.46	2,073.30	7,461.78
Acquirer Size ($ m.)	785	14,785.35	34,209.88	510.33	2,775.96	10,208.90
Acquirer FCF	785	0.07	0.11	0.05	0.09	0.12
Acquirer Tobin's Q	785	2.24	1.46	1.34	1.78	2.61
Target Total Assets ($ m.)	785	616.13	1,486.82	56.15	146.44	430.69
Target Size ($ m.)	785	682.46	1,622.85	51.56	149.70	516.24
Target Tobin's Q	785	1.98	1.42	1.14	1.50	2.24
Target FCF	785	0.02	0.21	0.01	0.07	0.12
Relative Size	785	0.24	0.45	0.02	0.09	0.26
Hostile Deal	785	0.03	0.16	0.00	0.00	0.00
All Cash Deal	785	0.42	0.49	0.00	0.00	1.00
Δ*Buyer Power*	785	0.00317	0.00351	0.00105	0.00209	0.00372

Table 4. Industry distribution

This table presents the industry distribution of 785 conglomerate mergers announced between 1986 and 2010. Panel A (B) shows the number of deals and percent of deals for the five most common acquirer (target) industries. Panel C shows the common supplier industry, acquirer industry, and target industry for the five deals with the largest non-winsorized Δ*Buyer Power*. Acquirer and target industry are defined by four digit SIC codes. Supplier industry is defined by IO industries. Δ*Buyer Power* is the product of the two vertical relatedness coefficients of the common supplier industry vis-à-vis the acquirer and target industry.

Panel A: Top 5 (and ties) Acquirer Industries

Number of Deals	Pct. of Deals	Acquirer SIC Code	Industry Description
32	4%	2834	Pharmaceutical Preparations
26	3%	7372	Prepackaged Software
26	3%	7373	Computer Integrated Systems Design
18	2%	7374	Computer Processing and Data Preparation and Processing Services
15	2%	3845	Electromedical and Electrotherapeutic Apparatus
15	2%	7375	Information Retrieval Services

Panel B: Top 5 (and ties) Target Industries

Number of Deals	Pct. of Deals	Target SIC Code	Industry Description
52	7%	7372	Prepackaged Software
35	4%	3841	Surgical and Medical Instruments and Apparatus
34	4%	7373	Computer Integrated Systems Design
28	4%	3845	Electromedical and Electrotherapeutic Apparatus
22	3%	7375	Information Retrieval Services

Panel C: Top 5 Largest ΔBuyer Power- Acquirer, Target, and Main Common Supplier Industries

Δ*Buyer Power*	Acquirer IO Industry (IO Code)	Target IO Industry (IO Code)	Main Common Supplier IO Industry (IO Code)
0.033	Iron & ferroalloy ores, & misc. metal (050001)	Primary aluminum (380400)	Electric services, utilities (680100)
0.027	Manifold business forms printing (323116)	Commercial printing (32311A)	Paper & paperboard mills (3221A0)
0.026	Household audio & video equipment (560100)	Telephone & telegraph apparatus (560300)	Other electronic components (570300)
0.026	Concrete block & brick (361000)	Ready-mixed concrete (361200)	Cement, hydraulic (360100)
0.025	Automobile & light truck mfg. (336110)	Motor home mfg. (336213)	Motor vehicle parts mfg. (336300)

Table 5. Average announcement period wealth effects for combined firm, main supplier firms, and rival firms

This table presents mean announcement period wealth effects for the full sample of 785 conglomerate acquisitions as well as for two sub-groups based on whether the deal has an above or below median Δ*Buyer Power* value. Panel A, B, and C present Combined, Supplier, and Rival wealth effects respectively. *CWE* is the value weighted cumulative abnormal return of the acquirer and target, weighted by their market values 15 days before the deal announcement. *Supplier CAR* is the cumulative abnormal return around announcement of the deal for the equal weighted portfolio of firms in IO industry of main supplier. *Rival CAR* is the cumulative abnormal return around announcement of the deal for the equal-weighted portfolio of firms in same four-digit SIC code industry as the acquirer. Δ*Buyer Power* is the product of the two vertical coefficients of the main common supplier industry vis-à-vis the acquirer and target industry. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Combined wealth effect for merging firms (CWE)

N	Event window	Overall	N	Below Median Δ*Buyer Power*	N	Above Median Δ*Buyer Power*	Difference	Difference (t-stat)
785	(-5, +5)	1.612%	392	0.198%	393	3.023%	2.825%	3.9429***
784	(-10, +10)	1.223%	392	0.017%	392	2.429%	2.412%	2.6003***

Panel B: Common supplier wealth effects (*Supplier CAR*)

N	Event window	Overall	N	Below Median Δ*Buyer Power*	N	Above Median Δ*Buyer Power*	Difference	Difference (t-stat)
585	(-5, +5)	0.094%	298	0.253%	287	-0.070%	-0.323%	-1.1273
585	(-10, +10)	0.003%	298	0.415%	287	-0.425%	-0.840%	-1.9463*

Panel C: Rival wealth effects (*Rival CAR*)

N	Event window	Overall	N	Below Median Δ*Buyer Power*	N	Above Median Δ*Buyer Power*	Difference	Difference (t-stat)
755	(-5, +5)	0.044%	378	0.140%	377	-0.052%	-0.192%	-0.5662
755	(-10, +10)	0.017%	378	0.456%	377	-0.423%	-0.879%	-1.8259*

Table 6. Combined wealth effects and the change in buyer power

Weighted least squares regressions of combined wealth effects for 785 conglomerate acquisitions announced between 1986 and 2010. Weights are the inverse of the standard deviation of the market model residuals. *CWE* is the value weighted cumulative abnormal return of the acquirer and target, weighted by their market values 15 days before the deal announcement. Δ*Buyer Power* is the product of the two vertical coefficients of the main common supplier industry vis-à-vis the acquirer and target industry. Variables are defined in the Appendix. Each regression contains dummies for the year that the deal was announced. t-statistics are calculated from robust standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	CWE	*CWE*	*CWE*	*CWE*
Dependent variable	*(-5, +5)*	*(-5, +5)*	*(-10, +10)*	*(-10, +10)*
Δ*Buyer Power*	212.508***	212.515***	262.221***	258.488***
	(3.534)	(3.501)	(2.965)	(2.884)
Acquirer FCF	-9.044	-9.067	-1.759	-0.605
	(-0.740)	(-0.738)	(-0.092)	(-0.031)
Acquirer FCF x Tobin's Q dummy	14.506	15.554	0.807	1.225
	(1.146)	(1.228)	(0.041)	(0.061)
Hostile Deal	1.984	1.922	4.421**	4.262**
	(0.877)	(0.850)	(2.217)	(2.173)
All Cash Deal	1.641***	1.634***	0.875	0.956
	(2.892)	(2.796)	(1.306)	(1.388)
Relative Size	3.957***	4.001***	3.713***	3.622***
	(5.361)	(5.449)	(4.472)	(4.294)
Ln (Acquirer Size)	-0.740***	-0.669***	-0.466**	-0.427*
	(-4.242)	(-3.563)	(-2.127)	(-1.806)
Ln (Target Size)	0.166	0.207	0.032	0.185
	(0.767)	(0.845)	(0.124)	(0.587)
Target FCF		-0.039		-1.651
		(-0.024)		(-0.761)
Target Tobin's Q		-0.340		-0.471*
		(-1.447)		(-1.853)
Constant	3.644**	212.515***	262.221***	258.488***
	(2.180)	(3.501)	(2.965)	(2.884)
Year Dummies	Yes	Yes	Yes	Yes
Observations	785	785	784	784
Adj. R-squared	0.18	0.18	0.12	0.13

Table 7. Supplier wealth effects and the change in buyer power

Weighted least squares regressions of supplier wealth effects for 785 conglomerate acquisitions announced between 1986 and 2010. Weights are the inverse of the standard deviation of the market model residuals. *Supplier CAR* is the cumulative abnormal return around announcement of the deal for the equal-weighted portfolio of firms in IO industry of main common supplier industry. Δ*Buyer Power* is the product of the two vertical coefficients of the main common supplier industry vis-à-vis the acquirer and target industry. Variables are defined in the Appendix. Each regression contains dummies for the year that the deal was announced. t-statistics are calculated from robust standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	Supplier CAR	*Supplier CAR*	*Supplier CAR*	*Supplier CAR*
Dependent variable	*(-5, +5)*	*(-5, +5)*	*(-10, +10)*	*(-10, +10)*
Δ*Buyer Power*	-86.471**	-88.951**	-140.063**	-142.709***
	(-2.380)	(-2.428)	(-2.564)	(-2.608)
CWE (-5, +5)	0.048***	0.051***		
	(2.709)	(2.849)		
CWE (-10, +10)			0.082***	0.086***
			(4.626)	(4.680)
Hostile Deal	0.131	0.173	0.791	0.836
	(0.192)	(0.251)	(0.713)	(0.746)
All Cash Deal	-0.478*	-0.520*	-0.214	-0.260
	(-1.712)	(-1.867)	(-0.528)	(-0.645)
Relative Size	0.004	0.067	-0.294	-0.217
	(0.012)	(0.228)	(-0.625)	(-0.452)
Ln (Acquirer Size)	0.021	0.034	0.011	0.024
	(0.208)	(0.346)	(0.075)	(0.162)
Ln (Target Size)	0.032	-0.041	-0.050	-0.140
	(0.265)	(-0.326)	(-0.315)	(-0.836)
Target FCF		1.100		1.335
		(1.322)		(1.231)
Target Tobin's Q		0.092		0.122
		(1.004)		(0.857)
Constant	-0.803	-0.738	-1.237	-1.154
	(-1.304)	(-1.208)	(-1.281)	(-1.206)
Year Dummies	Yes	Yes	Yes	Yes
Observations	585	585	585	585
Adj. R-squared	0.09	0.10	0.14	0.14

Table 8. Rival wealth effects and the change in buyer power

Weighted least squares regressions of rival wealth effects for 785 conglomerate acquisitions announced between 1986 and 2010. Weights are the inverse of the standard deviation of the market model residuals. *Rival CAR* is the cumulative abnormal return around announcement of the deal for the equal weighted portfolio of firms in the same four-digit SIC code industry as the acquirer. Δ*Buyer Power* is the product of the two vertical coefficients of the main common supplier industry vis-à-vis the acquirer and target industry. Variables are defined in the Appendix. Each regression contains dummies for the year that the deal was announced. t-statistics are calculated from robust standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	Rival CAR	*Rival CAR*	*Rival CAR*	*Rival CAR*
Dependent variable	*(-5, +5)*	*(-5, +5)*	*(-10, +10)*	*(-10, +10)*
Δ*Buyer Power*	-81.522**	-79.462**	-122.704**	-122.652**
	(-2.322)	(-2.273)	(-2.464)	(-2.473)
CWE (-5, +5)	0.086***	0.090***		
	(4.477)	(4.650)		
CWE (-10, +10)			0.103***	0.104***
			(5.095)	(5.090)
Hostile Deal	-1.171	-1.182	-1.154	-1.166
	(-1.291)	(-1.277)	(-0.716)	(-0.723)
All Cash Deal	-0.068	-0.094	0.666	0.694
	(-0.208)	(-0.285)	(1.377)	(1.398)
Relative Size	0.194	0.187	0.154	0.081
	(0.364)	(0.361)	(0.210)	(0.112)
Ln (Acquirer Size)	0.135	0.097	0.113	0.064
	(1.292)	(0.897)	(0.743)	(0.415)
Ln (Target Size)	-0.091	-0.142	-0.028	-0.000
	(-0.815)	(-1.163)	(-0.175)	(-0.002)
Target FCF		0.582		-0.445
		(0.825)		(-0.434)
Target Tobin's Q		0.267**		0.149
		(2.245)		(0.880)
Constant	-1.326	-1.337	-1.738	-1.775
	(-1.381)	(-1.396)	(-1.270)	(-1.293)
Year Dummies	Yes	Yes	Yes	Yes
Observations	755	755	754	754
Adj. R-squared	0.10	0.12	0.11	0.11

Table 9. Wealth effects and change in buyer power: The impact of asset complementarities

Weighted least squares regressions of rival wealth effects for 785 conglomerate acquisitions announced between 1986 and 2006 for sub-samples of acquisitions based on whether the acquire and target have complementary assets. Weights are the inverse of the standard deviation of the market model residuals. The dependent variable is *CWE*, *Supplier CAR*, and *Rival CAR* in Panels A, B, and C, respectively. *CWE* is the value weighted cumulative abnormal return of the acquirer and target, weighted by their market values 15 days before the deal announcement. *Supplier CAR* is the cumulative abnormal return around announcement of the deal for the equal-weighted portfolio of firms in IO industry of main common supplier industry. *Rival CAR* is the cumulative abnormal return around announcement of the deal for the equal weighted portfolio of firms in the same four-digit SIC code industry as the acquirer. Δ*Buyer Power* is the product of the two vertical coefficients of the main common supplier industry vis-à-vis the acquirer and target industry. We use two methods to identify whether the merging firms have complementary assets. First, we view the acquirer and the target as having complementary assets if there is some technological overlap between them (Bena and Li, 2013). Specifically, we define a dummy variable, *Dum_Tech_Overlap* that takes the value of one if either the acquirer cites the target's patents, or the target cites the acquirer's patents, or the acquirer's and target's patents both cite the same patents, and equals zero otherwise. Second, we deem the merging firms to have complementary assets if they have the same text-based network industry classification (*TNIC*) (Hoberg and Phillips, 2013). As such, we define a dummy variable, *DUM_TNIC* that takes the value of one if both the acquirer and the target have the same *TNIC*, and equals zero otherwise. All variables are defined in the Appendix. Each regression contains calendar year dummies. t-statistics are calculated from robust standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: CWE (-5,+5)				
	(1)	(2)	(3)	(4)
	Dum_Tech_Overlap = 0	*Dum_Tech_Overlap = 1*	*Dum_TNIC* = 0	*Dum_TNIC = 1*
Δ*Buyer Power*	268.5365***	29.3779	253.7185***	-87.1204
	(3.38)	0.21)	(3.24)	(-0.22)
Control variables	Yes	Yes	Yes	Yes
Observation	471	227	426	63
Adj. R-squared	0.23	0.19	0.15	0.21
Panel B: Supplier CAR (-5,+5)				
	(1)	(2)	(3)	(4)
	Dum_Tech_Overlap = 0	*Dum_Tech_Overlap* = 1	*Dum_TNIC* = 0	*Dum_TNIC* = 1
Δ*Buyer Power*	-120.0652**	-16.2075	-113.8060*	-556.2716***
	(-2.24)	(-0.27)	(-1.79)	(-2.91)
Control variables	Yes	Yes	Yes	Yes
Observation	383	162	280	39
Adj. R-squared	0.11	0.25	0.08	0.60

(Continued)

Table 9 (Continued)

Panel C: Rival CAR (-5,+5)

	(1) *Dum_Tech_Overlap* = 0	(2) *Dum_Tech_Overlap* = 1	(3) *Dum_TNIC* = 0	(4) *Dum_TNIC* = 1
Δ*Buyer Power*	-114.3736***	-92.0226	-82.3288*	23.1165
	(-2.04)	(-1.31)	(-1.74)	(0.23)
Control variables	Yes	Yes	Yes	Yes
Observation	449	222	411	61
Adj. R-squared	0.14	0.17	0.09	0.39

Table 10. Wealth effects and the change in buyer power: The impact of main common supplier industry selling concentration

Weighted least squares regressions of rival wealth effects for 785 conglomerate acquisitions announced between 1986 and 2010 for sub-samples of acquisitions based on whether the main common supplier selling concentration (*Supplier_VRC_HHI*) is above or below its median value. Weights are the inverse of the standard deviation of the market model residuals. The dependent variable is *CWE*, *Supplier CAR*, and *Rival CAR* in Panels A, B, and C, respectively. *CWE* is the value weighted cumulative abnormal return of the acquirer and target, weighted by their market values 15 days before the deal announcement. *Supplier CAR* is the cumulative abnormal return around announcement of the deal for the equal-weighted portfolio of firms in IO industry of main common supplier industry. *Rival CAR* is the cumulative abnormal return around announcement of the deal for the equal weighted portfolio of firms in the same four-digit SIC code industry as the acquirer. Δ*Buyer Power* is the product of the two vertical coefficients of the main common supplier industry vis-à-vis the acquirer and target industry. *Supplier_VRC_HHI* represents the main common supplier industry *C*'s selling concentration and is computed as $\sum_{j=1}^{N} V_{j,C}^2$, where $V_{j,C}$ represents the proportion of main common supplier industry *C*'s output sold to industry *j* and *N* is the number of I-O industries in the I-O Table. All variables are defined in the Appendix. Each regression contains dummies for the year that the deal was announced. t-statistics are calculated from robust standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Combined Wealth Effect (CWE)

	CWE (-5, +5)		*CWE (-10, +10)*	
	(1) *Supplier_VRC_HHI* Above Median	(2) *Supplier_VRC_HHI* Below Median	(3) *Supplier_VRC_HHI* Above Median	(4) *Supplier_VRC_HHI* Below Median
Δ*Buyer Power*	353.9769***	106.2281	305.9073**	190.4890*
	(2.861)	(1.436)	(2.137)	(1.740)
Control Variables	Yes	Yes	Yes	Yes
Observations	389	387	398	386
Adj. R-squared	0.21	0.20	0.17	0.15

Panel B: Supplier CAR

	Supplier CAR (-5, +5)		*Supplier CAR (-10, +10)*	
	(1) *Supplier_VRC_HHI* Above Median	(2) *Supplier_VRC_HHI* Below Median	(3) *Supplier_VRC_HHI* Above Median	(4) *Supplier_VRC_HHI* Below Median
Δ*Buyer Power*	-113.1537**	-33.2690	-251.6803***	88.1706
	(-2.122)	(-0.521)	(-3.329)	(0.933)
Control Variables	Yes	Yes	Yes	Yes
Observations	392	193	392	193
Adj. R-squared	0.13	0.24	0.18	0.27

Panel C: Rival CAR

	Rival CAR (-5, +5)		*Rival CAR (-10, +10)*	
	(1) *Supplier_VRC_HHI* Above Median	(2) *Supplier_VRC_HHI* Below Median	(3) *Supplier_VRC_HHI* Above Median	(4) *Supplier_VRC_HHI* Below Median
Δ*Buyer Power*	-168.2669**	-41.7995	-383.9277***	-7.3926
	(-2.391)	(-0.934)	(-3.097)	(-0.127)
Control Variables	Yes	Yes	Yes	Yes
Observations	378	377	378	376
Adj. R-squared	0.18	0.16	0.16	0.17

Table 11. Wealth effects and the change in buyer power: Robustness tests with measure of change in buyer power that accounts for the size of the acquirer and target firm.

Weighted least squares regressions of rival wealth effects for 785 conglomerate acquisitions announced between 1986 and 2010. Weights are the inverse of the standard deviation of the market model residuals. The dependent variable in columns (1) and (2) is *CWE*, in columns (3) and (4) is *Supplier CAR*, and in columns (5) and (6) is *Rival CAR*. *CWE* is the value weighted cumulative abnormal return of the acquirer and target, weighted by their market values 15 days before the deal announcement. *Supplier CAR* is the cumulative abnormal return around announcement of the deal for the equal-weighted portfolio of firms in IO industry of main common supplier industry. *Rival CAR* is the cumulative abnormal return around announcement of the deal for the equal weighted portfolio of firms in the same four-digit SIC code industry as the acquirer. Δ*Buyer Power (size-adjusted)* is the natural logarithm of ($V_{C,A}$*Acquirer sales*$V_{C,T}$*Target sales), where $V_{C,A}$ ($V_{C,T}$) is the proportion of acquirer (target) industry output that was sourced through the main common supplier industry. All variables are defined in the Appendix. Each regression contains dummies for the year that the deal was announced. t-statistics are calculated from robust standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable	(1) *CWE (-5, +5)*	(2) *CWE (-10, +10)*	(3) *Supplier CAR (-5, +5)*	(4) *Supplier CAR (-10, +10)*	(5) *Rival CAR (-5, +5)*	(6) *Rival CAR (-10, +10)*
Δ*Buyer Power (size-adjusted)*	0.4395***	0.4312**	-0.1250*	-0.2295**	-0.1006	-0.2537**
	(3.07)	(2.46)	(-1.83)	(-2.38)	(-1.37)	(-2.26)
CWE (-5, +5)			0.0516***		0.0893***	
			(2.80)		(4.60)	
CWE (-10, +10)				0.0867***		0.1045***
				(4.60)		(5.11)
Acquirer FCF	-9.3037	-0.7987	0.2479	0.8112	-3.0154	-5.9026
	(-0.77)	(-0.04)	(0.08)	(0.16)	(-0.67)	(-0.94)
Acquirer FCF x Tobin's Q dummy	16.4879	2.4019	-1.8575	-2.7780	1.6402	5.6933
	(1.32)	(0.12)	(-0.55)	(-0.51)	(0.31)	(0.79)
Hostile Deal	1.5407	3.8605**	0.2962	1.0409	-1.0364	-0.9164
	(0.69)	(1.97)	(0.42)	(0.92)	(-1.10)	(-0.57)
All Cash Deal	1.5545***	0.8850	-0.4783*	-0.1880	-0.0238	0.8024
	(2.64)	(1.27)	(-1.73)	(-0.47)	(-0.07)	(1.60)
Relative Size	4.0724***	3.6697***	0.0237	-0.2943	0.1259	0.0209
	(5.73)	(4.45)	(0.08)	(-0.63)	(0.24)	(0.03)
Ln (Acquirer Size)	-1.0769***	-0.8521***	0.1642	0.2463	0.2136*	0.3029
	(-4.97)	(-3.17)	(1.48)	(1.53)	(1.68)	(1.56)
Ln (Target Size)	-0.1984	-0.2034	0.0566	0.0478	-0.0547	0.2360
	(-0.70)	(-0.55)	(0.41)	(0.25)	(-0.37)	(1.09)
Target FCF	-1.0724	-2.7068	1.5280*	2.0144*	0.9887	0.2324
	(-0.66)	(-1.23)	(1.72)	(1.71)	(1.36)	(0.22)
Target Tobin's Q	-0.1074	-0.2461	0.0296	0.0043	0.2145*	0.0040
	(-0.44)	(-0.94)	(0.30)	(0.03)	(1.69)	(0.02)
Constant	5.8038***	5.9126***	-1.4146**	-2.3128**	-2.0694**	-3.1773**
	(3.47)	(2.86)	(-2.24)	(-2.29)	(-2.10)	(-2.16)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	785	784	585	585	755	754
Adj. R-squared	0.18	0.12	0.10	0.14	0.11	0.11

Table 12. Supplier industry selling prices around conglomerate acquisitions: Univariate analysis

This table shows output prices for 865 supplier industries. Industries are defined from IO data. Main common supplier industries are the common supplier industries to merging firms with the largest value of Δ*Buyer Power*. Control industries are the common supplier industries to merging firms with the 8th, 9th or 10th largest value of Δ*Buyer Power*. Δ*Buyer Power* is the product of the two vertical coefficients of the main common supplier industry vis-à-vis the acquirer and target industry. In Panel A, *RPPI* Before (After) is the average value of the *Relative Producer Price Index* for the 36 months before (after) the announcement of the transaction. The three months centered on the announcement are excluded from the calculation. In Panels B and C, we use the (-24, +24) months and (-12, +12) months event windows, respectively. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: 36 month window for measuring RPPI

	N	*RPPI* Before	*RPPI* After	*RPPI* Change	t-stat
All Suppliers	865	1.476	1.435	-0.042***	-8.84
Main common supplier industries	328	1.524	1.448	-0.076***	-8.72
Control industries	537	1.447	1.427	-0.021***	-3.96
Difference-in-Differences				-0.055***	-5.46

Panel B: 24 month window for measuring RPPI

	N	*RPPI* Before	*RPPI* After	*RPPI* Change	t-stat
All Suppliers	865	1.481	1.447	-0.033***	-6.20
Main common supplier industries	328	1.518	1.465	-0.053***	-6.14
Control industries	537	1.458	1.437	-0.021***	-3.13
Difference-in-Differences				-0.032***	-2.85

Panel C: 12 month window for measuring RPPI

	N	*RPPI* Before	*RPPI* After	*RPPI* Change	t-stat
All Suppliers	865	1.481	1.459	-0.022***	-4.19
Main common supplier industries	328	1.523	1.491	-0.032***	-2.89
Control industries	537	1.455	1.439	-0.016***	-3.14
Difference-in-Differences				-0.016	-1.35

Table 13. Supplier industry selling prices around conglomerate acquisitions: Multivariate analysis

Ordinary least squares regressions of supplier output prices for 640 common supplier industries to acquirers and targets in conglomerate acquisitions. The dependent variable is Δ*Ln(RPPI)*, defined as average *Ln(RPPI)* over 36 months after the deal announcement less average *Ln(RPPI)* over 36 months before the deal announcement, excluding the three months centered on the announcement. *Main Common Supplier Dummy* is a dummy that takes the value of 1 if the common supplier is associated with the largest increase in Δ*Buyer Power* and a value of 0 if the common supplier is associated with the 8th, 9th, or 10th largest increase in Δ*Buyer Power*. Δ*Buyer Power* is the product of the two vertical coefficients of the main common supplier industry vis-à-vis the acquirer and target industry. Regressions (1) and (2) use actual announcement dates to calculate Δ*Ln(RPPI)* and control variables. Columns (3) and (4) show average coefficients and t-statistics from 100 replications of regressions (1) and (2) respectively. In each of the 100 replications, a random date from January 1, 1986 to December 31, 2010 is used to calculate Δ*Ln(RPPI)* and control variables. Variables are defined in the Appendix. t-statistics are calculated from robust standard errors clustered at the deal level. ***, **, And * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3) Replicate (1) with random dates	(4) Replicate (2) with random dates
Dependent variable	Δ*Ln(RPPI)*	Δ*Ln(RPPI)*	Δ*Ln(RPPI)*	Δ*Ln(RPPI)*
Main Common Supplier Dummy	-0.040***	-0.041***	-0.003	-0.011
	(-6.153)	(-6.227)	(-0.371)	(-1.146)
Input Price	0.167***	0.171***	0.064*	0.061
	(5.477)	(5.658)	(1.656)	(1.559)
IO Industry Wage	-0.149		-0.689***	
	(-1.443)		(-4.824)	
Aggregate Wage		-0.800***		-1.242***
		(-3.000)		(-2.934)
Total Production Index	-0.216***	-0.177***	-0.061	-0.021
	(-5.095)	(-4.146)	(-1.028)	(-0.352)
Constant	0.022**	0.093***		
	(2.037)	(3.234)		
Total number of supplier industries	640	640	491 (average)	491 (average)
Total number of main common supplier industries	240	240	178 (average)	178 (average)
Adj. R-squared	0.14	0.14		

Table 14. Multivariate analysis of change in COGS-to-Sales around conglomerate acquisitions

This table presents regressions of change in *COGS-to-Sales* relative to a pseudo-combined firm comprised of the median firm in the target firm's industry and the median firm as the bidder firm's industry. Thus, the dependent variable represents a difference-in-differences (Δ*Adjusted COGS/Sales*). The sample is 785 conglomerate acquisitions announced between 1986 and 2010. Δ*Buyer Power* is the product of the two vertical coefficients of the main common supplier industry vis-à-vis the acquirer and target industry. Variables are defined in the Appendix. Each regression contains year dummies. t-statistics are calculated from robust standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
Dependent variable	Δ*Adjusted COGS/Sales*	Δ*Adjusted COGS/Sales*	Δ*Adjusted COGS/Sales*	Δ*Adjusted COGS/Sales*	Δ*Adjusted COGS/Sales*
Δ*Buyer Power*	-1.8615*	-1.8352*	-1.7107*	-1.8227**	-1.7606*
	(-1.90)	(-1.91)	(-1.77)	(-2.05)	(-1.95)
Ln (Acquirer Size)			0.0038		0.0026
			(1.55)		(1.04)
Ln (Target Size)			-0.0024		-0.0021
			(-0.77)		(-0.70)
Relative Size		-0.0115	-0.0029	-0.0144	-0.0079
		(-0.97)	(-0.19)	(-1.21)	(-0.51)
Acquirer Tobin's Q				-0.0095**	-0.0089**
				(-2.38)	(-2.24)
Target Tobin's Q				0.0033	0.0024
				(1.11)	(0.79)
Constant	0.1058*	0.1103*	0.0998*	0.1256**	0.1203**
	(1.83)	(1.96)	(1.67)	(2.15)	(1.98)
Year Dummies	Yes	Yes	Yes	Yes	Yes
Observations	714	714	714	713	713
Adj. R-squared	0.05	0.05	0.06	0.07	0.07

Table 15. Robustness tests on sub-samples of conglomerate acquisitions where acquirer and target firms are unrelated using different criteria

Coefficients of interest from regressions on the sub-samples of 671 conglomerate acquisitions where the acquirer and target do not have any overlapping segments at the four-digit SIC level (Panel A), 662 conglomerate acquisitions where the acquirer and target have different three-digit SIC codes (Panel B) and 553 conglomerate acquisitions where the merging firms have different two-digit SIC codes (Panel C). Columns (1) and (2) replicate the analysis of *CWE* in Table 6. Columns (3) and (4) replicate the analysis of *Supplier CAR* in Table 7. Columns (5) and (6) replicate the analysis of *Rival CAR* in Table 8. Column (7) replicates the analysis of change in *COGS-to-Sales* relative to a pseudo-combined firm in Table 14. The dependent variable represents a difference-in-differences (Δ*Adjusted COGS/Sales*). Column (8) replicates the analysis of Δ*Ln(RPPI)* in Table 13. Δ*Buyer Power* is the product of the two vertical coefficients of the main common supplier industry vis-à-vis the acquirer and target industry. Control variables are included in each regression but the coefficients are not shown for brevity. Variables are defined in the Appendix. t-statistics are calculated from robust standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Acquirer and Target Have No Four Digit SIC Code Segments that Overlap

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable	*CWE (-5, +5)*	*CWE (-10, +10)*	*Supplier CAR (-5, +5)*	*Supplier CAR (-10, +10)*	*Rival CAR (-5.+5)*	*Rival CAR (-5,+10)*	Δ*Adjusted COGS/Sales*	Δ*Ln(RPPI)*
Δ*Buyer Power*	273.018***	284.396***	-93.913**	-125.850*	-65.322*	-99.913*	-1.782*	
	(4.498)	(2.924)	(-2.171)	(-1.918)	(-1.703)	(-1.818)	(-1.76)	
Main Common Supplier Dummy								-0.041***
								(-5.833)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Observations	671	670	504	504	645	644	615	531
Adj. R-squared	0.20	0.14	0.09	0.14	0.12	0.12	0.07	0.15

(Continued)

Table 15 (Continued)

Panel B: Acquirer and Target Have Different Three Digit SIC Industry Codes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable	*CWE (-5, +5)*	*CWE (-10, +10)*	*Supplier CAR (-5, +5)*	*Supplier CAR (-10, +10)*	*Rival CAR (-5.+5)*	*Rival CAR (-5,+10)*	*ΔAdjusted COGS/Sales*	*ΔLn(RPPI)*
ΔBuyer Power	192.102***	204.179**	-93.474**	-144.364**	-105.221***	-159.586***	-2.2304**	
	(3.123)	(2.378)	(-2.381)	(-2.428)	(-2.746)	(-2.899)	(-2.27)	
Main Common Supplier Dummy								-0.043***
								(-5.806)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Observations	662	661	480	480	633	632	607	516
Adj. R-squared	0.20	0.15	0.10	0.14	0.10	0.12	0.12	0.17

Panel C: Acquirer and Target Have Different Two Digit SIC Industry Codes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable	*CWE (-5, +5)*	*CWE (-10, +10)*	*Supplier CAR (-5, +5)*	*Supplier CAR (-10, +10)*	*Rival CAR (-5.+5)*	*Rival CAR (-10,+10)*	*ΔAdjusted COGS/Sales*	*ΔLn(RPPI)*
ΔBuyer Power	199.765***	208.563**	-105.908**	-212.419***	-51.866	-94.997	-2.5933**	
	(3.004)	(1.997)	(-2.087)	(-2.911)	(-1.131)	(-1.402)	(-2.08)	
Main Common Supplier Dummy								-0.044***
								(-5.360)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Observations	553	552	392	392	529	528	508	389
Adj. R-squared	0.23	0.17	0.11	0.18	0.11	0.12	0.13	0.16

Figure 1. Point estimates on regressions of supplier prices on *Main Common Supplier Dummy*

Figure 1 plots the point estimates from a regression of ΔLn(*RPPI*) on an indicator variable *Main Common Supplier Dummy* that is set to one for main common supplier industries and zero for control industries. The main common supplier industry is the common supplier industry with the highest increase in buyer power while the control industries are supplier industries with the 8th, 9th, and 10th highest increase in buyer power. The variable ΔLn(*RPPI*) is defined as the difference between Ln(*RPPI*) at the beginning of the event year and Ln(*RPPI*) at the end of the event year. Regressions of ΔLn(*RPPI*) on the *Main Common Supplier Dummy* are estimated separately for each event year *t-3*, *t-2*, *t-1*, *t+1*, *t+2*, and *t+3* where year *t* is the year of the merger.