



## The determinants of positive long-term performance in strategic mergers: Corporate focus and cash

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### Abstract

Using a sample selection and benchmarking methodology designed to more accurately assess merger-related changes in corporate focus, we find a significantly positive relationship between corporate focus and long-term merger performance. Focus-decreasing (FD) mergers result in significantly negative long-term performance with an average 18% loss in stockholder wealth, 9% loss in firm value, and significant declines in operating cash flows three years after merger. Mergers that either preserve or increase focus (FPI) result in marginal improvements in long-term performance. These results are consistent with many corporate focus studies, suggesting that merger studies finding opposite results are the result of measurement error.

A positive relationship between changes in focus and long-term performance continues to hold after controlling for other variables. A continuous measure of focus change indicates that the extent of focus changes is significant. Every 10% reduction in focus results in a 9% loss in stockholder wealth, a 4% discount in firm value, and a more than 1% decline in operating performance. Cash-financed FPI mergers exhibit the best, and stock-financed FD mergers the worst, long-term performance. Tests of subsample time periods show that the focus change measure is significant in both time periods, indicating that the extent of corporate focus changes is the more important measure of corporate focus or diversification.

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## 1. Introduction

There are many empirical studies of the long-term performance effects associated with mergers, acquisitions, and other corporate control events. Several of these document the importance of the method of payment for long-run performance. Loughran and Vijh (1997) find that long-run stock price performance is better for cash acquirers than stock acquirers. Ghosh (2001) and Linn and Switzer (2001) find the same relationship for long-term operating performance. Loughran and Vijh also find that hostile acquirers perform significantly better than friendly acquirers over the long run.

Rau and Vermaelen (1998) find a positive relationship between book-to-market (BTM) ratio and long-term stock price performance – reflecting the dominance of “value” acquirers with high BTM ratios over “glamour” acquirers with low BTM ratios. Healy et al. (1992) discover better long-run operating performance when mergers are between firms in highly overlapping businesses than between firms with low levels of business overlap.

Research on spinoffs and divestitures by John and Ofek (1995), Daley et al. (1997), and Desai and Jain (1999) finds significantly positive long-term performance when firms increase their focus through the divestiture of non-core assets. Yet, Agrawal et al. (1992) find that conglomerate (diversified) mergers outperform non-conglomerate (focused) mergers in terms of long-run stock price performance, and neither Ghosh (2001) nor Linn and Switzer (2001) finds a positive relationship between corporate focus and long-run operating performance.

Announcement period merger studies and non-merger studies also offer mixed results regarding the value of corporate focus.<sup>1</sup> Several individual variables have thus been found to provide explanatory power as to long-term performance following corporate control events. Positive contributors appear to include cash financing, hostile transactions, and high BTM ratios. Negative performance seems to result from stock financing, friendly transactions, and low BTM ratios. Results on the value of corporate focus/diversification are mixed, offering less certain expectations for long-term performance.

We contribute to the literature by concurrently examining the long-term wealth effects of these variables to see if one or more has a dominant effect on long-term merger performance. We also hope to shed more light on the value of corporate focus for long-term merger performance.

We construct a sample of “strategic” mergers designed to capture the full effect of each variable on long-run performance. We define strategic mergers following

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<sup>1</sup> For announcement-period studies, see Morck et al. (1990), John et al. (1992), and Maquieira et al. (1998). For non-merger studies see Lang and Stulz (1994), Comment and Jarrell (1995), Berger and Ofek (1995), Lamont and Polk (2001, 2002), Whited (2001), Graham et al. (2002), and Mansi and Reeb (2002).

Morck et al. (1988) and Healy et al. (1997). These authors distinguish between “strategic” or “synergistic” mergers which combine multiple firms in the pursuit of synergistic gains, and financial takeovers which are often intended to generate cashflow for the acquirer from the break-up of the target firm.<sup>2</sup>

This sample selection accurately accounts for merger-related changes in corporate focus by avoiding biases inherent in a comparison of mergers or acquisitions with different objectives. Many financial takeovers are intended to “bust up” diversified firms and return them to their corporate focus. While these transactions are focusing in nature, they are generally classified as focus-decreasing (FD) because unrelated lines of business are initially acquired. Our sample selection removes this potential bias.

Our methodology also seeks to eliminate other potential biases in measuring the relationship between merger-related changes in corporate focus and long-run performance. We use a benchmarking method taken from the focus literature to match our sample mergers to control portfolios constructed of single business industry peers in each line of business of the merged firm. We thus avoid comparing a diversified firm with multiple lines of business to one or two peer firms matched only to an acquiring firm’s primary line of business. We also control for a specification bias that may result from merger type classification error.

We use the Herfindahl index, which distinguishes better between levels of corporate diversification in classifying mergers than a simpler classification scheme. This continuous measure also allows us to analyze the effect of both sign and extent of focus changes on long-run performance. Our analysis reveals significantly different results for classifications based on sign and extent.

Our sample filter yields 204 strategic mergers completed in the period 1977–1996, selected to be free of post-merger contaminating events. Using this sample and our refined methodology, we test for a univariate relationship between negative and non-negative changes in focus and long-term merger performance. We find that FD mergers result in a more than 18% loss in relative stockholder wealth, a 9% loss in relative firm value, and a 2% decline in relative operating cashflow returns by the third post-merger year. Focus preserving or increasing (FPI) mergers experience marginally positive changes in long-term performance and their performance is significantly better than that of FD mergers.

Finding this significant relationship between focus and long-run merger performance, we then control for: (1) the method of payment chosen for an acquisition, (2) the target management’s attitude toward the merger, (3) the BTM ratio of the acquirer, and (4) the time period of the merger to determine if any of these documented wealth-affecting variables has a dominant influence over long-term merger performance. We also use the continuous measure of change in focus to see if the magnitude of focus changes significantly impacts post-merger performance measures.

Our results strongly indicate that the primary determinant of long-run performance in strategic mergers is the merger-related degree of change in corporate focus.

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<sup>2</sup> Morck, Shleifer, and Vishny and Healy, Palepu, and Ruback suggest that strategic mergers are generally friendly. We find this to be the case as under 10% of our sample involves target management resistance.

On average, every 10% decline in focus results in a 9% loss in relative stockholder wealth, a 4% discount in firm value, and a 1.2% decline in operating cashflow returns by the third post-merger year. Our results indicate that the form of payment is also significantly related to long-term performance: cash-financed mergers dominate stock-financed mergers. However, the significance of this variable is secondary to the focus variable in explaining long-term performance and is only marginally significant for operating performance and firm value changes.

We find no significant relationship between managerial resistance and long-term performance, a result that merits careful interpretation with the small number of hostile strategic mergers in our sample. Contrary to Rau and Vermaelen (1998), but consistent with Lang et al. (1989), the price-to-book ratio is weakly negatively related to long-run performance in strategic mergers.

The univariate results of our study are also driven by the poor performance of stock-financed FD mergers in the earlier years of our study (1977–1987). There is no significant difference in long-term performance between FD and FPI mergers in the latter years. There have been two trends since 1977. FD mergers have evolved from pure conglomerate transactions with considerable declines in corporate focus in the early years to more related (vertical) mergers in recent years with less of a decline in corporate focus. There has also been a trend toward stock financing for focus-preserving mergers in the latter years. Long-term performance, however, is significantly related to the magnitude of focus change in both subperiods of study – suggesting that the extent of change in focus is a better measure of diversification than the simpler methods typically employed in the literature.

## **2. Measurement of merger-related change in focus**

### *2.1. Theory behind the Herfindahl index*

Merger studies generally measure the relatedness of the businesses of merging firms according to one of three categorizations: (1) conglomerate/non-conglomerate, (2) horizontal/vertical/conglomerate, or (3) level of overlap between lines of business. We develop and employ a continuous measure that is more consistent with the corporate focus literature – the Herfindahl index (HI).

Three features of the HI make it an attractive measure for corporate focus. First, the measure is continuous, enabling measurement of the magnitude of changes in focus. Thus, we can determine not only whether the decision to diversify affects long-term performance, but also whether the degree of diversification has a significant impact on performance. This feature is also helpful when two mergers that are classified as the same under previous classification schemes have very different impacts on corporate focus.

Second, the HI augments the difference in business concentration between focused and diversified firms as a small number of large-proportion lines contribute more to the HI than do a large number of small-proportion lines. For example, a more-focused firm with 70% of revenues derived from its primary business and 30% from

one secondary business will have an HI of 0.58 while a more-diversified firm with 70% of revenues derived from a primary line and 10% from each of three secondary lines will have an HI of 0.52. Thus, while both firms have the same percentage of revenues from their primary lines of business, the HI measure results in a higher concentration estimate for the more-focused firm.

The third attractive feature of the HI is its normalized range between 0 and 1. The index is bounded at the top by a perfectly focused one-business company with an HI of 1. This normalization provides an advantage over other continuous concentration measures such as the entropy measure proposed by Palepu (1985). As Acar and Sankaran (1999) show, HI is a better measure because of its comparability across firms since all firms' HI measures must range between 0 and 1.

## 2.2. Herfindahl index mechanics

We measure relatedness (and the degree of post-merger focus change) using a revenue-based Herfindahl Index. Our measure differs from the measure as applied elsewhere in that we must account for the HI of both the acquiring firm ( $HI_A$ ) and the merged firm ( $HI_M$ ) in order to determine the merger-related change in focus.

The first step in calculating  $HI_A$  and  $HI_M$  is to identify the two-digit standard industrial classification (SIC) code for each line of business (LOB) reported in the firms' annual reports or 10-Ks for the fiscal year preceding the merger announcement.<sup>3</sup> If more than one SIC code is reported in the LOB data, the two-digit SIC code of the first listed product or service is used as the SIC code for the LOB. Revenues listed under the categories of "Other, Miscellaneous, or Intersegment" are excluded unless specific products or services can be identified. The HI for the acquirer (and merged firm) is calculated as

$$HI = \sum_{i=1}^N \left( \frac{LOB_i \text{ revenues}}{\sum_{j=1}^N LOB_j \text{ revenues}} \right)^2. \quad (1)$$

An HI for the merged firm,  $HI_M$ , is then calculated by combining the LOB revenues of the acquiring and the target firms and applying Equation (1) again. To concentrate on merger-related focus changes, we study only mergers that retain the initial post-merger focus structure, excluding acquisitions with any divestitures or asset sales during the three years after the merger.

A change in corporate focus is defined as the proportional change in the HI for the merged firm relative to the acquiring firm. This metric, henceforth referred to as  $\Delta HI$ , is defined as

$$\Delta HI = \frac{HI_M}{HI_A} - 1.$$

<sup>3</sup> This screen limits our study to acquisitions occurring after 1976, as firms were not required to disclose LOB information until implementation of FASB Standard no. 14 which was enacted in 1976 and implemented in 1977.

Table 1  
Measure of merger-related change in corporate focus

LOB	2-Digit SIC code	Acquirer: Service corporation			Target: Amedco			Merged firm		
		Revenues <sup>a</sup>	Percent of revenues	Percent squared	Revenues <sup>a</sup>	Percent of revenues	Percent squared	Revenues <sup>a</sup>	Percent of revenues	Percent squared
1	72	225,280	0.9641	0.9294	112,000	0.4588	0.2105	337,280	0.7059	0.4983
2	89	8,397	0.0359	0.0013	–	–	–	8,397	0.0176	0.0003
3	33	–	–	–	68,900	0.2823	0.0797	68,900	0.1442	0.0208
4	38	–	–	–	63,200	0.2589	0.0670	63,200	0.1323	0.0175
Total		233,677	1.0000	0.9307	244,100	1.0000	0.3572	477,777	1.0000	0.5369

Change in Herfindahl index =  $0.5369 - 0.9307 = -0.3938$

$\Delta HI = (0.5369/0.9307) - 1 = -42.31\%$

Example calculation of measure of merger-related change in corporate focus for an observation from the sample. Information required includes the revenues of each LOB of the firm as determined by two-digit SIC code for both acquirer and target. An HI is calculated for acquirer, target, and merged firm by summing the squared percentages of each LOB's revenues. A change in the HI is then computed as the merged firm's HI minus that of the original acquirer's. The  $\Delta HI$  variable is the difference divided by the acquirer's original HI.

<sup>a</sup> Revenues reported in thousands of dollars.

This continuous measure of a merger-related change in corporate focus provides an obvious advantage over simpler classifications in that we can analyze the magnitude of a focus change, as well as its sign. For example, consider two conglomerate mergers. The first merger occurs between two completely unrelated firms: an acquirer with \$100 million in revenues across five lines of business, and a single-segment target with \$5 million of revenues in a sixth line of business. The second merger occurs between two single-business firms of equal size operating in unrelated lines of business. Obviously, the second merger is more FD than the first merger, but under current classification schemes, both mergers would be classified simply as FD. The  $\Delta HI$  measure corrects for this limitation by accounting for the magnitude of the change.

Another advantage of the  $\Delta HI$  measure is that it distinguishes between horizontal and true FPI mergers.<sup>4</sup> Many researchers have tended to classify non-horizontal mergers as diversifying transactions and horizontal mergers as concentrating. As the merger between Service Corporation and Amedco described in Table 1 makes clear however, horizontal mergers may be FD as well. Both the acquiring firm (Service Corporation) and the target firm (Amedco) have primary lines of business in personal services (SIC code 72), so this merger qualifies as horizontal. At the same time, large and unrelated secondary lines of business make this merger FD. In fact, this horizontal merger results in a 42.31% reduction in focus as measured by  $\Delta HI$ .

Of course, most horizontal mergers are FPI transactions just as most vertical mergers are FD. In our sample, 88% of the horizontals are FPI, 100% of the conglomerates are FD, and 71% of the verticals are FD. While the typical classification schemes correctly interpret the relationship between mergers and changes in corporate focus in most cases, the  $\Delta HI$  measure corrects misclassifications and serves as a more consistent barometer of merger-related changes in focus.

### 3. Sample and methodology

#### 3.1. Sample selection criteria

To be included in our sample, a merger must meet several criteria. First, we limit our sample to strategic mergers that integrate the target firm completely into the merged firm. We thus exclude partial acquisitions and bust-up takeovers from our sample. Following Asquith et al. (1983) and Jarrell and Poulsen (1989), who find greater wealth gains in mergers when the value of the target is higher relative to the value of the acquirer, we limit the sample to mergers in which target firm relative market value is at least 5% that of the acquiring firm.<sup>5</sup> Third, we exclude mergers

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<sup>4</sup> Focus-increasing acquisitions are rare (approximately 8% of our sample), so we group them with focus-preserving acquisitions as FPI acquisitions.

<sup>5</sup> We originally used the 10% cut-off used by Asquith, Bruner, and Mullins; however, the 10% cut-off substantially reduces our sample size to under 160 and FD mergers to under 75. While regression results are qualitatively the same, some FD subsamples had too few observations (<10) from which to draw meaningful inferences.

involving a confounding event during the period of study, as defined by Huang and Walking (1987). These events include major capital structure changes (recapitalizations or major security issuances as listed in *Moody's*) and announced divestitures. We also exclude concurrent mergers because it is often difficult to disentangle the effects of overlapping acquisitions.<sup>6</sup>

Given the documented negative abnormal stock returns surrounding the issuance of seasoned equity (see Mikkelson and Partch, 1986) and positive abnormal stock returns corresponding to debt-for-equity exchanges affecting capital structure (see Masulis, 1980), we exclude any mergers that are contaminated by such events. Our decision to exclude observations that include subsequent divestitures in the three-year post-merger period is based on the empirical results presented in Kaplan and Weisbach (1992) and Allen et al. (1995). These studies show that divestitures of unsuccessful acquisitions reverse takeover losses within five years of the acquisitions. The effect of a merger-related change in focus can be better measured by excluding such cases. For example, an acquirer experiencing a wealth-destroying merger might have a two-year abnormal return of  $-20\%$  before it divests itself of the acquired firm whereupon it experiences an abnormal return of  $15\%$  in the third year. The resulting  $-5\%$  three-year abnormal return does not reflect the failed merger since the two former firms are no longer integrated.

The three criteria are similar in spirit to those applied by Healy et al. (1992), who limit their sample to the 50 largest mergers completed by that time in order to measure the effect of a merger's relatedness only in a "major event." Also in accordance with Healy, Palepu, and Ruback, we eliminate mergers where the acquiring firm is in the financial or utility industry, where regulation confounds comparison.

Thus, we create a clean sample of fully-integrated mergers free of wealth-altering effects such as seasoned equity offerings, capital structure changes, subsequent divestitures, or ambiguous noisy events such as concurrent mergers in order to isolate the effect of merger-related corporate focus changes on long-term performance.

The sample firms must also meet standard data availability tests in order to be included. First, the initial announcement of the intention to merge (the merger announcement date) must be published in the *Wall Street Journal Index* (WSJI). Second, the acquiring firm's stock price must be available for three years after the merger's completion date in the Center for Research in Securities Prices (CRSP) database. Third, mergers must be identifiable either in the Securities Data Corporation (SDC) database for the period 1980–1996 or in CRSP delistings for the 1977–1979 period. Fourth, lines of business data must be available from the 10-K reports of the merging firms in the year immediately preceding the announcement of intent to merge. Accounting performance measures must also be available on Standard & Poor's COMPUSTAT tapes.

Application of these criteria reduces the initial sample of 1,398 mergers obtained from SDC and CRSP to a final sample of 204 strategic mergers announced after

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<sup>6</sup> For example, between July 1985 and August 1987, Chrysler acquired Gulfstream Aerospace, E.F. Hutton Credit, Finance America, Electrospace Systems, and American Motors. Four were FD and one was FPI.



January 1, 1977, and completed prior to December 31, 1996. Of the 1,194 excluded mergers, 34% are eliminated due to partial acquisitions, 23% due to the materiality constraint, and 25% due to confounding events. Other exclusions result from multiple exclusion criteria. The final sample is described in Table 2.

As can be seen in Table 2, there is a roughly even split between FPI and FD mergers: 112 FPI and 92 FD.  $\Delta$ HI averages 1.98% for FPI mergers and  $-21.16\%$  for FD mergers. The level of diversification resulting from mergers has been steadily declining over time. Over 56% of the acquisitions during the 1977–1986 period are FD mergers, while under 39% of the mergers in the 1987–1996 period are FD.

Stock was used more frequently as a means of payment in the earlier years, cash more frequently later on, and a mix of stock and cash in more recent years. During the earlier period, stock is used in 41% and cash in 33% of all mergers, but during the latter period the figures reverse; stock is used in 34% and cash in 36% of all mergers since 1986. There is, however, no distinct pattern of payment type attributable to FD versus FPI merger classification; stock is used in 37% of FPI and in 36% of FD mergers.

Table 2  
Distribution of mergers by effective date, form of payment, and change in corporate focus

Year	All mergers	FPI cash	FPI stock	FPI mixed	All FPI	FD cash	FD stock	FD mixed	All FD	All cash	All stock	All mixed
1977	2	0	0	0	0	0	2	0	2	0	2	0
1978	2	0	2	0	2	0	0	0	0	0	2	0
1979	2	0	0	0	0	0	2	0	2	0	2	0
1980	3	0	1	0	1	0	2	0	2	0	3	0
1981	7	0	2	1	3	1	2	1	4	1	4	2
1982	9	1	1	1	3	0	4	2	6	1	5	3
1983	3	0	0	0	0	1	2	0	3	1	2	0
1984	13	1	4	4	9	1	1	2	4	2	5	6
1985	16	5	1	2	8	4	1	3	8	9	2	5
1986	23	4	4	1	9	8	2	4	14	12	6	5
1987	20	5	5	3	13	4	3	0	7	9	8	3
1988	18	5	2	3	10	6	1	1	8	11	3	4
1989	14	6	2	2	10	3	1	0	4	9	3	2
1990	10	0	3	0	3	2	4	1	7	2	7	1
1991	12	2	3	3	8	2	2	0	4	4	5	3
1992	11	2	1	4	7	3	0	1	4	5	1	5
1993	12	2	3	4	9	0	2	1	3	2	5	5
1994	6	1	2	2	5	0	0	1	1	1	2	3
1995	8	0	4	1	5	1	1	1	3	1	5	2
1996	13	0	1	6	7	0	1	5	6	0	2	11
Total	204	34	41	37	112	36	33	23	92	70	74	60

Information on 204 corporate mergers occurring between 1977 and 1996 is obtained either from the SDC database or merger-related delistings from the CRSP tapes. Observations are classified as either FPI or FD according to the change (if any) in the acquiring firms' Herfindahl index resulting from the merger. Classifications of payment form are obtained from the SDC database, the *Wall Street Journal Index*, or proxy statements. Year is the year in which the merger was completed.

### 3.2. Methodology

We examine the long-run performance of the mergers in our sample three ways. First, we measure the announcement-period and long-run stock performance of each sample observation by comparing it to a portfolio of single-segment firms. Second, we compare pre-merger and post-merger operating cashflows of the observation to the same control portfolio. Third, we compare sample and control pre-merger and post-merger discounts and premiums in market-to-book values.

We use a benchmark approach similar to that in Lang and Stulz (1994) to form a portfolio of single-segment control firms. This approach avoids the bias of benchmarking performance to only the acquirer's primary line of business – virtually ignoring differences in risk, expected return, and levels of operating performance between different industries of the same firm, according to Lamont and Polk (2001).

For each line of business of the merged firm, we identify the ten single-segment firms from the two-digit SIC industry with market capitalization closest to the proportion of the market capitalization for the particular line of business.<sup>7</sup> The five peers with the closest BTM ratios are then selected for the control portfolio for that line of business. Weighted-averages are computed according to the revenue-based proportion for each line of business. These matching criteria are designed to be consistent with Fama and French (1993) and Barber and Lyon (1996, 1997). We also use portfolio medians and report these results separately.

For example, assume an acquirer with a market capitalization of \$2 billion with 75% of revenues from one line of business and 25% from another line merges with a focused \$1 billion target with a third line of business. The control portfolio will consist of 15 firms. The first five will be matched to a market capitalization of \$1.5 billion in the acquirer's primary line of business, the next five to a market capitalization of \$500 million for the acquirer's second line, and the last five to the \$1 billion line of business of the target. The weights of the control firms in the portfolio will be 10% for the first five [ $(\$1.5 \text{ billion}/\$3 \text{ billion}) \div 5$ ], 3.33% for the second five [ $(\$0.5 \text{ billion}/\$3 \text{ billion}) \div 5$ ], and 6.67% for the last five [ $(\$1.0 \text{ billion}/\$3 \text{ billion}) \div 5$ ]. The weighted-average performance measures of these 15 firms are the benchmark for our sample merger. The median-controlled portfolio consists of only three stocks, the median performer of each of the three five-stock portfolios. These three will then be weighted 50%, 16.67%, and 33.3% in the control portfolio.

Loughran and Vijh (1997) demonstrate that the standard announcement-period event-study methodology fails to capture the full effect of the long-term wealth changes that result from a merger. Our announcement-period test results confirm that a long-run return methodology is justified. Varying results regarding the value

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<sup>7</sup> This matching principle is based on Kahle and Walkling (1996) and Walker (2000), who demonstrate that industry-matching of control firms surpasses pure size-matching for performance analysis. Loughran and Ritter (2000) show that such tests have sufficient power in long-run benchmarking studies. We use both revenues and assets to determine the proportions of lines of business. Both are qualitatively the same and we report only revenue-based results.

of corporate focus in the literature also compel us to go beyond the event-study methodology as a measurement device.

We measure long-term stock price performance using buy-and-hold abnormal returns (BHAR) similar to the measures used in the takeover studies of Loughran and Vijh (1997) and Rau and Vermaelen (1998) and the spinoff study of Desai and Jain (1999). Our application replaces their one- or two-firm control returns with the weighted-average (or median) return of the control portfolio. We measure buy-and-hold abnormal stock returns (BHAR) as

$$\text{BHAR}_i = \text{HPR}_{\text{Sample},i} - \text{HPR}_{\text{Control},i} \quad (2)$$

where  $\text{HPR}_{\text{Sample},i}$  is the holding-period return for sample observation through year  $i$  and  $\text{HPR}_{\text{Control},i}$  is the holding-period return for control portfolio through year  $i$ . We use the three-year time horizon as in both Rau and Vermaelen and Desai and Jain rather than the five-year horizon used by Loughran and Vijh, due to the restrictive nature of our sample selection.<sup>8</sup>

Given the contentious nature of long-run abnormal stock return studies (see, for example, Barber and Lyon, 1997; Kothari and Warner, 1997; Lyon et al., 1999; Loughran and Ritter, 2000; Mitchell and Stafford, 2001), we also conduct tests using long-term operating cash flow returns similar to the tests in Desai and Jain (1999), Ghosh (2001), and Linn and Switzer (2001). Like these authors, we compare control-adjusted pre-merger operating cash flow returns to post-merger operating cash flow returns to detect significant changes in operating performance, but with two differences. First, our pre-merger sample operating cash flow return is a weighted-average of the acquirer and target rather than the acquirer only. Second, we use the control portfolio as the benchmark for calculating relative performance. All these differences in methodology are aimed at preventing bias in the results of diversifying mergers.

Another robustness test analyzes changes in firm value as measured by market-to-book ratios relative to the benchmark, a common proxy for the Tobin's  $q$  measure of firm value used by Lang and Stulz (1994) and Servaes (1996).<sup>9</sup> We compare pre-merger firm value premiums and discounts to post-merger relative values to identify any significant changes in firm value in the post-merger years.

## 4. Analysis of long-term performance

### 4.1. Univariate long-run stock returns results

We first examine the simple relationship between merger-related changes in corporate focus and BHAR by measuring both the immediate return for the acquirer

<sup>8</sup> Exclusion and data criteria reduce our sample to 90 observations for a five-year horizon. Five-year regression results are qualitatively the same, but we lose significance in subsample analyses with the reduced sample size.

<sup>9</sup> See Chung and Pruitt (1994) for more detail on using the market-to-book ratio as a proxy for Tobin's  $q$ .

and the long-run return for the merged firm. The aim of this test is to determine if our more stringent sample selection and refined benchmark methodology reveal a significant relationship between corporate focus and long-term merger performance.

Panel A of Table 3 shows that our mean-adjusted full-sample results are consistent with most merger performance results. Acquirers generally exhibit non-positive

Table 3

Subsample analysis of the effect of merger-related change in corporate focus on long-run stock returns

	AR (%)	Percent positive	Year 1 BHAR (%)	Percent positive	Year 2 BHAR (%)	Percent positive	Year 3 BHAR (%)	Percent positive
<i>Panel A: Mean-adjusted returns (student t-statistics in parentheses)</i>								
Full sample, N = 204, BTM = 0.64	-1.53 (-1.03)	42.2 (-2.27) <sup>b</sup>	-2.58 (-0.63)	42.2 (-2.27) <sup>b</sup>	-9.86 (-2.07) <sup>b</sup>	42.2 (-2.27) <sup>b</sup>	-6.62 (-0.99)	43.1 (-1.98) <sup>b</sup>
FPI mergers, N = 112, BTM = 0.57	0.81 (0.38)	48.2 (-0.38)	2.38 (0.40)	45.5 (-0.95)	-1.89 (-0.29)	50.0 (0.00)	3.11 (0.32)	50.0 (0.00)
FD mergers, N = 92, BTM = 0.72	-4.39 (-2.35) <sup>b</sup>	34.8 (-3.06) <sup>a</sup>	-8.61 (-1.72) <sup>c</sup>	38.0 (-2.36) <sup>b</sup>	-19.56 (-3.03) <sup>a</sup>	32.6 (-3.56) <sup>a</sup>	-18.47 (-1.89) <sup>c</sup>	34.8 (-3.06) <sup>a</sup>
FPI – FD	5.20 (2.77) <sup>a</sup>		10.99 (2.33) <sup>b</sup>		17.67 (3.71) <sup>a</sup>		21.58 (2.90) <sup>a</sup>	
<i>Panel B: Median-adjusted returns (Wilcoxon z-statistics in parentheses)</i>								
Full sample, N = 204, BTM = 0.64	-0.44 (-0.97)	38.7 (-3.31) <sup>a</sup>	-3.95 (-2.17) <sup>b</sup>	42.2 (-2.27) <sup>b</sup>	-7.61 (-3.00) <sup>a</sup>	39.7 (-2.87) <sup>b</sup>	-5.96 (-1.05)	42.2 (-2.27) <sup>b</sup>
FPI mergers, N = 112, BTM = 0.57	-0.38 (-0.77)	39.2 (-2.32) <sup>b</sup>	-1.60 (-0.47)	47.3 (-0.57)	-4.79 (-1.23)	43.8 (-1.33)	1.75 (0.09)	43.8 (-1.33)
FD mergers, N = 92, BTM = 0.72	-0.51 (-1.07)	38.0 (-2.36) <sup>b</sup>	-10.36 (-2.61) <sup>a</sup>	35.9 (-2.83) <sup>a</sup>	-12.08 (-2.81) <sup>a</sup>	34.8 (-3.06) <sup>a</sup>	-12.35 (-1.77) <sup>c</sup>	40.2 (-1.91) <sup>c</sup>
FPI – FD	0.13 (0.57)		8.76 (2.35) <sup>b</sup>		7.29 (3.64) <sup>a</sup>		14.10 (3.21) <sup>a</sup>	

Announcement-period AR and three-year post-merger BHAR for each post-merger year, where BHAR is defined as the buy-and-hold raw returns for acquiring firms less the mean/median buy-and-hold raw returns of a weighted-average industry portfolios of single line of business control firms matched on market value of equity and BTM ratio for each line of business of the acquirer and target. The sample is divided into FPI and FD mergers according to non-negative and negative merger-related changes in the Herfindahl index ( $\Delta HI$ ), respectively. Mean-adjusted subsample comparisons are presented in Panel A, and median-adjusted results are shown in Panel B.

<sup>a</sup> Significant at the 1% level.

<sup>b</sup> Significant at the 5% level.

<sup>c</sup> Significant at the 10% level.

returns. During the announcement period, a significant 57.8% of all acquirers experience negative excess returns, averaging  $-1.53\%$ . The two-year BHAR is significantly negative, and all three years' percent positive measures are significantly less than 50%. Median-adjusted results are similar.

Splitting the sample into FPI and FD mergers yields different results. FPI mergers result in positive but insignificant abnormal returns during the merger announcement period and the entire post-merger period. The three-year BHAR is 3.11% for FPI mergers, but exactly half suffer negative BHARs. Shareholders in FD mergers, however, suffer significant losses in each post-merger year. A highly significant 65.2% of these acquirers experience negative announcement-period returns, and the mean abnormal announcement return of  $-4.39\%$  is significant at the 5% level. All three years' BHARs and percent positive measures reveal significant shareholder losses in FD mergers. Over the three-year post-merger period, FD mergers lead to significantly negative BHARs of  $-18.47\%$ , and 65.2% yield negative BHARs.

Means tests between subsamples clearly indicate that shareholders in FD mergers suffer significantly more negative BHARs than shareholders in FPI mergers. This difference in abnormal returns also increases steadily with the event horizon, from 5.20% during the announcement period to 21.58% for three-year returns. All these return differences are significant at the 1% or 5% level.

Thus, our univariate long-term stock performance results are consistent with Healy et al. (1992) and different from Agrawal et al. (1992). One reason for the differing results is of course the different merger classifications. Agrawal, Jaffe, and Mandelker define non-conglomerate mergers narrowly, by matching four-digit SIC codes, and classify all others as conglomerates, while we classify lines of business according to two-digit SIC codes. Although neither method is without challenge, we prefer to use a true industry-level classification scheme.<sup>10</sup> Also, as shown earlier, horizontal or non-conglomerate mergers do not necessarily preserve or increase corporate focus.

Another explanation for the differing results is that a mis-specified benchmark may produce erroneous results in long-term single-factor event studies (see Franks et al., 1991; Fama and French, 1993). Our results suggest that the findings of Agrawal, Jaff, and Mandelker may be the result of such a benchmark mis-specification. In results not reported here, we find that the betas of the merged firms are a linear combination of the betas of the acquiring and target firms. We also find that the betas of FD targets are significantly higher than the betas of both their acquirers and FPI targets. Since Agrawal et al use beta-adjusted returns in their analysis, but consider only acquiring firms in their post-merger returns analysis, they thus ignore the higher levels of systematic risk incurred by FD acquirers and overstate their abnormal returns. Our sample selection and benchmarking methodology avoid these potential benchmark and measurement errors that may have biased the results of Agrawal, Jaffe, and Mandelker in favor of diversifying mergers. Our results are consistent with

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<sup>10</sup> Clarke (1989) also shows that the two-digit classification is a better barometer of industry classification.

the corporate focus literature in that there is a positive relationship between corporate focus and shareholder wealth.

#### 4.2. *Multivariate stock price performance*

There have been various studies of the impact of different variables on long-term merger performance. Loughran and Vijh (1997) report that hostile cash acquisitions significantly outperform friendly stock mergers over a five-year post-acquisition period and attribute this result to signaling theory. Rau and Vermaelen (1998) find that value acquirers with high BTM ratios significantly outperform glamour acquirers with low BTM ratios over the three-year post-merger period. They contend that managers of glamour acquirers exaggerate their skills when they make acquisition decisions. We add the variables of form of payment, attitude of target management, and acquirer's BTM ratio variables to the analysis. We first divide the full sample into subsamples on the basis of form of payment and acquirer's BTM ratio. We report form of payment results in panels A–C and BTM results in panel D of Table 4.

One intriguing result obtained with regard to form of payment is the significant difference in returns between FPI and FD mergers for those financed by stock. Stock-financed FPI mergers basically break even after three years while stock-financed FD mergers suffer significant wealth losses. The 44.04% difference in third-year BHARs for FPI and FD stock-financed subsamples is significant at the 1% level.

Although the differences between FPI and FD mergers in the mixed-financing subsample are not significant, mixed-financing FD mergers do exhibit significant wealth losses. Mean BHARs are significantly negative in post-merger years one and two, and median BHARs are significantly negative in years two and three. These results together provide further evidence of the long-run failure of diversifying acquisitions financed with stock (in whole or in part). Cash-financed mergers, both FPI and FD, result in insignificant BHARs. All subsamples of FPI mergers exhibit insignificant BHARs.

Our BTM results are consistent with Lang et al. (1989) and Servaes (1996) in that high-*q* (low BTM) acquirers experience superior abnormal returns at announcement but different from Rau and Vermaelen (1998). Lang, Stulz, and Walkling find that high-*q* acquirers have a significantly higher 5.2% announcement-period return than do low-*q* (high BTM) acquirers. This result compares to our significant announcement-period return difference of 3.70% (0.21% for low BTM vs. –3.49% for high BTM acquirers).

Our long-term results show further differences from Rau and Vermaelen. While our low BTM BHARs are similar to those of Rau and Vermaelen (–9.46% vs. –10.82% in the third post-merger year), our high BTM results are very different – an insignificant –3.61% in our subsample versus a significantly positive 9.87% in the third post-merger year as reported by Rau and Vermaelen.

Further analysis reveals that FPI acquirers have lower BTM ratios than their FD counterparts. The average BTM for FPI acquirers is 0.57 compared to 0.72 for FD acquirers, a difference significant at the 1% level, and the average BTM for

Table 4

Subsample analysis of effect of merger-related change in corporate focus on long-term returns classified by form of payment and acquirer BTM ratio

	AR (%)		Year 1 BHAR (%)		Year 2 BHAR (%)		Year 3 BHAR (%)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
<i>Panel A: Cash (student t-statistics and Wilcoxon z-statistics in parentheses)</i>								
All cash, $N = 70$ , BTM = 0.79	0.21 (0.15)	1.00 (0.77)	7.37 (0.87)	2.29 (0.09)	3.10 (0.19)	1.13 (0.75)	5.65 (0.77)	4.54 (1.62)
FPI cash, $N = 34$ , BTM = 0.70	3.77 (0.92)	1.64 (1.08)	12.70 (0.85)	3.40 (0.20)	11.55 (0.80)	4.40 (1.21)	11.64 (0.76)	12.33 (1.48)
FD cash, $N = 36$ , BTM = 0.88	-3.15 (-1.21)	-1.39 (-0.16)	2.34 (0.31)	-3.51 (-0.30)	-4.88 (-0.86)	-4.48 (-0.03)	0.02 (0.30)	2.24 (0.72)
FPI – FD	6.92 (1.49)	3.02 (0.60)	10.36 (0.61)	6.90 (0.30)	16.43 (1.03)	8.89 (0.89)	11.62 (0.66)	10.10 (0.60)
<i>Panel B: Stock (student t-statistics and Wilcoxon z-statistics in parentheses)</i>								
All stock, $N = 74$ , BTM = 0.50	-3.93 (-1.48)	-2.50 (-2.99) <sup>a</sup>	-9.99 (-1.74) <sup>c</sup>	-6.20 (-1.42)	-23.42 (-2.98) <sup>a</sup>	-17.70 (-3.18) <sup>a</sup>	-20.51 (-2.27) <sup>b</sup>	-10.91 (-2.49) <sup>b</sup>
FPI stock, $N = 41$ , BTM = 0.43	-1.66 (-0.52)	-0.43 (-0.93)	-3.80 (-0.53)	1.92 (0.10)	-11.32 (-1.47)	-10.19 (-1.28)	-0.87 (-0.13)	-4.70 (-0.62)
FD stock, $N = 33$ , BTM = 0.59	-6.75 (-1.95) <sup>c</sup>	-4.72 (-3.31) <sup>a</sup>	-17.68 (-2.30) <sup>b</sup>	-18.37 (-1.97) <sup>c</sup>	-38.45 (-3.04) <sup>a</sup>	-30.40 (-3.21) <sup>a</sup>	-44.91 (-3.10) <sup>a</sup>	-34.08 (-3.08) <sup>a</sup>
FPI – FD	3.61 (1.44)	4.30 (2.87) <sup>a</sup>	13.88 (1.89) <sup>c</sup>	20.29 (2.09) <sup>b</sup>	27.13 (3.29) <sup>a</sup>	20.20 (3.48) <sup>a</sup>	44.04 (3.64) <sup>a</sup>	29.39 (3.08) <sup>a</sup>
<i>Panel C: Mixed (student t-statistics and Wilcoxon z-statistics in parentheses)</i>								
All mixed, $N = 60$ , BTM = 0.63	-0.62 (-0.17)	-0.92 (-1.11)	-5.06 (-0.83)	-4.45 (-1.16)	-8.25 (-0.94)	-13.33 (-1.68) <sup>b</sup>	-3.82 (-0.31)	-7.88 (-1.68) <sup>b</sup>
FPI mixed, $N = 37$ , BTM = 0.61	0.83 (0.20)	-0.90 (-0.91)	-0.28 (-0.03)	-1.54 (-0.33)	-3.78 (-0.33)	-9.03 (-0.66)	-0.32 (-0.02)	-4.86 (-0.66)
FD mixed, $N = 23$ , BTM = 0.66	-2.95 (-0.54)	-1.10 (-0.64)	-12.75 (-1.75) <sup>c</sup>	-6.49 (-1.25)	-15.43 (-1.79) <sup>c</sup>	-17.00 (-1.67) <sup>c</sup>	-9.43 (-1.44)	-13.70 (-1.67) <sup>c</sup>
FPI – FD	3.78 (1.09)	0.20 (0.71)	12.47 (1.50) <sup>b</sup>	4.95 (1.09)	11.65 (1.35)	7.96 (0.89)	9.11 (0.74)	8.84 (0.71)
<i>Panel D: Book-to-market (student t-statistics and Wilcoxon z-statistics in parentheses)</i>								
Low BTM, $N = 102$ , BTM = 0.32	0.21 (0.43)	-0.57 (-0.19)	0.46 (0.38)	-3.34 (-1.09)	-12.22 (-1.52)	-16.49 (-2.67) <sup>a</sup>	-9.46 (-0.82)	-4.24 (-1.09)
FPI, $N = 52$ , BTM = 0.29	2.51 (0.87)	-0.43 (-0.84)	5.57 (0.34)	-1.33 (-0.39)	-1.10 (-0.12)	-1.36 (-1.18)	1.71 (0.12)	1.75 (0.13)
FD, $N = 50$ , BTM = 0.36	-2.18 (-0.20)	-1.10 (-1.08)	-4.86 (-0.21)	-6.81 (-1.06)	-23.78 (-2.22) <sup>b</sup>	-29.85 (-2.56) <sup>b</sup>	-21.08 (-1.75) <sup>c</sup>	-20.57 (-1.96) <sup>b</sup>
High BTM, $N = 102$ , BTM = 0.97	-3.49 (-1.77) <sup>c</sup>	-3.10 (-1.91) <sup>c</sup>	-6.02 (-1.31)	-5.14 (-1.88) <sup>c</sup>	-7.60 (-1.53)	-6.40 (-1.29)	-3.61 (-0.47)	-7.36 (-0.30)

(continued on next page)

Table 4 (continued)

	AR (%)		Year 1 BHAR (%)		Year 2 BHAR (%)		Year 3 BHAR (%)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
FPI, <i>N</i> = 60, BTM = 0.84	-1.02 (-0.32)	-0.07 (-0.88)	-1.06 (-0.15)	-1.88 (-0.14)	-2.74 (-0.28)	-3.18 (-0.41)	4.62 (0.33)	-0.63 (-0.14)
FD, <i>N</i> = 42, BTM = 1.16	-7.03 (-2.49) <sup>b</sup>	-4.40 (-1.79) <sup>c</sup>	-13.10 (-1.76) <sup>c</sup>	-8.48 (-2.45) <sup>b</sup>	-14.54 (-2.20) <sup>b</sup>	-9.16 (-1.90) <sup>c</sup>	-15.36 (-1.75) <sup>c</sup>	-9.66 (-1.43)

Method of payment and BTM comparisons of announcement-period AR and three-year post-merger BHAR for each post-merger year, where BHAR is defined as the buy-and-hold raw returns for acquiring firms less the mean/median buy-and-hold raw returns of weighted-average industry portfolios of single line of business control firms matched on market value of equity and BTM ratio for each line of business of the acquirer and target. Cash results are presented in Panel A, stock results are shown in Panel B, and mixed results appear in Panel C. Subsamples are divided into FPI or FD according to non-negative and negative merger-related changes in the Herfindahl index ( $\Delta HI$ ), respectively. Panel D presents a subsample comparison between abnormal returns of low and high acquirer BTM ratios divided by the midpoint BTM ratio.

<sup>a</sup> Significant at the 1% level.

<sup>b</sup> Significant at the 5% level.

<sup>c</sup> Significant at the 10% level.

FD acquirers is higher for each form of payment. The BTM ratios of both FPI and FD acquirers using cash as a form of payment are significantly higher (0.79) than those using stock only (0.50) or a mix of stock and cash (0.63).

These results are consistent both with the signaling theory suggested by Loughran and Vijh (1997) that managers finance mergers with stock when they know it is overvalued, and with the suggestion of Martin (1996) that firms with higher growth opportunities (low BTM firms) tend to use stock to finance their acquisitions. That is, our results show that the managers of firms pursuing FD mergers use overvalued stock to finance their diversifying acquisitions, not that managers of higher-growth firms finance their FPI acquisitions with stock.

While our results do not confirm the value versus glamour results of Rau and Vermaelen, we do find some consistencies. Like Rau and Vermaelen, we find that certain high-BTM acquirers outperform low-BTM acquirers in the post-merger period; high-BTM cash acquirers significantly outperform low-BTM stock and mixed acquirers. The relationship does not hold in a comparison of FPI and FD mergers, however. High-BTM FD acquirers, with an average BTM of 1.16 and a three-year BHAR of -15.36%, significantly underperform low-BTM FPI acquirers, with an average BTM of 0.29 and a three-year BHAR of 1.71%.

We attribute the differences to sample differences and the fact that Rau and Vermaelen do not control for method of payment (or changes in corporate focus). Most of the positive post-acquisition returns in Rau and Vermaelen are generated in tender offers (full or partial) where the acquirer generally uses cash as a form of payment and also has a high BTM ratio. Their negative post-acquisition returns are concentrated in mergers where the acquirer has a lower BTM ratio and is more prone to use stock as the means of payment. We include tender offers in our study only if they result in a complete acquisition of the target (no partial acquisitions); these



observations represent approximately 12% of our sample, and the vast majority (over 85%) are cash-financed.

Again, we want to more accurately assess the changes in corporate focus in merged firms, so our sample also excludes “bust-up” takeovers that have been documented to generate positive abnormal returns for acquirers.<sup>11</sup> The Rau–Vermaelen period of 1980–1991 includes the greatest number of bust-up transactions in history, most accomplished through cash tender offers. It is not surprising that we arrive at different results regarding the importance of the BTM ratio in merger-related wealth effects. It would be interesting to see whether the Rau and Vermaelen results hold after excluding bust-ups and controlling for form of payment and change in focus.

#### *4.3. Multivariate operating and market value performance*

In order to ascertain that our long-run abnormal returns are not the product of a mis-specified methodology, we also perform long-term operating and firm value performance tests. Using the same return measure as Healy et al. (1992) and Ghosh (2001), we compare pre-merger and post-merger operating cashflow returns (OCFRs), but we use a weighted-average of the acquirer and target for pre-merger returns and the control portfolio.

We calculate OCFR as a firm’s sales less cost of goods sold, less selling and administrative expenses, plus depreciation and good will amortization, all divided by the market value of common equity plus the book values of preferred stock and debt. The mean/median OCFR for the control portfolio is then deducted from the sample OCFR for each of three pre-merger and three post-merger years to produce a relative OCFR performance measure that we term adjusted operating cash flow return (AOCFR). The mean/median AOCFR of the three pre-merger years is taken as the pre-merger AOCFR and each of the three post-merger AOCFRs is compared to the pre-merger AOCFR to see if there are any significant changes in operating performance as a result of merger. We report operating performance results in Table 5.

We also analyze post-merger changes in firm value as measured by market-to-book ratios. Lang and Stulz (1994) and Servaes (1996) use this proxy for Tobin’s  $q$  in their studies of the impact of diversification on firm value. The theoretical rationale for our focused control portfolio is taken from these papers which show the existence of a discount in firm value for diversified firms. We report firm value results in Table 6.

As can be seen in Tables 5 and 6, post-merger operating performance and firm value changes closely track BHARs. FPI mergers significantly outperform FD mergers in each post-merger year in both operating performance and changes in relative firm value. FD mergers turn an insignificant pre-merger AOCFR of 0.68% into a significant  $-2.00\%$  by year three – a significant 2.68% worsening in operating performance. Firm value results follow the same trend for FD mergers, an insignificant 2.21% market value discount widens to a significant 8.90% discount by year three.

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<sup>11</sup> See Bhagat et al. (1990) and Berger and Ofek (1996).

Table 5

Subsample analysis of effect of merger-related change in corporate focus on long-term OCFRs classified by form of payment

	Pre-merger AOCFR (%)		Year 1 AOCFR (%)		Year 2 AOCFR (%)		Year 3 AOCFR (%)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
<i>Panel A: Full sample (student t-statistics and Wilcoxon z-statistics in parentheses)</i>								
All FPI, $N = 112$	0.67 (1.30)	0.07 (0.29)	0.42 (-0.64)	0.16 (0.68)	0.61 (-0.91)	0.20 (0.19)	0.33 (-0.50)	0.15 (0.39)
All FD, $N = 92$	0.68 (1.40)	0.67 (2.09) <sup>b</sup>	-1.76 (-1.52)	-1.00 (-3.59) <sup>a</sup>	-2.04 (-1.75) <sup>c</sup>	-1.81 (-3.64) <sup>a</sup>	-2.00 (-1.70) <sup>c</sup>	-2.14 (-3.79) <sup>a</sup>
FPI – FD	-0.01 (-0.02)	-0.60 (-2.09) <sup>b</sup>	2.18 (1.71) <sup>c</sup>	1.16 (3.59) <sup>a</sup>	2.65 (2.05) <sup>b</sup>	2.01 (3.64) <sup>a</sup>	2.33 (1.80) <sup>c</sup>	2.29 (3.79) <sup>a</sup>
<i>Panel B: Cash (student t-statistics and Wilcoxon z-statistics in parentheses)</i>								
All cash, $N = 70$	0.13 (0.25)	0.04 (0.25)	1.14 (1.86) <sup>c</sup>	1.37 (4.22) <sup>a</sup>	1.33 (1.96) <sup>b</sup>	1.82 (4.82) <sup>a</sup>	1.44 (2.41) <sup>b</sup>	1.83 (4.95) <sup>a</sup>
FPI cash, $N = 34$	-0.07 (-0.10)	-0.04 (-0.26)	2.12 (1.99) <sup>c</sup>	1.84 (3.38) <sup>a</sup>	2.13 (1.93) <sup>c</sup>	2.42 (3.69) <sup>a</sup>	2.02 (1.89) <sup>c</sup>	2.46 (3.91) <sup>a</sup>
FD cash, $N = 36$	0.33 (0.45)	0.10 (0.30)	0.22 (-0.35)	0.55 (2.58) <sup>b</sup>	0.57 (1.04)	1.39 (3.06) <sup>a</sup>	0.90 (1.40)	0.91 (3.11) <sup>a</sup>
<i>Panel C: Stock (student t-statistics and Wilcoxon z-statistics in parentheses)</i>								
All stock, $N = 74$	1.15 (1.69) <sup>c</sup>	1.15 (0.65)	-1.83 (-3.55) <sup>a</sup>	-1.00 (-2.82) <sup>a</sup>	-2.00 (-3.80) <sup>a</sup>	-1.75 (-3.51) <sup>a</sup>	-2.45 (-4.07) <sup>a</sup>	-2.06 (-3.37) <sup>a</sup>
FPI stock, $N = 41$	1.24 (1.24)	1.40 (0.55)	-0.17 (-1.10)	-0.30 (-1.39)	0.01 (-0.94)	-0.15 (-1.00)	-0.45 (-1.27)	-1.03 (-1.48)
FD stock, $N = 33$	1.05 (1.13)	1.10 (0.12)	-3.91 (-2.60) <sup>a</sup>	-2.05 (-2.39) <sup>b</sup>	-4.49 (-2.79) <sup>a</sup>	-3.54 (-3.35) <sup>a</sup>	-4.94 (-2.94) <sup>a</sup>	-3.89 (-3.28) <sup>a</sup>
<i>Panel D: Mixed (student t-statistics and Wilcoxon z-statistics in parentheses)</i>								
All mixed, $N = 60$	0.72 (1.14)	0.68 (0.71)	-0.99 (-2.54) <sup>b</sup>	-1.00 (-2.04) <sup>b</sup>	-1.08 (-2.53) <sup>b</sup>	-1.18 (-2.25) <sup>b</sup>	-1.19 (-2.87) <sup>b</sup>	-1.76 (-2.25) <sup>b</sup>
FPI mixed, $N = 37$	0.72 (0.82)	0.43 (0.72)	-0.50 (-1.35)	-0.39 (-0.87)	-0.17 (-0.93)	-0.14 (-1.00)	-0.37 (-0.99)	-0.41 (-1.02)
FD mixed, $N = 23$	0.72 (0.81)	0.71 (0.12)	-1.79 (-1.71) <sup>c</sup>	-1.00 (-2.22) <sup>b</sup>	-2.62 (-2.39) <sup>b</sup>	-2.26 (-2.43) <sup>b</sup>	-4.23 (-3.32) <sup>a</sup>	-3.17 (-2.28) <sup>b</sup>

Pre-merger mean and median AOCFR for a weighted average of the acquirer and target firm for the three years preceding the merger and AOCFR for the merged firm in post-merger years 1–3. For sample and control firms, we use OCFR as defined in Healy et al. (1992) and Ghosh (2001): sales less cost of goods sold, less selling and administrative expenses, plus depreciation and goodwill amortization all deflated by the market value of common equity plus the book value of debt and preferred stock. AOCFR equals the sample OCFR less the mean/median OCFR of weighted-average industry portfolios of single line of business control firms matched on market value of equity and BTM ratio for each line of business of the acquirer and target. Full sample results are presented in Panel A, cash results are presented in Panel B, stock results are shown in Panel C, and mixed results appear in Panel D. The subsamples are divided into FPI or FD according to non-negative and negative merger-related changes in the Herfindahl index ( $\Delta HI$ ), respectively. Test statistics in parentheses for pre-merger years reflect tests for differences in sample AOCFR relative to the control portfolio, post-merger statistics reflect differences in post-merger AOCFR from pre-merger AOCFR.

<sup>a</sup> Significant at the 1% level.

<sup>b</sup> Significant at the 5% level.

<sup>c</sup> Significant at the 10% level.

Table 6

Subsample analysis of effect of merger-related change in corporate focus on long-term market valuation classified by form of payment

	Pre-merger RMTB (%)		Year 1 RMTB (%)		Year 2 RMTB (%)		Year 3 RMTB (%)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
<i>Panel A: Full sample (student t-statistics and Wilcoxon z-statistics in parentheses)</i>								
All FPI, $N = 112$	1.41 (0.52)	-1.54 (-0.57)	3.73 (1.31)	2.38 (0.66)	5.08 (1.49)	3.02 (0.85)	9.04 (1.68) <sup>c</sup>	4.16 (0.97)
All FD, $N = 92$	-2.21 (-0.82)	4.99 (0.66)	-6.35 (-2.34) <sup>b</sup>	-4.33 (-2.61) <sup>a</sup>	-8.64 (-2.25) <sup>b</sup>	-5.89 (-3.40) <sup>a</sup>	-8.90 (-2.29) <sup>b</sup>	-6.82 (-3.91) <sup>a</sup>
FPI-FD	3.50 (0.94)	-6.53 (-0.32)	10.08 (2.15) <sup>b</sup>	6.71 (2.61) <sup>a</sup>	13.72 (2.00) <sup>b</sup>	8.91 (2.40) <sup>b</sup>	17.94 (1.98) <sup>b</sup>	10.98 (2.04) <sup>b</sup>
<i>Panel B: Cash (student t-statistics and Wilcoxon z-statistics in parentheses)</i>								
All cash, $N = 70$	-6.87 (-2.18) <sup>b</sup>	-3.77 (-1.31)	-3.96 (1.31)	-5.14 (-1.51)	1.48 (0.54)	0.51 (1.68) <sup>c</sup>	7.95 (2.46) <sup>b</sup>	2.82 (2.24) <sup>b</sup>
FPI cash, $N = 34$	-5.67 (-1.24)	-8.22 (-0.73)	-1.71 (0.86)	-8.08 (0.54)	6.45 (1.91) <sup>c</sup>	0.75 (2.15) <sup>b</sup>	14.20 (2.10) <sup>b</sup>	3.01 (3.20) <sup>a</sup>
FD cash, $N = 36$	-7.99 (-1.82) <sup>c</sup>	-2.95 (-1.07)	-6.09 (0.98)	-1.57 (0.22)	-3.21 (1.50)	0.39 (1.63)	2.05 (1.89) <sup>c</sup>	2.75 (2.09) <sup>b</sup>
<i>Panel C: Stock (student t-statistics and Wilcoxon z-statistics in parentheses)</i>								
All stock, $N = 74$	8.89 (3.13) <sup>a</sup>	7.74 (4.02) <sup>a</sup>	4.05 (-1.05)	-0.13 (-0.58)	-1.42 (-1.85) <sup>c</sup>	-1.06 (-3.49) <sup>a</sup>	-4.62 (-1.91) <sup>c</sup>	-3.62 (-2.65) <sup>a</sup>
FPI stock, $N = 41$	11.25 (2.81) <sup>a</sup>	6.86 (3.56) <sup>a</sup>	12.72 (1.22)	5.97 (-1.47)	7.66 (-0.86)	5.74 (-1.39)	5.87 (-1.25)	5.54 (-1.38)
FD stock, $N = 33$	5.96 (1.56)	8.62 (1.99) <sup>b</sup>	-6.72 (-2.04) <sup>b</sup>	-5.84 (-1.44)	-12.71 (-3.12) <sup>a</sup>	-9.08 (-2.46) <sup>b</sup>	-17.66 (-2.97) <sup>a</sup>	-13.06 (-4.12) <sup>b</sup>
<i>Panel D: Mixed (student t-statistics and Wilcoxon z-statistics in parentheses)</i>								
All mixed, $N = 60$	-3.94 (-0.86)	3.90 (0.43)	-3.76 (0.11)	-0.94 (-0.65)	-4.57 (-0.60)	-2.94 (-1.65) <sup>c</sup>	-1.85 (1.44)	-2.78 (-2.02) <sup>b</sup>
FPI mixed, $N = 37$	-3.36 (-0.44)	-2.31 (-0.25)	-2.24 (0.29)	2.45 (0.90)	-0.40 (0.49)	3.13 (1.37)	5.38 (1.30)	4.60 (1.67)
FD mixed, $N = 23$	-4.88 (-0.78)	5.26 (-0.12)	-6.21 (-1.74) <sup>c</sup>	-4.81 (-1.76) <sup>c</sup>	-11.28 (-2.30) <sup>b</sup>	-6.53 (-1.89) <sup>c</sup>	-13.47 (-2.93) <sup>c</sup>	-8.09 (-2.19) <sup>b</sup>

Mean- and median-adjusted pre-merger RMTB ratios for a weighted average of the acquirer and target firm for the three years preceding the merger and RMTB for the merged firm in post-merger years 1–3. The MTB ratio for sample and control firms is the Chung and Pruitt (1994) proxy for Tobin's  $q$ : the market value of common equity plus the book value of debt and preferred stock all relative to the book values of common equity, debt, and preferred stock. Mean- and median-adjusted RMTB equals the sample MTB less the mean/median MTB of weighted-average industry portfolios of control firms matched on market value of equity and BTM ratio for each line of business of the acquirer and target the mean/median RMTB for the control firm portfolio. Full sample results are presented in Panel A, cash results are presented in Panel B, stock results are shown in Panel C, and mixed results appear in Panel D. The subsamples are divided into FPI or FD according to non-negative and negative merger-related changes in the Herfindahl index ( $\Delta HI$ ), respectively. Test statistics in parentheses for pre-merger years reflect tests for differences in sample RMTB relative to the control portfolio, post-merger statistics reflect differences in post-merger and pre-merger RMTB.

<sup>a</sup>Significant at the 1 level.

<sup>b</sup>Significant at the 5 level.

<sup>c</sup>Significant at the 10 level.

These results compare to an insignificant change in operating performance and a marginal improvement in firm value for FPI mergers (an insignificant 1.41% premium increases to a significant 9.04%).

Subsample analyses demonstrate only slight differences from BHAR results. Just as before, the best post-merger performance is recorded by FPI mergers financed with cash and the worst performance by FD mergers financed with stock. One difference is that cash-financed mergers result in significant improvements in operating performance – reflecting marginal improvements in FD operating performance (mean AOCFRs are not significant, but median AOCFRs are). All other operating performance results are consistent with the BHARs reported earlier.

In a further univariate test of operating performance for FD mergers, we examine those mergers in which the acquired firm continues to be reported as a separate business segment. For these 34 mergers, AOCFRs decline from a positive 0.65% for the pre-merger target firm to  $-1.71\%$ ,  $-1.14\%$ , and  $-0.25\%$  in post-merger years 1–3.<sup>12</sup> Changes in years one and two represent significant declines in operating performance at the 10% level, while the decline in year three is not significant.

These business segment results support the corporate-level operating results, and also suggest that poorer operating performance of the acquired firm is at least partially responsible for the overall poor post-merger performance seen in FD mergers. This result is also consistent with the Graham et al. (2002) finding that diversified firms' poor performance may be the result of acquisitions of bad target firms.

Our operating performance results are generally consistent with those in other studies. Desai and Jain (1999) find that focus-increasing spinoffs result in significant operating performance improvements, and that spinoffs that do not increase focus do not enhance operating performance. We find the mirror result that FD mergers cause significant declines in operating performance. We agree with both Ghosh (2001) and Linn and Switzer (2001) in that cash-financed acquisitions result in superior post-merger performance, but differ in that they do not find a positive relationship between focus and operating performance changes. The difference likely stems from the various benchmarks applied. Both Ghosh and Linn and Switzer use industry-adjusted cashflow returns to gauge performance. It is not surprising that industry benchmarking studies do not find weaker post-merger operating performance in diversifying mergers given that the majority of these mergers involve acquisitions of higher-OCFR targets by acquirers with lower OCFRs – as is the case in nearly 75% of our FD mergers. Such measures are biased in favor of FD acquisitions when only the primary, low-OCFR industry is used as the benchmark for the operating performance of the merged firm. When this bias is eliminated with our multiple-industry control portfolio, we find that FPI mergers dominate FD mergers on operating performance measures.

Firm value results parallel operating performance results, and also differ from BHAR results again regarding cash-financed FD mergers. Cash-financed FD mergers exhibit marginal improvements in firm value – reversing a significant 7.99% dis-

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<sup>12</sup> Our control portfolio remains the same as used for the pre-merger target firm.

count to an insignificant 2.05% premium by year three, a significant 10.04% improvement in firm value. All other firm value results parallel BHAR results.

Firm value results are also consistent with those in other studies and confirm that FD mergers lead to firms that trade at a significant discount from their more-focused peers. FPI mergers result in a firm value premium of slightly over 9% while FD mergers lead to discounts of nearly 9% by the third post-merger year. This 17.94% difference in relative firm value is significant and also in line with the 13%–15% diversification discount documented by Lang and Stulz (1994) and Berger and Ofek (1995). That stock-financed mergers have a significant pre-merger value premium (8.89%) and cash-financed mergers have pre-merger discounts (6.87%) also suggests that our results are consistent with signaling theory that acquirers are using over-valued stock as the method of payment in mergers.

By all three measures, FD mergers financed with any form of stock experience significantly negative post-merger performance; in fact, FD mergers financed with stock perform the worst of any subsample. Cash-financed FD mergers show weak signs of post-merger improvement. FPI mergers financed with any form of stock exhibit few changes in post-merger performance. Cash-financed FPI mergers display the best post-merger performance of any subsample, with marginally significant gains in operating performance and firm value. In aggregate, these results indicate that corporate focus and the method of payment are the primary determinants of long-term performance in mergers.

#### 4.4. Continuous focus variable regression results

To test for a continuous relationship between changes in corporate focus and long-term performance, we perform an ordinary least squares (OLS) regression with our performance metrics as dependent variables and independent variables as follows: dummy variables for cash- and stock-financed mergers and mergers resisted by target management, the natural log of the market-to-book ratio, and the  $\Delta$ HI measure.<sup>13</sup>

We model the (OLS) regression as follows:

$$\text{BHAR}_i = \alpha K + \partial_1 L_1 \text{CASH} + \partial_2 L_2 \text{STOCK} + \partial_3 L_3 \text{HOSTILE} + \beta_1 \text{LNBTM} + \beta_2 \Delta \text{HI} \quad (3)$$

where  $\text{BHAR}_i$  is the buy-and-hold abnormal return for year  $i$  (0, 1, 2, 3); CASH, the dummy variable equaling 1 if merger is purely cash-financed; STOCK, the dummy variable equaling 1 if merger is purely stock-financed, HOSTILE the dummy variable equaling 1 if merger is resisted by target management; LNBTM, the Natural logarithm of the acquiring firm's BTM ratio and  $\Delta$ HI is the percentage change in acquirer's Herfindahl index.<sup>14</sup>

<sup>13</sup> With only 17 mergers in our sample resisted by target management, we do not have sufficient power to analyze the HOSTILE variable with subsample comparisons.

<sup>14</sup> We also use an absolute change in HI for the  $\Delta$ HI measure with the same qualitative result. Since results are similar, we report only those for this original specification.

In the base case merger, there is no change in corporate focus; the acquiring firm has a BTM ratio of 1.0; the transaction is friendly; and financing is a mixture of stock and cash. We use the same model for the dependent variables of changes in adjusted operating cash flow return ( $\Delta\text{AOCFR}$ ) and changes in relative market-to-book ratio ( $\Delta\text{RMTB}$ ). Regression results are presented in Table 7.

The only significant coefficient in every post-merger year is  $\beta_2$ , associated with the  $\Delta\text{HI}$  variable. With the exception of the year one BHAR, the  $\Delta\text{HI}$  coefficient is significant in every post-merger year for all three metrics. The three significant coefficients for year three may be interpreted as follows. Each 10% decline in corporate focus leads to an 8.92% loss in relative shareholder value (0.8920 BHAR), a 1.17% worsening in relative operating cash flow performance (0.1170  $\Delta\text{AOCFR}$ ), and a 4.01% loss in firm value (0.4011  $\Delta\text{RMTB}$ ). The cash dummy coefficients for  $\Delta\text{AOCFR}$  in years two and three (0.0281 and 0.0292) also indicate that cash mergers are associated with significant improvements in operating performance, but this improvement is not reflected in significant BHARs or changes in firm value.

The only other significant coefficients in our models relate to the LNBTM variable. According to Rau and Vermaelen (1998), this coefficient should be significantly positive in the post-merger period. In fact, we find the coefficient is significantly negative for announcement and year one abnormal returns, and is also inversely related to  $\Delta\text{RMTB}$  in year one. This result is counter to the Rau and Vermaelen finding that value acquirers outperform glamour acquirers in the long-run, but consistent with both Lang et al. (1989) and Servaes (1991), who find that high-value (high  $q$ , low BTM) acquirers have significantly higher announcement-period returns than low-value (low  $q$ , high BTM) acquirers.

We thus find a continuous relationship between corporate focus change and long-run performance after controlling for form of payment, attitude of target management, and acquirer's BTM ratio. In the case of strategic mergers, the form of payment BHAR results of Loughran and Vijh (cash acquirers outperform stock acquirers) and the BTM results of Rau and Vermaelen (value acquirers outperform glamour acquirers) fail to hold once we account for merger-related changes in corporate focus. The form of payment results reported by Ghosh (2001) and Linn and Switzer (2001) continue to hold for long-term operating performance; cash mergers experience significant and positive changes in operating performance. As in our subsample comparisons, however, we differ from these studies in finding a significantly positive relationship between changes in focus and operating performance. While the cash variable is a significant determinant of operating performance, it is less important than changes in focus in determining long-term performance since the  $\Delta\text{HI}$  variable is significant in eight of the nine regressions of long-term performance and the cash variable is significant in only two  $\Delta\text{AOCFR}$  regressions.

#### 4.5. Temporal analysis of long-term performance

Since there is a clustering of FD mergers in the earlier period of the sample, we perform a time period analysis to see if our results are driven by temporal events. We divide the sample into roughly equal subsamples according to the effective date

Table 7  
Multivariate OLS analysis of long-term buy-and-hold abnormal stock returns, relative market-to-book, and OCFRs

Independent variable	AR	Year 1			Year 2			Year 3		
		BHAR	$\Delta$ AOCFR	$\Delta$ RM TB	BHAR	$\Delta$ AOCFR	$\Delta$ RM TB	BHAR	$\Delta$ AOCFR	$\Delta$ RM TB
Intercept	−0.0155 (−0.52)	−0.0747 (−0.88)	−0.0007 (−0.05)	−0.0658 (−1.57)	−0.0772 (−0.79)	0.0006 (0.05)	−0.0695 (−0.76)	0.0113 (0.08)	−0.0124 (−0.05)	−0.0319 (−0.63)
CASH dummy	0.0092 (0.25)	0.1263 (1.23)	0.0248 (1.57)	0.0454 (0.84)	0.1079 (0.90)	0.0281 (1.76) <sup>c</sup>	0.0412 (0.85)	0.1376 (0.82)	0.0292 (1.84) <sup>c</sup>	0.0237 (0.38)
STOCK dummy	−0.0418 (−1.14)	−0.0641 (−0.62)	−0.0091 (−0.57)	−0.0563 (−1.04)	−0.1683 (−1.41)	−0.0082 (−0.52)	−0.1450 (−1.30)	−0.2168 (−1.26)	−0.1320 (−0.83)	−0.1364 (−0.58)
HOSTILE dummy	−0.0656 (−1.26)	−0.0444 (−0.30)	−0.0147 (−0.64)	−0.0581 (−0.74)	−0.0071 (−0.04)	−0.0099 (−0.43)	−0.0218 (−0.31)	−0.0362 (−0.52)	−0.0127 (−0.55)	−0.0209 (−1.30)
LNBTM	−0.0418 (−1.83) <sup>c</sup>	−0.1025 (−1.68) <sup>c</sup>	−0.0021 (−0.22)	−0.0970 (−1.78) <sup>c</sup>	−0.0894 (−1.20)	0.0025 (0.26)	−0.1011 (−1.25)	−0.1067 (−1.02)	0.0002 (0.02)	−0.0677 (−0.75)
HI	0.0503 (0.56)	0.2938 (1.61)	0.1196 (3.09) <sup>a</sup>	0.3262 (2.48) <sup>b</sup>	0.6578 (2.24) <sup>b</sup>	0.1260 (3.22) <sup>a</sup>	0.3364 (2.84) <sup>a</sup>	0.8920 (2.17) <sup>b</sup>	0.1170 (2.99) <sup>a</sup>	0.4011 (2.61) <sup>a</sup>
<i>F</i> -statistic	2.52 <sup>b</sup>	1.47	2.79 <sup>b</sup>	4.35 <sup>a</sup>	2.29 <sup>b</sup>	3.13 <sup>a</sup>	4.58 <sup>a</sup>	2.61 <sup>a</sup>	3.21 <sup>a</sup>	3.07 <sup>a</sup>
Adjusted <i>R</i> <sup>2</sup>	0.0361	0.0131	0.0423	0.0762	0.0309	0.0500	0.0811	0.0387	0.0514	0.04

Multivariate OLS results regressing mean-adjusted BHAR, changes in mean  $\Delta$ AOCFR, and changes in mean relative market-to-book ratios ( $\Delta$ RM TB) on a cash-only dummy variable set to 1 if cash is the sole source of payment (CASH), stock-only dummy variable set to 1 if stock is the sole source of payment (STOCK), hostile dummy variable set to 1 if the merger is opposed by target management (HOSTILE), the natural log of the acquiring firm's BTM ratio (LNBTM), and merger-related change in the Herfindahl index ( $\Delta$ HI). The base case observation involves a friendly acquirer with a BTM ratio of 1 that finances a merger with a mix of stock and cash and has no merger-related change in corporate focus. *t*-statistics shown in parentheses.

<sup>a</sup> Significant at the 1% level.

<sup>b</sup> Significant at the 5% level.

<sup>c</sup> Significant at the 10% level.

Table 8  
Temporal analysis of long-term performance

	Announcement AR (%)	BHAR 1 (%)	BHAR 2 (%)	BHAR 3 (%)
<i>Panel A: Univariate results</i>				
<i>1977–1987</i>				
<i>N</i> = 100	-1.49 (-0.31)	-2.12 (-0.09)	-10.83 (-1.19)	-6.60 (-0.65)
FPI, <i>N</i> = 48	0.80 (0.57)	8.65 (0.95)	7.81 (0.78)	15.21 (1.82) <sup>c</sup>
FD, <i>N</i> = 52	-3.64 (-1.48)	-12.23 (-1.78) <sup>c</sup>	-28.34 (-2.22) <sup>b</sup>	-27.08 (-2.11) <sup>b</sup>
FPI – FD	4.44 (1.27)	20.88 (1.82) <sup>c</sup>	36.15 (2.48) <sup>b</sup>	42.29 (1.99) <sup>c</sup>
<i>1988–1996</i>				
<i>N</i> = 104	-1.58 (-1.24)	-2.98 (-0.91)	-9.01 (-1.58)	-6.64 (-0.76)
FPI, <i>N</i> = 64	0.82 (0.11)	-1.99 (-0.75)	-8.65 (-1.50)	-5.33 (-0.40)
FD, <i>N</i> = 40	-5.25 (-1.84) <sup>c</sup>	-4.49 (-0.54)	-9.56 (-1.00)	-8.65 (-0.79)
FPI – FD	6.07 (1.88) <sup>c</sup>	2.50 (0.26)	0.91 (0.08)	3.32 (0.21)
All <sub>Late</sub> – All <sub>Early</sub>	-0.09 (-0.05)	-0.87 (-0.17)	1.82 (0.72)	-0.04 (-0.02)
FPI <sub>Late</sub> – FPI <sub>Early</sub>	0.02 (0.00)	-10.64 (-0.88)	-16.46 (-1.20)	-20.54 (-1.02)
FD <sub>Late</sub> – FD <sub>Early</sub>	-1.61 (-1.23)	7.74 (1.52)	18.78 (2.22) <sup>b</sup>	18.43 (1.88) <sup>c</sup>
<i>Panel B: Multivariate results</i>				
Intercept	0.0044 (0.12)	-0.0368 (-0.83)	-0.0354 (-0.31)	0.0438 (0.27)
CASH dummy	0.0022 (0.06)	0.1138 (1.10)	0.1117 (0.92)	0.1140 (0.67)
STOCK dummy	-0.0574 (-1.53)	-0.0991 (-0.94)	-0.1885 (-1.53)	-0.2243 (-1.31)
HOSTILE dummy	-0.0665 (-1.24)	-0.0647 (-0.43)	-0.0321 (-0.18)	-0.0378 (-0.55)
LNBTM	-0.0488 (-2.08) <sup>b</sup>	-0.1241 (-1.89) <sup>c</sup>	-0.0955 (-1.24)	-0.1047 (-0.98)
ΔHI	0.0621 (0.53)	0.1994 (1.52)	0.5935 (2.48) <sup>a</sup>	0.8292 (3.10) <sup>a</sup>
TIME dummy	0.0323 (0.94)	0.0558 (0.61)	0.0654 (0.58)	0.0363 (0.23)
ΔHI × TIME	0.0383 (0.21)	0.3635 (0.21)	0.0849 (0.14)	0.2459 (0.29)
<i>F</i> -statistic	1.91 <sup>c</sup>	1.74 <sup>c</sup>	2.67 <sup>a</sup>	3.27 <sup>a</sup>
Adjusted <i>R</i> <sup>2</sup>	0.0288	0.0236	0.0470	0.0591

Long-term performance comparison of FPI and FD mergers in early (1977–1987) and late (1988–1996) period by merger type. Performance measures include announcement period AR and BHAR. Univariate



Table 8 (continued)

results are presented in Panel A, and multivariate results are presented in Panel B. *t*-statistics are shown in parentheses.

<sup>a</sup> Significant at the 1% level.

<sup>b</sup> Significant at the 5% level.

<sup>c</sup> Significant at the 10% level.

of merger. The year-end breakpoint is 1987; 100 mergers occurred from 1977 to 1987 and the remaining 104 from 1988 to 1996. Evidence of a temporal effect is reported in Table 8. FD merger results have improved over time, from significantly negative performance in each post-merger year to virtually insignificant changes in post-merger performance. The improvement in BHARs is a significant 18.78% in post-merger year two and 18.43% in year three.<sup>15</sup> Consistent with results in Morck et al. (1990) and Maqueira et al. (1998), we also find that the capital market reaction to FD mergers has grown more negative over time, although long-term returns are not significantly negative in the latter period as they are in the early period. This result is consistent with the notion that efficient capital markets “learn” over time (in this case, of the prior failure of FD mergers). It is also consistent with the Loughran and Vijh (1997) conclusion that announcement-period event-studies are not necessarily good predictors of long-term performance.

FPI mergers exhibit the opposite trend in performance over time, changing from positive long-term performance in the 1977–1987 period to insignificant post-merger performance changes after 1987. FPI three-year BHARs decline from a significant 15.21% in the earlier period to an insignificant –5.33% in the later period, but the 20.54% difference is not statistically significant.

We conclude from these results that the superior post-merger performance of FPI mergers is concentrated in the early years of our study. While FPI BHARs continue to exceed those of FD mergers in the later period, the differences are not statistically significant. The only significant difference between the FPI and FD mergers appears in the form of announcement-period returns in the later period. FPI mergers are greeted with similar insignificant market reactions in both time periods (0.80% and 0.82%). Capital market reactions to FD mergers have worsened over time, moving from an insignificant announcement-period return of –3.64% to a significant –5.25% in the later years (the 1.61% decline over time is not significant, however).

Unlike the earlier period, the 6.07% difference in announcement-period returns between FPI and FD mergers is significant in the later years. This result again indicates that the capital markets may react correctly to past performance differences between FPI and FD mergers, but do not necessarily serve as an accurate indicator of future performance.

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<sup>15</sup> Since the temporal results of all three performance measures are qualitatively the same, we report only BHARs.

We further explore this temporal effect to gain insight to the significant improvement in FD performance and the worsening in FPI performance over time. Two factors appear to be driving the time-related differences in results: the degree of change in focus and, to a lesser extent, the method of payment. First, earlier FD mergers are more apt to be purely diversifying while later FD mergers are more related or vertical in nature. An example is the 1982 FD conglomerate merger of US Steel and Marathon Oil in the earlier period versus the 1996 FD vertical merger between Disney and Capital Cities/ABC in the later period. Of the early FD mergers, 79% would be classified as unrelated diversification, compared to 58% in the later period. This is also reflected in the average levels of reduced corporate focus for FD mergers between time periods, declining significantly (in absolute terms) from a  $\Delta HI$  of  $-23.58\%$  in the early years to  $-18.02\%$  in the later years. The improved performance of FD mergers is consistent with results presented by Rumelt (1982) and Berger and Ofek (1995) showing that related diversification destroys less value than does unrelated diversification.

The opposite trend has taken place with FPI mergers, which have evolved from more focus-increasing to more focus-preserving over time. Many early FPI mergers resulted in the combination of a diversified acquirer and a focused target in the acquirer's primary line of business, actually increasing corporate focus. The merger of Mobil Corporation (primarily petroleum operations with secondary lines of business in chemicals, paperboards, and retailing with the Montgomery Ward chain) and Superior Oil (operating only in petroleum) is an example. The average  $\Delta HI$  for FPI mergers in the early period is  $4.12\%$ . Later FPI mergers are generally pairings of focused firms in the same line of business with an average  $\Delta HI$  of  $0.37\%$ . The difference in  $\Delta HI$  between time periods is significant. This change over time is not surprising, given the general return to corporate specialization documented by Bhagat et al. (1990). As firms have become increasingly focused over time, there are fewer opportunities to increase focus through mergers.

The second factor likely affecting temporal differences is the change in the method of payment over time for both FPI and FD mergers. The percentage of cash-financed FPI mergers has declined over time, while the converse is true for FD mergers. Taken together with the trends in levels of focus changes, these results reaffirm our basic conclusions – increasing focus and cash financing generally lead to positive long-run performance, while diversification and stock financing lead to declines in performance.

Since the binary relationship between focus changes and long-term performance does not hold in the later years of our study, we re-examine the continuous relationship between the  $\Delta HI$  variable and BHARs after controlling for temporal effects. We add to the regression model in Eq. (3) a dummy variable for the time period in which a merger occurs (TIME), set to 1 if the merger occurs in the later time period, and an interaction variable of the product of  $\Delta HI$  and TIME (TIME  $\times$   $\Delta HI$ ). We report the results of this regression in panel B of Table 8.

The regression results for the original regressors in Panel B of Table 8 are little changed from the original results in Table 7. The  $\Delta HI$  variable remains significantly positive for years two (0.5935) and three (0.8292), and the LNTBM coefficient remains significantly negative for announcement-period returns and year one BHAR.

Neither the dummy variable TIME nor the interaction variable  $\Delta HI \times TIME$  is significant, indicating that the relationship between long-term performance and the degree of change in focus continues to hold in the later period – even though the binary relationship between focus and long-term performance does not hold in this period. This result also suggests that the extent of a change in corporate focus is more important than the sign of the change and that simple binary classifications do not capture the full wealth effects of changes in corporate focus.

## 5. Conclusions

Employing sample selection criteria and a benchmarking methodology designed to remove biases in measuring the merger-related changes in corporate focus and long-term merger performance, we find a significantly positive relationship between corporate focus changes and long-term merger performance in strategic mergers. Mergers that decrease focus (FD mergers) result in significant losses in relative shareholder wealth, operating performance, and firm value over the three years following merger completion. Mergers that either preserve or increase focus (FPI mergers) result in marginal improvements in long-term performance. These results are consistent with studies on the positive value effect of corporate focus and suggest that merger study results finding the opposite occur because of measurement error.

This significant relationship holds after controlling for form of payment, managerial resistance, and firm value effects (BTM ratio). While cash financing has a significant positive impact on long-term operating performance, this positive effect is not translated into stockholder returns or firm value changes. We do not find that “glamour” acquirers outperform “value” acquirers, nor do we find superior performance for hostile transactions. In aggregate, these results suggest that corporate focus is the primary determinant of long-term merger performance, followed by the form of payment – reflected by the fact that the best post-merger performance is exhibited by cash-financed FPI mergers and the worst by stock-financed FD mergers.

Long-term performance is most strongly related to the extent of corporate focus change. Regression results reveal that the continuous measure of focus change ( $\Delta HI$ ) is the only variable in our model with a significant relationship to long-term buy-and-hold abnormal returns (BHARs). This relationship holds even after controlling for the improved performance of FD mergers over time as mergers have become less diversifying in nature. While there are no significant differences in BHARs between FPI and FD mergers in the later period of the study, the  $\Delta HI$  variable remains significantly related to BHARs even after controlling for temporal effects. This result suggests that the extent of corporate focus changes is a more important measure of corporate focus or diversification than the sign of the change.

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