Asset sales and subsequent acquisitions

Abstract

In this paper, we find that the decisions to retain asset sale proceeds are positively related to the likelihood of subsequent acquisitions. We demonstrate that retention decisions destroy the wealth of shareholders. First, we document negative market reactions towards a retention decision, and the effect is more pronounced when the decision is followed by an unexpected acquisition. Second, we show that subsequent acquisitions reduce the wealth of shareholders, especially when the acquisitions are unexpected by the market. Third, retention sellers' long-run performance declines when they pursue an acquisition following the sale of their assets. Altogether, we provide novel evidence suggesting that retention sellers tend to reallocate proceeds to specific acquisitions that are detrimental to shareholders' wealth.

1. Introduction

From 1990 to 2014, more than 17,000 inter-corporate asset transactions, whose value placed over $2.5 trillion, were completed in the U.S. alone.[1] Firms often reap a large amount of cash following asset sales (Edmans and Mann, 2017; Eckbo and Kisser, 2014). In 2014, asset sales generated $74.3 billion in cash, which equals an average increase of $305 million in cash per transaction. Cash proceeds are often used by managers to fund subsequent acquisitions (Kaplan and Weisbach, 1992; John and Ofek, 1995; Mavis, McNamee, Petmezas, and Travlos, 2016). For example, in 1999, Ackerley Group Inc. divested its Miami Billboard Bus segment and obtained $300 million cash. Denis Curley, the company's CEO, stated that the proceeds from its asset sale were to fuel future acquisitions consistent with the company's cluster strategies including the broadcast, outdoor, and sports and entertainment markets.[2] In a similar fashion, Boston Scientific Corporation sold its stroke-treating neurovascular business in 2010 and received $1.2 billion proceeds after tax to finance subsequent acquisitions. Shortly after the asset sale, the corporation bided Sadra Medical, Inc., which was based in Los Gatos for $193 million and acquired Cameron Health, Inc. for $1.3 billion in 2011 and 2012, respectively. Although the existing literature has acknowledged that asset sale proceeds are one of the important financial sources to fund corporate acquisitions (e.g, Kaplan and Weisbach, 1992; John and Ofek, 1995; Mavis, McNamee, Petmezas, and Travlos, 2016)[3], there is little understanding about the decision of a firm to divest its assets and finance following acquisitions, and how it affects the wealth of shareholders and the firm's long-term performance.

In this paper, we aim to fill in the gaps in the existing literature and tackle two questions, specifically whether: firstly, asset sale proceeds can be the sources to finance a firm acquisition; and

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[1] SDC database.

[2] Factiva.

[3] Managers may use cash proceeds to payout, particularly reduce debts, repurchase shares or pay dividends (Clayton and Reisel, 2013). Alternatively, managers may use proceeds to fund investment (e.g., Edmans and Mann, 2017; Arnold, Hackbarth, and Xenia Puhan, 2017) or R&D (Borisova and Brown, 2013).

secondly, retention sellers destroy the wealth of their shareholders through subsequent acquisitions. We collect a sample of 2,431 inter-corporate asset sales which are announced between 1990 and 2014, from the SDC Platinum database. After identifying the asset sales' announcement date, we search Factiva and Lexis-Nexis around those events to determine sellers' intended use of cash proceeds.[4] We classify sellers into payout and retention sellers. Payout sellers are firms that use of asset sale proceeds for retiring debts, repurchasing stocks, or issuing dividends, while retention sellers keep sale proceeds for general corporate activities.[5]

We identify whether asset sellers become a bidder following the sales by first collecting a sample of acquisitions including the bidder details from the SDC Platinum database. Second, we match the details of sellers and bidders, i.e., *permno*, to check whether the sellers become a bidder in one year from the time they sell assets. In our sample, 14% of sellers decide to pay out proceeds, while 24% of them announce an acquisition after selling assets. The difference of acquisition ratios between retention and payout sellers is large and significant at 11%.

We find that retention sellers are more likely to pursue subsequent acquisitions by showing that the average likelihood of announcing an acquisition increases 8% when the sellers retain proceeds. We also document that the likelihood of announcing a diversifying acquisition is 9% higher, on average, when the seller decides to keep sale proceeds, thus emphasizing that a retention seller is more likely to diversify through acquisitions than a payout seller.

Following the decision to pursue an acquisition, we reveal that a retention seller destroys the wealth of shareholders using three different tests. First, we examine the market reactions to a retention decision, and how the decision is associated with an unexpected acquisition. We follow Harford (1999)

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[4] We require the acquisition announcement to follow the announcement of asset sales from Day 1 to next one year.
[5] If we cannot determine the intended use of cash proceeds shortly after the asset sales, we widen our search into a year after the asset sales. We consider that firms retain asset sale proceeds if no payout information is released within the course of one year.

and define an expected bidder as a seller who has the probability of announcing an acquisition larger than its 75th percentile.[6] We show that the wealth of shareholders measured as three-day cumulative abnormal returns (*DispCAR3*) decrease 2% when the seller decides to retain proceeds. The effect of the retention decision on *DispCAR3* remains negative and statistically significant when the retention decision is associated with an unexpected acquisition. However, it becomes insignificant when the subsequent acquisition is expected. We also document that the market reacts positively to a payout decision associated with an unexpected acquisition.

Second, we measure the announcement returns of post-sale acquisitions as three-day cumulative abnormal returns (*AcqCAR3*) around the announcement date. We then compare *AcqCAR3* between retention and payout sellers. The results show that *AcqCAR3* are lower when the seller divests assets and retains the sale proceeds. Specifically, after controlling for the deal and acquirer characteristics, the acquisition's announcement returns are 5% lower when it is announced by a retention seller. Our findings are particularly more pronounced in the sample of unexpected bidders.

Third, we analyze the change in ROA of retention sellers following the announcement of asset sales and subsequent acquisitions. Specifically, we measure the change in the seller's ROA between year *t+2* and *t-1*, given that *t* is the fiscal announcement year. We find that retention sellers have 5% less change in ROA when they engage in an acquisition compared to those that do not announce an acquisition. In addition, we measure the change in adjusted ROA, where adjusted ROA is the difference between the seller's ROA and the median ROA of controlling firms operated in the same industry. The regression of the change in adjusted ROA also shows that retention sellers who subsequently become a bidder have less change in ROA. Altogether, our findings demonstrate

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[6] Unexpected bidder as a seller who has the probability lower than its 75th percentile.

retention decisions reduce the wealth of shareholders, suggesting that sale proceeds might be reinvested in value-destroying acquisitions which reduce the seller's long-term performance.

We contribute to the literature in three important ways. First, we contribute to the literature investigating the financial decision following asset sales. Hovakimian and Titman (2006) document that firms use cash proceeds from asset sales for capital expenditure purposes. Borisova and Brown (2013) on the other hand show that firms finance their research and development using the proceeds from selling assets. We extend this line of research by revealing that retention sellers are more likely to invest sale proceeds in subsequent acquisitions. Our paper is consistent with the early findings of Mavis, McNamee, Petmezas, and Travlos (2016) who finds that asset sales' proceeds are positively related to the likelihood of an acquisition. We add to Mavis's study by providing more insights into the decision to retain or pay out sale proceeds and the effect of those decisions on the wealth of shareholders.

Second, we add to the literature on factors that motivate corporate acquisitions (e.g, Harford, 1999; Cornett, Tanyeri, and Tehranian, 2011; Kempf, Manconi, and Spalt, 2016). Cornett, Tanyeri, and Tehranian (2011) show that the firm's life cycle is positively related to the likelihood of becoming a bidder. Harford (1999) proposes that excess corporate cash reserves will lead to inefficient investments, such as diversifying acquisitions. Kempf, Manconi, and Spalt (2016) find that firms tend to make value-destroying acquisitions when their shareholders are distracted, suggesting that the attention of investors affects corporate actions. We extend this line of research by showing that a retention seller is more likely to acquire following the sales of its assets, i.e., we analyze the effect of a sudden cash increase from asset sales on the seller's announcement returns.

Third, we provide direct evidence indicating how post-sale acquisitions explain the negative (positive) market reaction towards the decision to retain or pay out proceeds. Lang, Stulz, and Walkling (1989), Bates (2005) and Clayton and Reisel (2013) find that the average stock-price reaction to assets

sales is negative only when the proceeds are retained, supporting the agency problem of managerial discretion. We add to their study by showing that the market discounts more for a retention decision associated with an unexpected acquisition, and the subsequent acquisitions reduce the wealth of the seller's shareholders.

Our study is also related to the literature on the agency problem in inter-corporate asset transactions. Berger and Ofek (1999) and Gillan, Kensinger, and Martin (2000) show that managers may have postponed sales until they experience pressure from institutional investor activists or other corporate control or incentive-altering events. Other studies indicate that the announcement returns of divestitures are related to monitoring incentives, such as board independence and managerial ownership (Hanson and Song, 2000), private lenders' monitoring (Datta, Iskandar-Datta, and Raman, 2003), or seller listing status (Nguyen and Nguyen, 2017). We provide supporting evidence for this line of research by revealing that retention sellers tend to waste sale proceeds on value-destroying acquisitions which negatively influence their long-term performance.

The remainder of the paper is organized as follows: Section 2 reviews the related literature and proposes hypotheses. Section 3 shows the data collection and descriptive statistics. Section 4 presents empirical results. Section 5 concludes the paper.

2. Literature review and hypothesis development

Hite, Owers, and Rogers (1987) and Brown, James, and Mooradian (1994) propose that retaining the proceeds from selling assets increases the wealth of seller shareholders if the proceeds are reallocated to unfunded, but positive net present value (NPV) projects. According to Bates (2005), sale proceeds are retained based on the optimal level of cash holdings where the expected benefit of holding cash is simply offset by the expected cost. In addition, raising cash through selling assets could enhance the provision of internal capital for subsequent investments (Harford, 1999). It is also less expensive

than other sources of financing raised through external capital markets because of asymmetric information (Myers and Majluf, 1984).

However, the existing literature also shows that the stock market reacts negatively when the seller decides to retain proceeds (e.g., Lang, Poulsen, and Stulz, 1995; Kaiser and Stouraitis, 2001; Ataullah, Davidson, and Le, 2010). Lang, Poulsen, and Stulz (1995), Maksimovic and Phillips (2002) and Clayton and Reisel (2013) attribute the negative wealth effect of a retention decision to the agency problem of managerial discretion. Specifically, the retained proceeds can be redirected to specific projects that may not be in the best interests of the seller's shareholders. Consistently, Bates (2005) finds that a retention seller with poor growth opportunities gains less when the post-sale excess investment is large. Asset sellers, however, gain more when their corporate governance is better (Hanson and Song, 2000; Datta, Iskandar-Datta, and Raman, 2003; Ataullah, Davidson, and Le, 2010).

2.1 Retention and subsequent acquisitions

Managers may use sale proceeds to finance specific investments that benefit them rather than shareholders. Kaplan and Weisbach (1992), John and Ofek (1995) and Mavis, McNamee, Petmezas, and Travlos (2016) document a high frequency of using sale proceeds to fund corporate acquisitions. In the context of corporate cash holdings of Jensen (1986) and Pinkowitz, Stulz, and Williamson (2006), the retention of proceeds will influence the seller's investment decisions through abnormal cash increases. Harford (1999) and Harford, Mansi, and Maxwell (2008) show that firms with excessive cash holdings are more likely to announce a corporate acquisition. Our first hypothesis is as follows:

Hypothesis 1. Retention sellers are more likely to become bidders.

2.2 Retention and shareholders' wealth

The prior literature suggests that sale proceeds may be allocated to negative NPV projects, i.e.,

value-destroying acquisitions; therefore, stock markets will react unfavorably to a retention decision (e.g., Lang, Poulsen, and Stulz, 1995; Bates, 2005; Clayton and Reisel, 2013). We argue that the market's reactions to the announcement of an asset sale will incorporate the probability that the seller will engage in an acquisition as well as the deal's quality compared to the market's expectation. Therefore, we decompose the returns of retention and payout decisions associated with a subsequent acquisition and explore the consequences of allocating the sale proceeds.

Hypothesis 2. *Retention sellers destroy the wealth of shareholders through value-destroying acquisitions.*

Hypothesis 2a. *The stock market reacts negatively to retention decisions and discounts more for those decisions associated with unexpected acquisitions.*

Hypothesis 2b. *Acquisitions announced by retention sellers are more value-destroying than acquisitions by pay-out sellers.*

If sale proceeds are indeed used to finance value-destroying investments due to agency costs of managerial discretion, the restructuring program will result in efficiency losses (Maksimovic and Phillips, 2002; Clayton and Reisel, 2013). In other words, divesting firms that retain proceeds and reinvest them into specific acquisitions will operate less efficiently than retention firms that do not become bidders in the long term.

Hypothesis 2c. *Retention sellers who become bidders perform more poorly in the long-term than retention sellers who do not become bidders.*

3. Data and descriptive statistics

3.1 Data collection

We use SDC Platinum database to collect a sample of 2,431 asset sales between 1990 and 2014. The sample selection follows Slovin, Sushka, and Polonchek (2005), Clayton and Reisel (2013), and

Prezas and Simonyan (2015): (1) Transactions must be classified as "Acquisition of assets" or "Acquisitions of certain assets"; (2) Both sellers and acquirers are U.S. firms; (3) Transactions with a deal value less than $1 million are excluded from the sample; and (4) Transactions must generate cash proceeds greater than $1 million. We clean the sample as follows. We select complete transactions that are not classified as a joint venture, leverage buyout, asset swap, block repurchase, privatization, reverse takeover, stake repurchase, target bankrupt, liquidation, recapitalization, or restructuring. We next drop all transactions in that the divested asset and its ultimate parent have the same name or Cusip identifier. This filter is applied to guarantee that the collected transactions are partial or inter-corporate assets, and the parent of assets continues its operations. A similar strategy is selecting assets that are defined as a subsidiary (Bates, 2005; Hege, Lovo, Slovin, and Sushka, 2009). We further drop transactions in which the seller has a 4-digit SIC code between 6000-6999 (Financial services industry) and 4900-4999 (Regulated utilities). We require all sellers to have adequate stock information available in the Center for Research in Security Prices (CRSP) database to conduct event studies, and their accounting information available in Compustat database immediately preceding the announcement date.

The sample of asset sales is merged with the acquisition database to identify bidders. The announcement date of subsequent acquisitions is within one year from the announcement of asset sales. If more than two acquisitions are identified by one seller, the acquisition that is closer to the sale's announcement is selected. Acquisitions (which are also listed in SDC Platinum database) must satisfy the following criteria. Both targets and acquirers are U.S. firms, and transaction size is equal or greater than $1 million. In addition, deal types including undisclosed value, spin-offs, recapitalization, self-tenders, exchange offers, repurchases, acquisitions of a minority stake, acquisitions of remaining interest, and privatization are not selected. Finally, acquirers must be listed in the CRSP database.

We follow Lang, Poulsen, and Stulz (1995), Bates (2005), and Clayton and Reisel (2013) to

identify the intended use of cash proceeds as stated by sellers. We first collect the purpose description of asset transactions from the SDC database. We then search Factiva and Lexis-Nexis around the announcement date of the transactions to find the purpose statement describing whether cash is retained for general corporate activities (retention sample), used to retire debts, repurchase stocks, or issuing dividends (payout sample). We then classify the sample into retention and payout sample based on the contents of purpose descriptions. If there is no payout statement, we classify asset sellers into the retention group. We drop transactions that have missing information to construct variables. All continuous variables related to sellers' characteristics are winsorized at 1% and 99%. Appendix A shows several examples of the use of sale proceeds. Appendix B provides variables descriptions.

3.2 Descriptive statistics

Table 1 reports the number and value of asset sales in 15 industries that have the highest number of transactions during the period 1990-2014. The industry classification is based on the first two digits of the seller's SIC code. In our sample, the largest industry is "Business services" with 286 transactions. It is followed by "Electronic and other electrical equipment and components" with 235 transactions, accounting for 9.7% of the total sample. Regarding the transactions volume, "Chemicals and allied products" ranks first with $78.3 billion and "Oil and gas extraction" closely follows with $70.8 billion.

[INSERT TABLE 1 HERE]

Table 2 provides descriptive statistics of the main variables used in this paper for the whole sample and subsamples of retention and payout sellers. We also provide in Column 4 of Table 2 univariate comparisons between the two subsamples. Overall, in comparison with the samples of Lang, Poulsen, and Stulz (1995), Bates (2005) and Clayton and Reisel (2013), our sample is larger by 2,431

transactions. It contains small-size transactions that have value less than $75 million.[7] Table 2 shows that in 238 transactions (9.8% of the whole sample), the seller pays out sale proceeds, including equity repurchase, dividend payment, and debt reduction.

[INSERT TABLE 2 HERE]

The average announcement returns, *DispCAR3*, for the group of retention and payout sellers are both positive at 1.53% and 4.03%, respectively. This is consistent with the contention of Lang, Poulsen, and Stulz (1995) that asset sales convey good news because they are sold successfully, resulting in them being valued highly. The difference of 2.50% between the two groups is statistically significant at 1%, indicating negative market reactions to retention decisions. The market discount of 2.50% means that because the market expects the seller's managers to spend sale proceeds on value-destroying acquisitions in the presence of agency conflicts (Lang, Poulsen, and Stulz, 1995; Bates, 2005; Clayton and Reisel, 2013).

The size of retention sellers is statistically larger than that of payout sellers. The average Q for retention sellers is 1.72, and it is higher than the average of 1.36 for the payout sample. It suggests that a retention seller has better growth opportunities than a payout seller. The average return on assets equals 3%, and it is statistically similar between the two types of sellers.

Table 2 also shows that sellers who pay out sale proceeds have lower cash and a higher ratio of debts, indicating that they are more financially distressed than retention sellers. The level of investment in two subsamples is equal to 6%. The ratios of net property plant and equipment scaled by total assets are 0.34 and 0.28 for the sample of payout and retention sellers, respectively, and the absolute difference of 0.06 between the retention and payout sample is statistically significant at 1%.

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[7] Lang, Poulsen, and Stulz (1995) do analysis with a sample of 93 significant asset sales from 1984 to 1989. Bates (2005) consider 400 asset transactions announced between 1990-1998. Clayton and Reisel (2013) analyze a sample of 439 large asset transactions between the period 1990-2004.

The average transaction value of retention and payout sellers is $195 and $239 million, respectively. The mean difference of $44 million is large but not statistically significant. The majority of divested assets are non-core assets (a non-core asset is defined as an asset that has a 4-digit SIC code different from its parent's SIC code), which accounts for 66% of all transactions. The retention sample has a higher level of cash proceeds on average than the payout sample. 24% of sellers announce an acquisition within one year. The acquisition rate of retention sellers (25%) is larger than the rate of payout sellers (14%). Similarly, univariate analyses show that payout sellers are less likely to become a diversifying bidder than retention sellers.

4. Empirical results

4.1 The use of proceeds and acquisition likelihood

As shown in Table 2, univariate comparisons suggest the acquisition rate of retention sellers is higher than that of payout sellers. However, these sellers do differ in many ways, i.e., the characteristics of divested assets and their parent, which affect the decision to engage in a subsequent acquisition. Therefore, we employ probit regressions to test Hypothesis 1 which asserts that retained proceeds from asset sales tend to be reinvested in corporate acquisitions. We examine the following equation:

$$Bidder\,(Div\_Bidder)_{i,j,t+1} = \alpha + \beta\,Retention_{i,j,t} + \theta\,X_{i,j,t} + \gamma\,Z_{i,j,t-1} + \eta_j + \vartheta_t + \varepsilon_{i,j,t}\ (1)$$

where i, j, and t refer to firm, industry, and year, respectively. The dependent variable is a binary indicator which equals one if the seller announces an acquisition, *Bidder*, or a diversifying acquisition, *Div_Bidder*, within one year from the announcement of asset sales, and zero otherwise. The main variable, *Retention*, is equal to one if the seller decides to retain sale proceeds, zero otherwise. The control variables in vector *X* includes asset characteristics, and vector *Z* consists of the seller's characteristics identified as determinants of an acquisition. We follow the previous literature on the

cross-sectional regression of announcement returns (e.g., Chan, Ge, and Lin, 2015; Cai, Kim, Park and White, 2016) and include the year (ϑ) and industry fixed effects (η). The standard errors are heteroskedasticity consistent. Measurements of all control variables are described in Appendix B.

[INSERT TABLE 3 HERE]

We report results of the probit regression of Equation 1 in Table 3. In Model (1) and (2) of Table 3, the coefficient estimates of *Retention* are positive and statistically significant at 5%, suggesting that a retention seller is more likely to announce an acquisition and a diversifying acquisition following the asset sales than a payout seller. The average marginal effects of the probit regression are presented in Table 4. As shown, the average likelihood of an acquisition in one year increases 8% when the seller decides to retain sale proceeds. The coefficient estimate of *Retention* is also large and statistically significant, suggesting an average increase of 9% in the likelihood of a diversifying acquisition when the seller retains sale proceeds.[8]

[INSERT TABLE 4 HERE]

The coefficient estimates of control variables are consistent with previous studies (e.g., Harford, 1999; Billett, King, and Mauer, 2004; Moeller, Schlingemann, and Stulz, 2004; Bena and Li, 2014; El-Khatib, Fogel, and Jandik, 2015). We find that firms with larger size, higher growth, and better operating performance tend to become a bidder. We also document that the seller divesting non-core assets is more likely to pursue an acquisition. In particular, the average probability of announcing an acquisition (a diversifying acquisition) is 3% (9%) higher when the divested assets are non-core assets.

4.2 The use of proceeds and shareholders' wealth

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[8] We have robustness checks employing a propensity score matching. We match retention sellers with payout sellers using nearest matching method and a set of firms' characteristics. Our findings remain robust. In untabulated results, we find that the probability of announcing an acquisition (a diversifying acquisition) increases 12.4% (9.5%) if the seller retains proceeds.

4.2.1 Announcement returns of asset sellers

The estimation results of Equation 1 suggest that a retention seller is more likely to announce an acquisition than a payout seller. However, this finding gives no immediate prediction about the effect of a retention decision associated with a subsequent acquisition on the wealth of shareholders. We hypothesize that retention sellers may waste sale proceeds on a valuing-destroying acquisition. We argue that the efficient market would incorporate the likelihood that the seller will use cash proceeds to finance a post-sale acquisition and how the transaction affects the wealth of shareholders. If any decision to pursue an acquisition is a poor investment decision, even the seller chooses the best deal among potential acquisitions, the market still discounts for the decision because it does not expect any acquisition. Hence, we employ the empirical approach of Harford (1999) to examine the market prediction that a retention seller would make a poor acquisition choice. We first estimate the effect of a retention decision on the announcement returns of asset sales:

$$DispCAR3_{i,j,t} = \alpha + \beta\, Retention_{i,j,t} + \theta\, X_{i,j,t} + \gamma\, Z_{i,j,t-1} + \eta_j + \vartheta_t + \varepsilon_{i,j,t} \quad (2)$$

where *DispCAR3* is the seller's announcement returns as the cumulative abnormal returns from the date -1 to 1, given date 0 is the announcement date.[9] Abnormal returns are computed by the difference between normal returns and the predicted returns generated from the market model of which parameters are estimated based on daily stock returns and CRSP value-weighted returns during the period (-263, -11). We require that the estimating window must contain at least 150 observations. All specifications include the full set of control variables in Equation 1, as well as industry and year fixed effects. The standard errors are heteroskedasticity consistent.

[INSERT TABLE 5 HERE]

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[9] We follow Moeller, Schlingemann, and Stulz (2004) and Phalippou, Xu, and Zhao (2015) to calculate the seller's announcement returns.

Model (1) of Table 5 shows the estimation results of Equation 2. The coefficient estimate of *Retention* is negative and statistically significant at 5%, consistent with Hypothesis 2a that retention decisions negatively affect the wealth of the seller's shareholders. Specifically, *DispCAR3* drops approximately 2% when the seller states that it will retain sale proceeds, ceteris paribus. This finding supports the agency problem of managerial discretion that retained proceeds may be reallocated to value-destroying investments that benefit managers (e.g., Lang, Poulsen, and Stulz, 1995; Bates, 2005; Clayton and Reisel, 2013). The 2% fall is economically large, relative to the range of returns from 0.3% to 3.4% across different samples (Eckbo and Thorburn, 2013).[10]

Next, to test the wealth effect of a retention decision associated with a subsequent acquisition, we decompose *Retention* in Equation (2) into expected and unexpected bidders, (*Retention_Expected* and *Retention_Unexpected*) which are dummy indicators equal one if the retention sellers expectedly (unexpectedly) become a bidder or zero otherwise. To define expected and unexpected bidders, we compute the fitted probability of the probit regression presented in Model (1), Table 3. If the fitted probability of the seller is greater (lower) than the 75th percentile (which equals 0.34), we classify it into the expected bidder group (unexpected bidder group).

We report the regression results in Model (2) of Table 5. The coefficient estimate of *Retention_Unexpected* is negative and statistically significant at 10%, suggesting that retention sellers are more likely to engage in a value-destroying acquisition than other sellers. Specifically, the retention decision associated with an unexpected bid leads to a 2% decrease in the seller's returns. The coefficient estimate of *Retention_Expected* is negative at -1%, however, statistically insignificant. It is likely that the expected acquisition made by a retention seller is already reflected in the stock price at the sale's announcement date. In addition, the *F*-test comparing two coefficients, retention decisions

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[10] We also check the robustness of this finding by propensity score matching. We match retention and payout sellers based on their characteristics using nearest matching. The outcome from the analysis of the matched sample indicates that *DispCAR3* drops 2.2% if the seller retains proceeds. Our results are also not sensitive to different matching techniques.

with an expected and unexpected bid, cannot reject the null hypothesis that they are equal.

To examine the effect of payout decisions on the wealth of shareholders with respect to post-sale acquisitions, we replace *Retention* in Equation (2) by *Payout* and categorize it into expected and unexpected bidders, *Payout_Expected* and *Payout_Unexpected* which are dummy indicators equal one if the payout seller expectedly and unexpectedly becomes a bidder or zero otherwise. We present the regression results in Model (3) of Table 5. As shown, we find a positive and statistically significant coefficient of the payout decision associated with an unexpected acquisition meaning that some positive wealth effects of a payout decision come from the value-increasing acquisition. Altogether, these results are consistent with the findings in Section 4.1 that retention sellers tend to diversify through acquisitions which are typically found value-destroying according to the existing literature (e.g., Cornett, 2003; Hoechle, Schmid, Walter, and Yermack, 2012; Malmendier and Tate, 2008; Morck, Shleifer, and Vishny, 1990).

Other coefficient estimates of control variables are consistent with the existing literature. The stock market reacts negatively when the seller has larger assets. In addition, the seller's announcement returns are lower when it has a higher Q ratio (Lang, Stulz, and Walkling, 1989; Servaes, 1991). The seller not experiencing financial distress tends to receive higher returns because it is unlikely to sell assets at a discount. The coefficient estimate of non-core assets in Model (1) and Model (3) is positive and marginally significant at 10%. This is consistent with the view that selling non-core assets will allow the seller's management to focus on the core business and operate more efficiently (Berger and Ofek, 1999; Denis and Shome, 2005). In addition, Bates (2005) argues that the market for corporate assets is illiquid, generating a large number of cash signals good news. Consistently, we find that *Ln(Cash proceeds)* is 0.01 and statistically significant at 1% in all specifications, meaning that the size of cash proceeds positively influences the wealth of shareholders.

4.2.2 Acquisition returns

The previous section uncovers the agency motive of the management to sell assets and reinvest proceeds in acquisitions, and the stock market immediately discounts the retention decision associated with an unexpected acquisition. In this section, we investigate the wealth creation of post-sale acquisitions. Specifically, we test Hypothesis 2b in that the acquisition announced by a retention seller will destroy the wealth of the seller's shareholders. We measure the seller's returns at the announcement of post-sale acquisitions. Specifically, we define *AcqCAR3* as the cumulative abnormal returns between date -1 and 1, given 0 is the announcement date of acquisitions. The method to generate abnormal returns is the same as in Subsection 4.2.1. We regress *AcqCAR3* on the decision to retain sale proceeds:

$$AcqCAR3_{i,j,t+1} = \alpha + \beta\, Retention_{i,j,t} + \theta\, X_{i,j,t} + \gamma\, Z_{i,j,t-1} + \lambda\, V_{i,j,t+1} + \eta_j + \vartheta_t + \varepsilon_{i,j,t} \quad (3)$$

where the main independent variable, *Retention*, equals one if the seller retains sale proceeds, or zero otherwise. All specifications include the full set of control variables in Equation 1, as well as industry and year fixed effects. We further control for the acquisition's characteristics (*V*). In particular, *Acquisition size* is measured as the natural logarithm of the transaction size of the acquisition. *Acquisition cash* is measured as the proportion of cash used to finance the acquisition. *Diversification* is the dummy indicator equal to one if the 4-digit SIC codes of the acquirer and the target are different, or zero otherwise. All variables are defined in Appendix B.

[INSERT TABLE 6 HERE]

Table 6 reports the regression results. In Model (1), the coefficient estimate of *Retention* is negative and statistically significant at 1%, consistent with Hypothesis 2b, indicating that the seller receives 6% lower acquisition returns when it retains sale proceeds. The economic significance of *Retention* drops slightly in Model (2) to 5% when we control for the seller's characteristics, but it is still statistically significant at 1%. Model (3) controls for the characteristics of deal transactions, but

we find that none of them significantly affects *AcqCAR3*. Additionally, we still document a strong negative effect of retention decisions. Our findings indicate that retention sellers are more likely to pursue a value-destroying acquisition than payout sellers.

Since the market reactions to the announcement of acquisitions depend on how much the market predicts at the time of asset sales, we take this consideration into account by re-estimating Equation 3 for the group of expected and unexpected bidders. We present the effect of a retention decision on the acquisition's announcement returns is more pronounced when it is unexpected by the market the results in Table 7. Specifically, Model (1) shows that the acquisition returns reduce by 4% when the seller decides to retain sale proceeds and the transaction is unexpected. The effect, however, is small at 2% and statistically insignificant when the acquisition is expected by the market. This finding remains robust when the analyses control for deal and seller characteristics in Model (3)-(6).

[INSERT TABLE 7 HERE]

4.2.3 Post-sale operating performance

In Hypothesis 2c, we predict that a retention seller who becomes a bidder will have lower long-term performance as it engages in an inefficient acquisition. In this section, we follow Mavis, McNamee, Petmezas, and Travlos (2016) to measure the retention seller's long-run performance as the change in ROA between time *t-1* and *t+2*, given *t* is the fiscal announcement year of asset sales. We also measure the long-run performance using adjusted ROA which adopts the similar-size matching method of Barber and Lyon (1996). Specifically, for each seller, we find control firms for each seller in the same industry defined by the first two digits of its SIC code. We require that the total assets of the controlling firms are between 70% and 130% of the seller's total assets. The adjusted ROA is the difference between the seller's ROA and the median ROA of its controlling firms. We estimate the following equation:

$$\Delta ROA\ (\Delta AdjROA)_{i,j,t+2} = \alpha + \beta\,Bidder_{i,j,t+1} + \theta\,X_{i,j,t} + \gamma\,Z_{i,j,t-1} + \eta_j + \vartheta_t + \varepsilon_{i,j,t}\ (4)$$

where *Bidder* is the dummy indicator which equals one if the retention seller subsequently announces an acquisition within one year, or zero otherwise. *ΔROA (ΔAdjROA)* is the change in ROA (adjusted ROA) between fiscal *t-1* and *t+2*, given 0 is the announcement year. We measure adjusted ROA by the difference between the seller's ROA and the median ROA of similar-size control firms in the same industry defined by the first two digits of SIC codes. All specifications include the full set of control variables in Equation 1, as well as industry and year fixed effects. The standard errors are heteroskedasticity consistent. All variables are defined in Appendix B.

[INSERT TABLE 8 HERE]

Table 8 reports the regression results. The coefficient estimates of *Bidder* in Model (1) and (2) are negative and statistically significant at 5%, respectively. Specifically, a retention seller that subsequently becomes a bidder reduces the change in ROA and adjusted ROA by 5% and 4%, respectively, suggesting that the economic efficiency of selling assets and retaining proceeds falls when the retention seller becomes a bidder. The results remain robust when we control for industry and year fixed effects in Model (2) and (4). Altogether, our findings indicate that the long-run performance of a retention seller decreases when it reinvests sale proceeds in a post-sale acquisition.

One may argue that the decision of a retention seller to announce an acquisition is endogenous. The decision to acquire can be influenced by the seller's unobservable characteristics which may be related to the change in ROA. In addition, there is a concern of reverse causality that the change in ROA can lead a firm to pursue an acquisition. To address endogeneity concerns, we employ IV-2SLS approach. Specifically, we use the number of bidders in the same industry (defined by 2-digit SIC code) at time *t*, *N(Bidders)*, as the instrument for the seller's decision to announce an acquisition at time *t+1*. In the first stage of IV-2SLS, we report in Model (5) of Table 8 that the number of bidders

is positively associated with the seller's decision to pursue an acquisition. The coefficient estimate of *N(Bidders)* is positive and statistically significant at 1%. In the second stage, in Model (6) of Table 8, we similarly find that retention sellers who pursue a subsequent acquisition experience less change in ROA than payout sellers who do not.

5. Conclusion

In this paper, we investigate two questions of whether asset sale proceeds can be the sources to finance a firm acquisition; and whether retention sellers destroy the wealth of their shareholders through a subsequent acquisition. Using a large sample of 2,431 inter-corporate asset transactions listed in the SDC database, we find that retention sellers are more likely to become a bidder than payout sellers. Specifically, the probability of engaging in a subsequent acquisition increases by 8% when sellers decide to retain proceeds. Retention sellers are also more likely to announce a diversifying acquisition than payout sellers.

Further, we provide evidence that retention decisions impede the wealth of shareholders through subsequent acquisitions. First, we find that the market reacts negatively to retention decisions. In addition, cumulative abnormal returns around the announcement of asset sales decrease 2% when the seller retains sale proceeds and unexpectedly becomes a bidder, suggesting the market discounts for the unexpected use of sale proceeds on acquisitions. In contrast, abnormal returns increase significantly when payout sellers unexpectedly pursue an acquisition. Second, we document that cumulative abnormal returns around the announcement date of post-sale acquisitions are lower when the seller retains sale proceeds than they are when the seller pays out. Third, for a subsample of retention sellers, we show that the change in ROA is negatively related to the announcement of a subsequent acquisition, suggesting that post-sale acquisitions indeed destroy the retention seller's long-term performance. Altogether, we provide novel evidence revealing that managers can divest assets and redirect the proceeds to acquisitions that are detrimental to shareholders' wealth.

Appendix A. Examples of the use of sale proceeds

A.1 General corporate uses

Cash: $1.5 million. Seller: Atlantis Plastics Inc. Divested division: Tulsa, OK.

In a press release, the company said net cash proceeds from the sale after taxes and expenses will be applied toward general corporate uses.

Cash: $126 million. Seller: WestPoint Stevens Inc. Divested division: Alamac Knit Fabrics Inc.

Proceeds from the transaction, as well as the conversion of the Whitmire facility to sheeting yarn, will give us the opportunity to redeploy the Alamac assets into our fast-growing home fashions business.

Cash proceeds: $4.58 million. Seller: Dialysis Corp of America. Divested division: Dialysis Services of Florida.

The company said it plans to use the revenues of the asset sale to establish additional dialysis-centers and acute management services, initially in New Jersey and Pennsylvania, and other areas of the country.

A.2 Retiring debts

Cash: $108.5 million. Seller: Gibson Greetings Inc. Divested division: Cleo Inc.

The Company plans to use the proceeds from the sale of Cleo to reduce Gibson's outstanding borrowings, which will leave the Company with a substantially more liquid balance sheet.

Cash: $217.5 million. Seller: Uniroyal Technology Corp. Divested division: High Performance Plastics Inc.

Uniroyal said Monday in a separate release that the sale allows it to focus on its remaining businesses, with a particular emphasis on its optoelectronic segment. The company will use proceeds to retire debts and expand its technology base.

Cash: $37.3 million. Seller: Vision Twenty-One Inc. Divested division: Vision World, Stein Optical, EYE.

This is part of a series of initiatives allowing Vision Twenty-One to move forward with a new strategic direction and focus on our core competencies of laser vision correction, eye care services and managed vision care benefits while also de-leveraging the company's balance sheet.

A.3 Paying dividend, or repurchase stocks

Cash: $461.9 million. Seller: Pitney Bowes Inc Divested division: Pitney Bowes Credit- Ticket.

Pitney Bowes said it will also use the proceeds and cash from operations to reduce debt and [...] maintain above-market dividend yields.

Cash: $925 million. Seller: Tektronix Inc Divested division: Color Printing.

A portion will be used to retire some debt, with the balance returned to shareholders by share buyback or a special dividend.

Appendix B. Variables definitions

Variable	Definition	Data Source
Bidder	Dummy indicator equals 1 if the asset seller announces an acquisition within one year from the announcement date of the asset sale or 0 otherwise;	SDC Platinum
Div_Bidder	Dummy indicator equals 1 if the asset seller announces a diversifying acquisition within one year from the announcement date of the asset sale or 0 otherwise;	SDC Platinum
Retention	Dummy indicator equals 0 if the asset seller states that it will use the asset sale proceeds to retire debts, repurchase stocks or pay out dividends or 1 otherwise;	Factiva/Lexis-Nexis SDC Platinum
Retention_Expected	Dummy indicator which equals 1 if the retention sellers expectedly become a bidder, or 0 otherwise;	Factiva/Lexis-Nexis SDC Platinum
Retention_Unexpected	Dummy indicator which equals 1 if the retention sellers unexpectedly become a bidder, or 0 otherwise;	Factiva/Lexis-Nexis SDC Platinum
Payout_Expected	Dummy indicator which equals 1 if the payout sellers expectedly become a bidder, or 0 otherwise;	Factiva/Lexis-Nexis SDC Platinum
Payout_Unexpected	Dummy indicator which equals 1 if the payout sellers unexpectedly become a bidder, or 0 otherwise;	Factiva/Lexis-Nexis SDC Platinum
DispCAR3	Total abnormal returns of the asset seller during the period (-1,1), given 0 is the announcement date of the asset sale. Abnormal returns are calculated using the market model of which parameters are estimated over the period (-263, -11) with the CRSP value-weighted return as the market index;	CRSP
DispCRET	Total normal returns during the period (-1,1)	CRSP
AcqCAR3	Total abnormal returns of the asset seller during the period (-1,1), given 0 is the announcement date of the post-sale acquisition;	CRSP
ΔROA	The change in seller's ROA between fiscal year $t-1$ and year $t+2$, give t is the announcement year;	Compustat
ΔAdjROA	The change in the seller's adjusted ROA between $t-1$ and year $t+2$, where adjusted ROA is the difference between the seller's ROA and the median ROA of similar-size control firms in the same industry defined by the first two SIC digits.	Compustat
Asset characteristics		
Deal size	Transaction size quoted in $ million;	SDC Platinum
Ln(Cash proceeds)	Natural logarithm of the total cash proceeds (cash ratio*deal size) gained from selling an asset;	SDC Platinum
Non-core	Dummy indicator equals 1 if the 4-digit SIC code	SDC Platinum

of the asset sold is different with the code of its parent or 0 otherwise.

Sellers' characteristics		
Ln(Total assets)	Natural logarithm of the seller's total assets (#6);	Compustat
Q	Tobin's Q ratio, calculated as [market value of equity (#199×#25) plus book value of assets (#6) minus book value of equity (#60) minus balance sheet deferred taxes (#74, set to 0 if missing)] divided by book value of total assets (#6);	Compustat
ROA	Return on assets defined as earnings before interest and taxes scaled by the total assets (#13/#6);	Compustat
Liquidity	The ratio of cash and short-term investments divided by the total assets (#1/#6);	Compustat
Leverage	Ratio between the total debts and the total assets ((#9 +#34) /#6);	Compustat
Investment	Total capital expenditure divided by the total assets (#128/#6);	Compustat
Nppe	Net property, plant and equipment scaled by the seller's total assets (#8/#6).	Compustat

Acquisition characteristics		
Diversification	Dummy indicator equals 1 if the 4-digit SIC codes of the acquirer (seller) and the target are different or 0 otherwise;	SDC Platinum
Acquisition size	Natural logarithm of the transaction size of the post-sale acquisition;	SDC Platinum
Acquisition cash	The ratio of cash used to finance the acquisition;	SDC Platinum
N(Bidders)	The number of bidders in the same industry defined by 2-digit SIC code.	SDC Platinum

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Table 1: Distribution of asset sales across industry

The table shows the distribution of 2,431 transactions of inter-corporate asset sales in the U.S. during the period 1990-2014. The parent of the divested asset (seller) is a public U.S. firm listed in the CRSP database. All transactions that are classified as "Acquisition of assets" and "Acquisition of certain assets" in the SDC database with cash proceeds equal to or greater than $1 million.

No	Industry	Obs.	Percentage	Volume ($ million)
1.	Business services	286	11.8%	21,420
2.	Electronic and other electrical equipment and components, except computer equipment	235	9.7%	36,645
3.	Oil and gas extraction	207	8.5%	70,795
4.	Chemicals and allied products	202	8.3%	78,362
5.	Communications	199	8.2%	58,313
6.	Measuring, analyzing, and controlling instruments; photographic, medical and optical goods; Watches and clocks	174	7.2%	22,059
7.	Industrial and commercial machinery and computer equipment	169	7.0%	28,974
8.	Transportation equipment	78	3.2%	21,498
9.	health services	76	3.1%	7,136
10.	Engineering, accounting, research, management, and related services	60	2.5%	5,717
11.	printing, publishing, and allied industries	58	2.4%	16,891
12.	Hotels, rooming houses, camps, and other lodging places	49	2.0%	8,377
13.	petroleum refining and related industries	49	2.0%	13,347
14.	Fabricated metal products, except machinery and transportation equipment	47	1.9%	4,849
15.	Food and kindred products	46	1.9%	22,338
16.	Others	496	20.4%	68,389

Table 2: Descriptive statistics

The table displays descriptive statistics for the main variables used in this paper, where variables are measured for a sample of 2,431 U.S. inter-corporate asset transactions announced between 1990 and 2014. Asset sellers are listed firms, and cash proceeds generated from the transaction is equal to or greater than $1 million. Definition of variables is presented in the Appendix B. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

	All	Payout	Retention	Difference
Bidder	0.24	0.14	0.25	0.11***
Div_Bidder	0.17	0.08	0.18	0.10***
DispCAR3 (%)	1.78	4.03	1.53	2.50***
DispCRET (%)	1.86	4.17	1.61	2.56***
AcqCAR3 (%)	0.65	5.57	0.34	5.23***
Deal size	199	239	195	-44
Ln(Cash proceeds)	3.63	4.01	3.59	-0.42***
Non-core	0.66	0.60	0.66	0.06*
Ln(Total assets)	7.15	6.56	7.21	0.66***
Q	1.72	1.36	1.75	0.39***
ROA	0.03	0.02	0.03	0.01
Liquidity	0.11	0.04	0.12	0.08***
Leverage	0.29	0.42	0.28	-0.14***
Investment	0.06	0.06	0.06	0.01
Nppe	0.29	0.34	0.28	-0.06***
Obs.	2,431	238	2,193	

Table 3: Effects of retention decisions on the announcement of subsequent acquisitions

The table documents the regressions of becoming a bidder or diversifying bidder on retention sellers. The dependent variable is the column heading which are dummy variables indicating whether the seller becomes a bidder (*Bidder*) or diversifying bidder (*Div_Bidder*) within one year from the announcement date of the asset sale, respectively. The main independent variable, *Retention*, is a dummy indicator equals to 0 if the seller states that it will use the proceeds of an asset sale to retire debts, repurchase stocks or pay out dividends, or 1 otherwise. All variables are defined in Appendix B. Heteroskedasticity-consistent standard errors are presented in parentheses. Symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)
	Bidder	Div_Bidder
Retention	0.27**	0.42***
	(0.11)	(0.14)
Ln(Total assets)	0.08***	0.09***
	(0.02)	(0.02)
Q	0.11***	0.08**
	(0.03)	(0.03)
ROA	0.99***	0.63**
	(0.26)	(0.28)
Liquidity	0.08	-0.03
	(0.25)	(0.28)
Leverage	-0.06	-0.23
	(0.16)	(0.19)
Investment	-0.32	-3.29***
	(0.75)	(0.96)
Nppe	-0.23	-0.06
	(0.23)	(0.26)
Non-core	0.11*	0.39***
	(0.07)	(0.08)
Ln(Cash proceeds)	-0.02	-0.03
	(0.02)	(0.02)
Constant	-1.38*	-1.35
	(0.83)	(0.85)
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Pseudo R²	0.09	0.13
Obs.	2,431	2,431

Table 4: Average marginal effects of retention decisions on the announcement of subsequent acquisitions

The table presents average marginal effects from the regressions of becoming a bidder or diversifying bidder on retention sellers. The dependent variable is the column heading which are dummy variables indicating whether the seller becomes a bidder (*Bidder*) or diversifying bidder (*Div_Bidder*) within one year from the announcement date of the asset sale, respectively. The main independent variable, *Retention* is a dummy indicator equals to 0 if the seller states that it will use the proceeds of an asset sale to retire debts, repurchase stocks or pay out dividends, or 1 otherwise. All variables are defined in Appendix B. Delta-method standard errors are presented in parentheses. Symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)
	Bidder	Div_Bidder
Retention	0.08**	0.09***
	(0.03)	(0.03)
Ln(Total assets)	0.02***	0.02***
	(0.00)	(0.00)
Q	0.03***	0.02**
	(0.01)	(0.01)
ROA	0.28***	0.14**
	(0.07)	(0.06)
Liquidity	0.02	-0.01
	(0.07)	(0.06)
Leverage	-0.02	-0.05
	(0.05)	(0.04)
Investment	-0.09	-0.73***
	(0.21)	(0.21)
Nppe	-0.07	-0.01
	(0.07)	(0.06)
Non-core	0.03*	0.09***
	(0.02)	(0.02)
Ln(Cash proceeds)	-0.01	-0.01
	(0.01)	(0.01)
Obs.	2,431	2,431

Table 5: Effects of retention decisions on the announcement returns of asset sales

The table presents the regressions of asset sales' announcement return on retention sellers which are categorized into unexpected and expected bidders. The dependent variable is the column heading, *DispCAR3* measured as the total abnormal returns of the asset seller during the period (-1,1), given 0 is the announcement date of the asset sale. The main independent variable, *Retention_Expected (Retention_Unexpected)* is a dummy indicator which equals 1 if the retention sellers expectedly (unexpectedly) become a bidder, or 0 otherwise. *Payout_Expected (Payout_Unexpected)* is a dummy indicator which equals 1 if the payout sellers expectedly (unexpectedly) become a bidder, or 0 otherwise. All variables are defined in Appendix B. Heteroskedasticity-consistent standard errors are presented in parentheses. Symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)
	DispCAR3	DispCAR3	DispCAR3
Retention	-0.02**		
	(0.01)		
Retention_Expected		-0.01	
		(0.01)	
Retention_Unexpected		-0.02*	
		(0.01)	
Payout_Expected			0.01
			(0.03)
Payout_Unexpected			0.02**
			(0.01)
Ln(Total assets)	-0.01***	-0.01***	-0.01***
	(0.00)	(0.00)	(0.00)
Q	-0.01***	-0.01***	-0.01***
	(0.00)	(0.00)	(0.00)
ROA	-0.02	-0.02	-0.02
	(0.02)	(0.02)	(0.02)
Liquidity	-0.02	-0.02	-0.02
	(0.02)	(0.02)	(0.02)
Leverage	-0.03***	-0.03**	-0.03***
	(0.01)	(0.01)	(0.01)
Investment	-0.05	-0.05	-0.05
	(0.05)	(0.05)	(0.05)
Nppe	0.01	0.01	0.01
	(0.02)	(0.02)	(0.02)
Non-core	0.01*	0.01	0.01*
	(0.00)	(0.00)	(0.00)
Ln(Cash proceeds)	0.01***	0.01***	0.01***
	(0.00)	(0.00)	(0.00)
Constant	-0.09	-0.09	-0.11
	(0.08)	(0.09)	(0.08)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
R²	0.08	0.08	0.08
Obs.	2,431	2,431	2,431

Table 6: Effects of retention decisions on the announcement returns of post-sale acquisitions

The table presents the regressions of acquisition returns on retention sellers. The dependent variable is the column heading, *AcqCAR3* measured as the cumulative abnormal returns between date -1 and 1 at the announcement date of the post-sale acquisitions. The main independent variable, *Retention* is a dummy indicator equals to 0 if the seller states that it will use the proceeds of an asset sale to retire debts, repurchase stocks or pay out dividends, or 1 otherwise. All variables are defined in Appendix B. Heteroskedasticity-consistent standard errors are presented in parentheses. Symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)
	AcqCAR3	AcqCAR3	AcqCAR3
Retention	-0.06***	-0.05***	-0.05***
	(0.02)	(0.02)	(0.02)
Ln(Total assets)		-0.00**	-0.01**
		(0.00)	(0.00)
Q		0.00	0.00
		(0.00)	(0.00)
ROA		-0.05	-0.06
		(0.04)	(0.04)
Liquidity		0.00	0.00
		(0.03)	(0.03)
Leverage		0.00	0.00
		(0.02)	(0.02)
Investment		0.02	0.01
		(0.09)	(0.09)
Nppe		-0.03	-0.03
		(0.03)	(0.03)
Non-core		0.01	0.01
		(0.01)	(0.01)
Ln(Cash proceeds)		0.00	0.00
		(0.00)	(0.00)
Diversification			0.00
			(0.01)
Acquisition size			0.00
			(0.00)
Acquisition cash			0.01
			(0.01)
Constant	-0.24**	-0.20**	-0.21**
	(0.10)	(0.10)	(0.10)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
R²	0.13	0.16	0.16
Obs.	565	565	565

Table 7: Effects of retention decisions on the announcement returns of post-sale acquisitions - Subsample analysis

The table reexamines the regressions of acquisition returns on retention sellers for subsamples of expected bidders and unexpected bidders. Expected (Unexpected) bidders are sellers who have the probability of announcing an acquisition larger (smaller) than its 75th percentile. The dependent variable is the seller's cumulative abnormal returns (*AcqCAR3*) between date -1 and 1 at the announcement date of the post-sale acquisition. The main independent variable, *Retention* is a dummy variable equals to 0 if the seller states that it will use the proceeds of an asset sale to retire debts, repurchase stocks or pay out dividends, or 1 otherwise. All variables are defined in Appendix B. Heteroskedasticity-consistent standard errors are presented in parentheses. Symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Exp.	Unexp.	Exp.	Unexp.	Exp.	Unexp.
Retention	-0.02	-0.04**	-0.02	-0.04**	-0.01	-0.05**
	(0.03)	(0.02)	(0.03)	(0.02)	(0.04)	(0.02)
Ln(Total assets)			0.00	-0.01**	0	-0.01**
			(0.00)	(0.00)	(0.00)	(0.00)
Q			0.01	0.00	0.01	0.00
			(0.00)	(0.01)	(0.00)	(0.01)
ROA			0.04	-0.02	0.04	-0.04
			(0.06)	(0.06)	(0.07)	(0.06)
Liquidity			0.03	-0.01	0.03	-0.02
			(0.04)	(0.05)	(0.04)	(0.05)
Leverage			0.01	0.00	0.01	0.00
			(0.03)	(0.04)	(0.03)	(0.04)
Investment			0.10	-0.04	0.08	-0.08
			(0.14)	(0.13)	(0.14)	(0.13)
Nppe			-0.06*	-0.01	-0.05	0.00
			(0.03)	(0.05)	(0.03)	(0.05)
Non-core			0.00	0.00	0.00	0.00
			(0.01)	(0.01)	(0.01)	(0.02)
Ln(Cash proceeds)			0.00	0.00	0.00	0.00
			(0.00)	(0.00)	(0.00)	(0.00)
Diversification					0.01	-0.01
					(0.01)	(0.02)
Acquisition size					0.00	0.01
					(0.00)	(0.00)
Acquisition cash					0.00	0.02
					(0.01)	(0.01)
Constant	0.01	-0.28**	-0.03	-0.22*	-0.04	-0.25**
	(0.07)	(0.12)	(0.08)	(0.12)	(0.08)	(0.12)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R²	0.14	0.21	0.18	0.23	0.18	0.24
Obs.	246	319	246	319	246	319

Table 8: Effects of becoming a bidder on the change in retention sellers' ROA

The table presents the regressions of the seller's change in operating performance on bidding indicator. The dependent variable is the column heading. *ΔROA* is the change in the seller's ROA between fiscal year *t-1* and year *t+2*, give *t* is the announcement year of the asset sale. *ΔAdjROA* is the change in the seller's ROA from year *t-1* and year *t+2*, give *t* is the announcement year of the asset sale, where adjusted ROA is measured as the difference between the seller's ROA and the median ROA of similar-size control firms in the same industry defined by the first two SIC digits. The main independent variable, *Bidder*, is a dummy variable which equals 1 if the seller pursues an acquisition within one year after selling its asset, or 0 otherwise. All variables are defined in Appendix B. Heteroskedasticity-consistent standard errors are presented in parentheses. Symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	ΔROA	ΔAdjROA	ΔROA	ΔAdjROA	Bidder	ΔROA
Bidder	-0.05**	-0.04**	-0.05**	-0.04**		-0.35**
	(0.02)	(0.02)	(0.02)	(0.02)		(0.14)
Ln(Total assets)	0.01**	0.01**	0.01**	0.01**	0.03***	0.02***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	0.01)
Q	0.00	0.00	0.00	0.00	0.02**	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Liquidity	-0.03	0.00	-0.02	0.02	-0.03	-0.03
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.06)
Leverage	0.01	0.02	0.00	0.01	0.02	0.01
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)
Investment	0.05	0.15	0.13	0.20	-0.11	0.06
	(0.24)	(0.23)	(0.24)	(0.23)	(0.22)	(0.16)
Nppe	-0.10	-0.06	-0.09	-0.05	-0.02	-0.12**
	(0.07)	(0.06)	(0.07)	(0.06)	(0.06)	(0.05)
Non-core	0.01	0.00	0.01	0.01	0.02	0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Ln(Cash proceeds)	0.00	0.00	0.00	0.00	-0.01*	-0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
N(Bidders)					0.00***	
					(0.00)	
Constant	-0.06	-0.06	-0.06*	-0.05	-0.02	-0.05
	(0.04)	(0.07)	(0.04)	(0.06)	(0.04)	(0.03)
Industry fixed effects	No	Yes	No	Yes	No	No
Year fixed effects	No	Yes	No	Yes	No	No
R²	0.01	0.06	0.01	0.05	0.04	
Obs.	1,924	1,924	1,924	1,924	1,924	1,924