ONLINE APPENDIX

The Product Market Impact of Minority Stake Acquisitions

by

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Appendix A: Discussion and robustness

A1.PPI, PCM and innovation

Since minority stake acquisitions are often accompanied by strategic alliances and technology sharing, we allow for the possibility that the increase in profits and prices reflects not market power but development of new and possibly higher quality products through greater innovation. This alternative explanation implies that price increases would be greater when innovation is higher. To tease out this alternative story, we divide the sample into high innovation and low innovation groups and run the RPPI and PCM regressions in the subgroups. We use three proxies for innovation - patent count, patent citation and R&D intensity (details of these variables are in Appendix E). Table A1 Panel A (Panel B) shows that RPPI (PCM) actually goes up significantly in the low innovation subsamples. POST is insignificant in the high innovation subsamples. Thus, these results are not supportive of the notion that price increases reflect new product development in innovative industries.[1]

A2. Firm-level operating performance

In the main analysis, we have based our conclusions on changes in output prices, industry price-cost margins, and announcement returns of rivals and customer firms. Here we examine changes in firm-level operating performance of rival firms and customer firms. We use three measures of operating performance - *EBIT Margin*, *ROA* and *Firm Sales Growth*. EBIT Margin is defined as total sales minus total operating expenses scaled by total sales. ROA is defined as net income divided by total assets. Firm Sales Growth is computed as logarithm of current sales divided by sales of previous year. We use a panel regression approach, with annual data from two years before the acquisition to two years after the acquisition. As in the PCM regressions of Section 4.3, we define a dummy variable POST that takes a value of 1 for the two years following the minority stake acquisition and zero for the two years preceding the PEO. Panel A of Table A2 shows that for rival firms, POST is positive and statistically significant

[1] We find that industry-level measures of patent count and patent citation have a positive and statistically significant correlation with change in the number of firms in the industry. Innovative industries experience more entry. Given the positive correlation between change in number of firms (entry) and innovation proxies, it is possible that profits from innovation are competed away by entry and imitation by the new firms.

indicating that rival profits are higher after the minority acquisition than before, which is consistent with the positive rival CARs show in Table 5 of the main article. Panel B of Table A2 presents the same regressions for customer firms. The coefficient on POST is negative and statistically significant in all three regressions indicating that customer performance deteriorates after the minority stake acquisition. Again, operating performance results are in line with negative customer CARs shown in Table 5 of the main article.

A3. Alternative definition of PEO events

In our main analysis, we define an industry-year as having experienced a minority acquisition event if at least one deal occurred. Here we check if the change in RPPI and PCM results are robust to two alternate definitions of an event. The alternate definitions account for the size or intensity of the PEO event. In the first alternative definition of a PEO event, which we label Alternative Event 1, an industry-year is said to experience a PEO event if the total number of minority stake acquisitions divided by number of firms in that industry-year is above the sample median. In the second alternative definition, which we label Alternative Event 2, an industry-year is said to experience a PEO event if total transaction value of minority stake acquisitions divided by total industry assets in that industry-year is above the sample median. As before, we define a dummy variable POST that takes a value of 1 for the two years following PEO event year and 0 for the two years before the event. Table A3 presents results of the RPPI and PCM regressions. We see that PCM is significantly higher after PEO than before under both alternative event definitions. RPPI is positive and significant after PEO for Alternative Event 2. For Alternative Event 1, the coefficient on POST is negative and insignificant in the RPPI regression. At first glance, this appears contradictory to our primary hypothesis of selling power. In untabulated results, we explore this further and find that POST is positive and statistically significant in the subset of high entry barriers. The test of coefficient between the subset of high entry barriers and that of low entry barriers indicates that producer prices are significantly higher in the high entry barrier sample. This is consistent with our previous results.

Appendix A: Discussion and robustness

A4. Additional robustness tests

Next, we discuss a few untabulated tests. Since PEOs are usually accompanied by technology sharing and other strategic alliances, it can be argued that the change in PPI and PCM is due, not to selling power, but to these features of PEOs. For example, perhaps prices are higher because technology sharing resulted in a different product. In unreported tests, we rerun the RPPI and PCM regressions in subsamples based on the categories described in Table 1 Panel B of the main article. We find that in the technology sharing subsample, RPPI is actually lower after the PEO. Thus, technology sharing does not explain the post-PEO increase in output prices. This finding is similar to the previously reported result that innovation and R&D expense are not associated with an increase in prices (see Table A1). Since hi-tech industries experience more entry, it is possible that profits from innovation are competed away by entry and imitation by the new firms. We also find that RPPI is higher in the Business Agreement subsample, indicating that prices are more likely to increase when a PEO is not entirely passive. This is in line with antitrust concerns that joint production and/or distribution networks can lead to lower competition.

In our main analysis, we used a dummy variable, POST, to capture pre-event and post-event periods. To have clean pre-event and post-event periods in an industry, we only worked with PEO events that were at least four years apart. In untabulated tests, we check whether the results are robust to including all PEO deals and employing a continuous measure of PEO activity rather than an event approach. We estimate PCM and RPPI regressions in an annual panel data framework for all PEOs (without any frequency restrictions). Specifically, we regress RPPI and PCM on two measures of PEO activity in the previous year - the total number of PEOs in the previous year or the percentage of firms in the industry involved in PEOs in the previous year. We find that a higher number of PEOs (or a higher percentage of firms involved in PEOs) is associated with a significantly higher PCM in the following year. Moreover, this positive relationship is more evident in high entry-barrier subsamples. The relation between RPPI and measures of lagged PEO activity is insignificant in the full sample but is positive and

statistically significant in the high entry-barrier subsamples. These tests suggest that our results hold in this continuous setting, but are weaker for output prices.

Finally, we discuss the generalizability of our results to non-manufacturing industries. Our analysis is limited to manufacturing industries because output price data and census data are available for the manufacturing sector only. Even though minority acquisitions are more common in manufacturing than in any other sector (see Section 4.1), it is important to know whether our conclusions can be generalized to firms that operate in non-manufacturing sectors like services, banking etc. We address this question by looking at the CARs of rivals and customers affected by minority deals in the non-manufacturing sector. In untabulated results, we find that rival CARs are positive and customer CARs negative at the announcement of minority deals in the non-manufacturing sector. Thus, market reactions to minority deals in the non-manufacturing sector are similar to those in the manufacturing sector.

Appendix A: Discussion and robustness

Table A1: RPPI, PCM and innovation

This table presents regressions of *monthly* ΔLog (RPPI) and *annual* PCM on various subsamples based on industry-level innovation. Our variable of interest is POST dummy, which equals to 1 during the two years after the minority acquisition event and 0 for two years before the event. All control variables are as described in Table 2 of the main article. The regressions are run on subsamples of industries with high innovation and industries with low innovation. The proxies for innovation are as follows: total number of patents applied for by firms in a given industry during the year preceding PEO event year, total number of patent citations received by firms in a given industry during the year preceding PEO event year, and R&D Intensity. R&D intensity is the total research and development expenditures scaled by total assets of the industry. High (low) innovation industries are defined as those for which the average value of number of patents (number of patent citations or R&D intensity) prior to the event is above (below) the sample median. In the RPPI regressions, standard errors are clustered at the year-month level and time fixed effects are included. Since the RPPI regression is estimated in log-differences, industry-fixed effects are differenced out. The PCM regressions include both industry-fixed effects and time fixed effects and standard errors are clustered by both year and industry. ***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively.

Appendix A: Discussion and robustness

Panel A: Dependent variable is ΔLog (RPPI)

	Low Patent Count	High Patent Count	Low Patent Citation	High Patent Citation	Low R&D	High R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$POST_{i,t}$	0.126***	0.032	0.130***	0.010	0.125***	0.040
	(4.367)	(1.127)	(4.483)	(0.388)	(4.422)	(1.491)
Δ log ($RPPI_{i,t-1}$)	0.197***	0.200***	0.250***	0.098**	0.234***	0.152***
	(6.075)	(4.414)	(7.363)	(2.536)	(6.581)	(3.768)
Δ log ($Materials_{i,t}$)	0.403***	0.297**	0.295**	0.431***	0.560***	0.251**
	(3.216)	(1.977)	(2.291)	(2.870)	(3.346)	(2.004)
Δ log ($Wages_{i,t}$)	0.018	0.653***	0.075	0.781***	0.079	0.624***
	(0.080)	(4.177)	(0.391)	(4.206)	(0.353)	(4.102)
Δ log ($y_{i,t}$)	0.221	0.343*	0.242*	0.348*	0.324**	0.086
	(1.616)	(1.875)	(1.721)	(1.968)	(2.173)	(0.529)
Δ $M\&A_{i,t}$	0.049	2.714*	0.053	1.446	0.046	4.594
	(0.964)	(1.784)	(1.076)	(1.527)	(0.908)	(1.548)
Test: Low – High >0		0.094**		0.120***		0.083***
P-value		[0.011]		[0.005]		[0.001]
Observations	3,658	2,824	3,718	2,764	3,370	3,112
R-squared	0.066	0.065	0.087	0.043	0.089	0.043

Appendix A: Discussion and robustness

Panel B: Dependent variable is PCM

	Low Patent Count	High Patent Count	Low Patent Citation	High Patent Citation	Low R&D	High R&D
	(1)	(2)	(3)	(4)	(5)	(6)
$POST_{i,t}$	0.010*	-0.004	0.023***	-0.008**	0.018**	0.001
	(1.748)	(-0.687)	(3.542)	(-2.171)	(2.097)	(0.134)
Capital Intensity	0.001**	0.000	0.001**	0.001*	0.001**	0.001***
	(2.590)	(0.135)	(2.457)	(1.655)	(2.033)	(3.797)
$Sales\ Growth_{i,t}$	0.163***	0.094***	0.199***	0.145***	0.251***	0.131***
	(2.731)	(3.306)	(3.132)	(2.670)	(3.972)	(2.679)
$R\&D\ Intensity_{i,t}$	0.002	0.005*	0.002	-0.001		
	(0.544)	(1.718)	(0.794)	(-0.284)		
$Leverage_{i,t}$	-0.065**	-0.061	-0.063**	-0.128	-0.136**	-0.061***
	(-2.295)	(-1.526)	(-2.428)	(-1.329)	(-2.124)	(-3.470)
$M\&A_{i,t}$	0.004	0.090	0.005	0.564*	0.005*	0.106
	(0.999)	(0.731)	(1.448)	(1.715)	(1.810)	(0.408)
Test: Low – High >0	0.014**		0.031***		0.013	
P-value	[0.042]		[<0.001]		[0.172]	
Observations	308	238	313	233	282	264
R-squared	0.186	0.094	0.190	0.087	0.172	0.100

Appendix A: Discussion and robustness

Table A2: Firm-level operating performance

This table presents the operating performance of rivals and customers following minority stake acquisition events. We measure the performance of rivals and customers using three variables, *EBIT*, *ROA* and *Firm Sale Growth*. EBIT is defined as total sales minus total operating expenses scaled by total sales. *ROA* is defined as net income divided by total assets. Firm Sales Growth is computed as logarithm of the firm's sales divided by sales of previous year. Our variable of interest is POST dummy, which equals to 1 for two years after the events and 0 for two years before the events. Control variables include firm size, cash holdings, R&D expenditure and leverage. Firm size is the logarithm of total assets. Firm cash holding is firms cash holdings scaled by total assets of last year. Firm R&D expenditure is R&D Intensity scaled by total assets of last year. Leverage is total debt scaled by the sum of total debt and total equity. Industry and year fixed effects are included in the estimation. Standard errors are clustered at the firm level. *t*-statistics are in parentheses. ***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively.

Panel A: Operating performance of rivals

	(1)	(2)	(3)
Dependent variable is	EBIT	ROA	Firm Sales Growth
POST	0.158***	0.057***	0.056**
	(3.129)	(2.703)	(2.355)
Lagged value of Dependent Variable	0.778***	0.669***	0.032
	(21.676)	(13.588)	(1.414)
Rival firm size	0.019***	0.018***	0.014***
	(5.313)	(8.778)	(6.801)
Rival cash holding	-0.028	-0.028**	0.102***
	(-1.040)	(-2.346)	(7.711)
Rival R&D	-0.303*	-0.234***	0.098**
	(-1.948)	(-3.825)	(2.361)
Rival leverage	0.158***	0.004	-0.086***
	(3.343)	(0.193)	(-3.428)
Industry ×Year FE	Yes	Yes	Yes
Observations	10,365	10,365	10,365
R-squared	0.673	0.462	0.105

Appendix A: Discussion and robustness

Panel B: Operating Performance of Customers

	(1)	(2)	(3)
Dependent Variable is	EBIT	ROA	Firm Sales Growth
POST	-0.012**	-0.014*	-0.055***
	(-2.482)	(-1.916)	(-3.019)
Lagged value of Dependent Variable	0.031***	0.023***	0.206***
	(2.777)	(3.486)	(3.144)
Customer firm size	0.042***	0.013	0.088***
	(4.214)	(1.152)	(3.219)
Customer cash hold	0.086**	0.099*	0.362***
	(2.410)	(1.724)	(3.035)
Customer R&D	-0.636**	-0.478	0.139
	(-2.143)	(-1.403)	(0.292)
Customer Leverage	0.086**	-0.116**	0.269*
	(2.039)	(-2.022)	(1.879)
Industry × Year FE	Yes	Yes	Yes
Observations	1,379	1,379	1,379
R-squared	0.948	0.862	0.538

Appendix A: Discussion and robustness

Table A3: RPPI and PCM under alternative definition of PEO events

This table presents PPI and PCM tests using alternative event definitions. The RPPI (PCM) specification follows Table 4 Panel A (Panel B) column 1 of the main article. Event #1 is defined as industry-years in which total number of minority stake acquisitions relative to total industry firm number in a given industry-year is above sample median. Event #2 is defined as industry-years in which total transaction value of minority stake acquisitions relative to total industry assets in a given industry-year is above sample median. If there are multiple events in consecutive years, the one with largest relative value is selected. Column 1 and 2 show the RPPI estimation results using alternative event 1 and 2, respectively. Column 3 and 4 show the PCM estimation results using alternative event 1 and 2. Control variables are as follows. The cost of materials (Materials) in log differences, hourly wages (Wages) in log differences, Sales Growth, R&D Intensity, and Leverage are as described in Table 2 of the main article. The variable y_{it}, in log differences, captures demand conditions and is described in Appendix E and Appendix F. M&A is calculated as the total transaction values of horizontal majority M&A in each industry-year scaled by total industry asset, obtained from SDC Platinum and COMPUSTAT. In the PPI regressions, standard errors are clustered at the year-month level and time fixed effects are included. Since the PPI regression is estimated in log-differences, industry-fixed effects are differenced out. The PCM regressions include both industry-fixed effects and time fixed effects and standard errors are clustered by both year and industry. ***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	Event #1	Event #2	Event #1	Event #2
	Δ log ($RPPI_{i,t}$)	Δ log ($RPPI_{i,t}$)	$PCM_{i,t}$	$PCM_{i,t}$
$POST_{i,t}$	-0.022	0.070**	0.017***	0.011*
	(-0.670)	(2.367)	(3.121)	(1.682)
Δ log ($RPPI_{i,t-1}$)	0.292***	0.251***		
	(4.619)	(5.310)		
Δ log ($Materials_{i,t}$)	0.197	0.029		
	(1.255)	(0.187)		
Δ log ($Wages_{i,t}$)	-0.237	0.218		
	(-1.063)	(1.026)		
Δ log ($y_{i,t}$)	0.271	0.224		
	(0.959)	(1.169)		
Δ $M\&A_{i,t}$	0.053	0.046		
	(1.045)	(0.875)		
Sales $Growth_{i,t}$			0.179***	0.144**
			(3.351)	(2.260)
R&D $Intensity_{i,t}$			0.008	0.009**
			(0.982)	(2.047)
$Leverage_{i,t}$			-0.161***	-0.169***
			(-7.445)	(-4.942)
$M\&A_{i,t}$			-0.000	-0.001
			(-0.030)	(-0.234)
Observations	3,122	2,928	238	225
R-squared	0.178	0.103	0.200	0.289

Appendix B: Hypothesis summary

The table below briefly describes the five hypotheses discussed in Section 2 and notes whether each hypothesis is consistent with selling power, buying power and efficiency gains

	Brief description of hypothesis	Hypothesis consistent with:		
		Selling power	Buying power	Efficiency
Hypothesis 1	Increase in output prices after PEO	Yes		
	Increase in industry profit margins after PEO	Yes	Yes	Yes
Hypothesis 2	Negative Customer CAR	Yes		
Hypothesis 3	Positive Rival CAR	Yes	Yes	Yes
Hypothesis 4	Rival CAR negatively related to customer industry concentration	Yes		
	Customer CAR positively related to customer industry concentration	Yes		
Hypothesis 5	Rival CAR positively related to size of acquirer and target	Yes	Yes	
	Customer CAR negatively related to size of acquirer and target	Yes		

Appendix C: Minority stake acquisitions (all industries)

This table shows the distribution of all completed PEOs by 1-digit SIC codes for the sample period 1980 through 2010. Average percentage of shares acquired *(% Acquired*), the number of PEOs *(# of PEOs*) and the total transaction value of all PEOs in the industry (*Trans. Val*.) are presented. If the acquirer and target are multi-segment firms, one minority stake acquisition can affect more than one SIC code. Therefore, 4,294 deals translate into 6,275 industry events. Minority acquisitions are the most common in the Manufacturing (SIC 2 and 3) and Services (SIC 7 and 8) industries, accounting for 1,432 and 1,380 industry-events respectively. Minority acquisition activity is also high in Financial Industry (SIC 6), which accounts for 1,324 industry-events.

1 digit	1980 - 1989			1990 - 1999			2000 - 2010			All Decades		
SIC*	% Acquired	Trans. Val.	# of PEOs	% Acquired	Trans. Val.	# of PEOs	% Acquired	Trans. Val.	# of PEOs	% Acquired	Trans. Val.	# of PEOs
0	NA	NA	4	15.5	87	8	10.0	2	2	12.8	89	14
1	22.5	5,375	100	20.4	5,149	251	20.6	62,679	610	21.2	73,203	961
2	16.0	5,457	116	13.3	9,627	311	20.7	14,102	286	16.7	29,186	713
3	17.9	5,385	160	16.8	10,819	322	18.4	5,292	237	17.7	21,497	719
4	16.1	6,110	93	18.1	60,553	328	21.7	75,035	386	18.6	141,698	807
5	16.4	1,813	58	17.7	9,221	134	24.3	5,968	163	19.5	17,002	355
6	13.0	5,085	196	14.4	23,296	521	19.9	51,774	607	15.8	80,155	1,324
7	18.6	2,449	100	17.3	18,516	479	20.1	12,623	500	18.7	33,589	1,079
8	23.6	184	19	14.4	2,804	138	23.3	3,288	144	20.5	6,276	301
9	0.0	0	0	NA	2	1	30.0	NA	1	15.0	2	2
All SIC	16.0	31,859	846	16.4	140,074	2,493	20.9	230,763	2,936	17.6	402,696	6,275

*SIC 0 - Agriculture, Forestry and Fishing; SIC 1- Mining and Construction; SIC 2 and 3 – Manufacturing; SIC 4- Transportation, Communications, Electric, Gas, and Sanitary Services; SIC 5 - Wholesale and Retail Trade; SIC 6 - Finance, Insurance and Real Estate; SIC 7 and 8 – Services; SIC 9 – Public Administration.

Appendix D. Methodology for PPI analysis

This section explains the framework used to analyze output prices. To analyze output prices, we make the standard assumption that industry demand is a loglinear function of price,

$$q_{it} = \alpha_0 + \alpha_1 p_{it} + \alpha_2 y_{it} + \varepsilon_{it} \quad (3)$$

where q_i is output in industry *i*, p_i is the output price in industry *i*, y_i is an exogenous variable that shifts demand for industry *i*'s output, and ε_i is the error term capturing unobserved demand shocks. Following Porter (1983) and Phillips (1995), the industry supply relation is written as

$$p_{it} = \beta_0 + \beta_1 q_{it} + \beta_2 wages_{it} + \beta_3 factor_{it} + \delta\, POST_{it} + \mu_{it} \quad (4)$$

where *wages* is the wage rate in industry *i*, *factor* is the price of all other inputs used by industry *i* and *POST* is a dummy variable equal to 1 for the years following an increase in PEO and zero for the years before the increase. The coefficient δ will be greater than zero if prices are higher, controlling for demand and inputs, after the increase in PEO.

We estimate the impact of a PEO on price by estimating this system in reduced form. Substituting (3) in (4) and rearranging gives the reduced form

$$p_{it} = \pi_0 + \pi_1 wages_{it} + \pi_2 factor_{it} + \pi_3 y_{it} + \pi_4\, POST_{it} + \mu_{it} \quad (5)$$

where the key coefficient $\pi_4 = \delta/(1 - \alpha_1\beta_1)$. We estimate the reduced form model because it does not require quantity data. Although the Federal Reserve Board provides quantity index data for a handful of industries at the detailed 4-digit SIC level, for most industries quantity data at this disaggregated level are not available. The reduced form allows us to examine the relation between PEO arrangements and industry prices using only the exogenous variables from the demand and supply equations. The disadvantage is that the reduced form coefficients do not tell us the exact structural impact of *q* on *p*. However, the reduced form estimation suffices for our purposes because we are mainly interested in the relation between minority stake acquisitions and price. Assuming that the good produced by the industry in question is not a Giffen good, α_1 is negative and β_1 is positive, and δ and π_4 are of the same sign. If PEOs are followed by an increase in prices, π_4 will be positive.

Appendix D. Methodology for PPI analysis

In this set up, we have assumed for simplicity that the minority acquisition only affects the supply equation. If POST also appeared in the demand equation, the reduced form coefficient π_4 would also include the coefficient on POST from the structural demand equation. While it is likely that δ and π_4 would still be of the same sign, it would not be possible to separate the demand side effect from the supply side effect.

Appendix E. Control variables

This section describes control variables used in our regressions.

Cost of materials: Cost of Materials, obtained from the Annual Survey of Manufactures, includes direct charges paid or payable for all raw materials and semi-finished goods used, and the fuel and electricity consumed.

Wages: Average earnings of production workers scaled by total number of working hours, also obtained from the Annual Survey of Manufactures.

M&A: Total transaction value of all horizontal majority stake mergers and acquisitions announced in an industry-month obtained from SDC Platinum.

Industry R&D intensity: Total annual research and development expenditure divided by the total assets of the industry-year, both obtained from Compustat.

Industry sales growth: Log change in the total value of shipment in each industry-year, obtained from Annual Survey of Manufactures.

Industry leverage: Industry total debt divided by the sum of total debt and market equity, all data from Compustat

Patent Count: The number of patents applied for by all firms in the PEO industry in the year preceding PEO year. The variable is based on Hall, Jaffe, and Trajtenberg (2001) and is provided by the NBER Patent Data Project available through 2006 at https://sites.google.com/site/patentdataproject/Home.

Patent Citations: Number of patent citations received by all firms in the PEO industry during the year preceding PEO year. The variable, based on Hall, Jaffe, and Trajtenberg (2001), is provided by the NBER Patent Data Project available through 2006 at https://sites.google.com/site/patentdataproject/Home.

Demand variable (y_{it}): We construct an industry specific demand variable y_i that captures differing demand conditions across industries and is used as a control variable in the output price regressions. For each two- or three-digit manufacturing industry group in our sample, we use the sales of an appropriate downstream wholesale or retail industry group as the demand variable y_i. For example, for all

Appendix E. Control variables

manufacturing industries in the Industry Group 20 (Food and Kindred Products), we set y_i equal to the sales of industry group 54 (Food Stores). For industry group 24 (Lumber and Wood Products), the variable y_i is set equal to the Value of Construction put in place. This construction data, obtained from the U.S. Census Bureau, is a measure of the value of construction installed or erected during a given period. For some industries, we are unable to clearly identify a specific downstream industry group that would capture demand shocks. For example, the output of industry group 33 (Primary Metal) is likely to be used by such a wide variety of industries that the Total Industrial Production Index provided by the Federal Reserve Board would be a more relevant demand shock variable. Therefore, y_i for the primary metal industry is set equal to Total Industrial Production. Details of the demand variable used for each industry are provided in Appendix F. Since this demand variable uses different series to capture demand shocks for different industries, it cannot be used in levels for our panel regression approach. Our price regressions are estimated in log differences, which effectively capture percentage changes in all variables, including the demand variable.

Appendix F. Construction of demand variable

The table below describes the demand variable. It lists the data used to capture demand conditions for either 2-digit or 3-digit SIC codes. See Appendix E for details on how the index is constructed.

SIC	Industry group	Demand variable *y* is:	Data source
20	Food and Kindred Products	Sales of industry group 54	Compustat
21	Tobacco Products	Sales of SIC 519	Compustat
22	Textile Mill Products	Sales of industry group 53 and 56	Compustat
23	Apparel	Sales of industry group 53 and 56	Compustat
24	Lumber and Wood Products	Total Construction Spending	Census Bureau: Construction Spending
26	Paper and Allied Products	Sales of industry group 511	Compustat
27	Printing, Publishing and Allied Industries	Sales of industry group 511	Compustat
28	*Chemicals and Allied Products*		
	281: Industrial Inorganic	Industrial Production	Federal Reserve Board
	282: Plastic Materials	Industrial Production	Federal Reserve Board
	283: Drugs	Sales of SIC 5912	Compustat
	284: Soap, Detergent	Sales of industry group 541	Compustat
	285: Paints, Varnishes	Total Construction Spending	Census Bureau: Construction Spending
	286: Industrial Organic Chemicals	Industrial Production	Federal Reserve Board
	287: Agricultural Chemicals	Sales of industry group 01, 02, 07	Compustat
	289: Misc. Chemical Products	Industrial Production	Federal Reserve Board
29	Petroleum Refining and Related Industries	Industrial Production	Federal Reserve Board
30	Rubber and Plastics	Industrial Production	Federal Reserve Board
31	Leather and Leather Products	Sales of industry group 53 and 56	Compustat
32	Stone, Clay, Glass and Concrete Products	Total Construction Spending	Census Bureau: Construction Spending
33	Primary Metal Industries	Industrial Production	Federal Reserve Board
34	Fabricated Metal Products	Industrial Production	Federal Reserve Board
35	Industrial and Commercial Machinery	Industrial Production	Federal Reserve Board
36	Electronic and Other Electrical Equipment	Sales of industry group 573	Compustat
37	*Transportation Equipment*		
	371: Motor Vehicles	Sales of industry group 55	Compustat
	372: Aircraft and Parts	Sales of industry group 45	Compustat
	373: Ship and Boat Building	Sales of industry group 55	Compustat
	374: Railroad Equipment	Sales of industry group 401	Compustat
	375: Motorcycles and Parts	Sales of industry group 55	Compustat
	376: Guided Missiles	Industrial Production	Federal Reserve Board
	379: Misc. Transport	Industrial Production	Federal Reserve Board
38	Instruments	Industrial Production	Federal Reserve Board
39	Miscellaneous Manufacturing Industries	Industrial Production	Federal Reserve Board

Appendix G. Summary of mergers and acquisitions (M&A)

The table below shows the distribution of all completed M&A across 1-digit SIC codes for the sample period 1980 through 2010. Average percentage of shares acquired (*% Acquired*), the number of deals *(# of MAs*) and the total transaction value of all deals in the industry (*Trans. Val*.) are presented.

1 digit	1980 -1989			1990 - 1999			2000 -2010			Total		
SIC	% Acquired	Trans. Val.	# of MAs	% Acquired	Trans. Val.	# of MAs	% Acquired	Trans. Val.	# of MAs	% Acquired	Trans. Val.	# of MAs
0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1	94.7	43,671	291	94.9	158,840	989	93.5	411,131	1290	94.4	613,641	2570
2	97.3	65,127	315	97.2	220,244	765	97.3	677,645	981	97.2	963,015	2061
3	95.3	55,790	387	97.3	220,678	1218	97.9	380,879	1484	96.8	657,347	3089
4	94.9	57,320	379	97.7	685,218	1597	96.8	625,907	1379	96.5	1,368,444	3355
5	96.6	35,333	261	98.4	99,352	934	97.8	96,833	575	97.6	231,518	1770
6	94.9	66,495	669	97.7	487,917	1653	97.4	680,092	1289	96.7	1,234,504	3611
7	96.2	25,077	228	98.7	154,278	1596	98.4	287,875	2207	97.8	467,230	4031
8	97.6	13,709	118	98.4	56,226	595	97.8	72,563	568	97.9	142,498	1281
9	NA	NA	NA	100	6	2	100	102	7	100	108	9
Total	95.9	362,521	2648	97.8	2,082,757	9349	97.4	3,233,026	9780	97.2	5,678,305	21,777

SIC 0 - Agriculture, Forestry and Fishing; SIC 1- Mining and Construction; SIC 2 and 3 – Manufacturing; SIC 4- Transportation, Communications, Electric, Gas, and Sanitary Services; SIC 5 - Wholesale and Retail Trade; SIC 6 - Finance, Insurance and Real Estate; SIC 7 and 8 – Services; SIC 9 – Public Administration.