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2020-02-17

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Sina Amiri, David King and Samuel DeMarie

The publisher's version of record is available at <https://doi.org/10.1108/JSMA-05-2019-0076>



# **Divestiture of Prior Acquisitions: Competing Explanations of Performance**

Accepted: Journal of Strategy and Management

## **Sina Amiri**

Georgia College & State University  
J. Whitney Bunting College of Business  
231 W Hancock St  
Milledgeville, GA 31061  
E-mail: [sina.amiri@gcsu.edu](mailto:sina.amiri@gcsu.edu)

## **David R. King**

Florida State University  
College of Business  
305 RBA  
Tallahassee, FL 32306  
E-mail: [dking@business.fsu.edu](mailto:dking@business.fsu.edu)

## **Samuel DeMarie**

Iowa State University  
College of Business  
2350 Gerdin Business Building  
Ames, IA 50011-1350  
E-mail: [demarie@iastate.edu](mailto:demarie@iastate.edu)

**Acknowledgement:** We appreciate feedback on earlier versions of this this paper at the Midwest Strategy Meeting at the University of Kansas, and during the Academy of Management Annual Meeting. We are also grateful to Joseph Mahoney and Michael Ryall for their peer-reviews and constructive feedback. Further, we would like to thank Arnold Cowan for his kind assistance with our event study analyses. Finally, we appreciate editorial advice of Nicholas O'Regan, and blind reviewers that helped us improve upon our initial submission.

## **Divestiture of Prior Acquisitions: Competing Explanations of Performance**

### **Abstract**

**Purpose:** There are multiple perspectives of divestiture and its performance that require reconciliation. While research finds a positive market response to divestment announcement, divestiture of prior acquisitions are generally viewed negatively. This study develops and empirically tests different explanations for the divestment of prior acquisitions.

**Design/methodology/approach:** This research employs event study to capture market reaction at acquisition announcement and subsequent divestments in a sample of 69 public U.S. high technology acquisitions between 2003 and 2008 that were divested by 2015. Only initial acquisitions involving public firms were included from the Thomson One Banker SDC database. Public press releases and companies' SEC filings were reviewed to track divestitures back to prior acquisitions. Ordinary least squared (OLS) regression was used to estimate coefficients.

**Findings:** Results indicate a positive relation between acquisition and divestiture performance around announcement dates. This finding rejects the correction of mistake explanation, suggesting that a negative stigma surrounding divestments is largely unwarranted and that investors reward capable acquirer's divestiture decisions.

**Implications to Research/Practice:** Investors do not treat all information signals at divestiture equally. For example, acquisitions made by larger and more profitable firms, or acquisitions paid for with stock, are associated with lower return upon divestiture announcement.

**Originality/value:** This study finds that investors view divestiture as a proactive strategy, suggesting firms can improve performance by actively managing acquisitions and divestments to optimize their portfolio of businesses.

**Keywords:** Merger, acquisition, divestiture, divestment, corporate restructuring, correction of mistake

**Paper type:** Research paper

## Introduction

Corporate restructuring is essential for firms to survive competition and technological change (Danneels, 2002; Jas and Skelcher, 2005; Schonhaar *et al.*, 2014). Divestment and acquisition represent corporate restructuring tools (Brauer, 2006; Capron *et al.*, 2001; Dranikoff *et al.*, 2002), and Weston (1989) reports that 35 to 45 percent of acquisitions involve divestitures of former acquisitions. Subsequent research confirms divestments often follow acquisitions (e.g., Kaplan and Weisbach, 1992; Ravenscraft and Scherer, 2011), and acquisitions and divestitures may serve as “causes and consequences of each other” (Ma and Wang, 2018, p. 418). Several antecedents predict the divestment of former acquisitions, including unit poor performance (Shimizu and Hitt, 2005; Shimizu, 2007), unit power (Xia and Li, 2013), experience (Meschi and Metais, 2015), and firm performance (Vidal and Mitchell, 2015). However, to the best of our knowledge, no study investigates the performance of such divestments. This gap is surprising, as distinct market reactions to divestment allows comparison of theoretical explanations of divestiture as either: 1) an integral part of post-acquisition integration (Barkema and Schijven, 2008; Weston, 1989), or 2) a mistake (Porter, 1987). While divestitures refer to detaching part of a firm’s assets or operations using sell-offs, spin-offs, equity carve-outs, management buy-outs, or split-offs, this study focuses on post-divestment performance consequences of selling-off former acquisitions and the comparison of different theoretical explanations of divestment.

There are multiple perspectives of divestiture and its performance that require reconciliation (Lee and Madhavan, 2010; Silva and Moreira, 2019; Weston, 1989). On one hand, Porter (1987) maintains that divestment may represent the correction of a mistake. Subsequent research confirms firms divest in face of problems (Golder *et al.*, 2018), including: low performance (Kolev, 2016), financial distress (Finlay *et al.*, 2018; Nguyen, 2013; Nixon *et al.*,

2000), external pressure on stigmatized operations (Durand and Vergne, 2015), or over-diversification (Peruffo, 2018). As a result, divestments question the quality of prior manager decisions that is associated with resistance to sell-offs (Gopinath and Becker, 2000; Shimizu and Hitt, 2005). Consistent with this perspective, divestments have a negative connotation and they can experience reduced market performance (Schill and Zhou, 2001; Ushijima and Schaeede, 2014; Wright and Ferris, 1997). Chemmanur *et al.* (2014) argue that a positive aspect of negative outcomes from divestitures involves managers avoiding take-over.

On the other hand, divestitures can serve as a strategic remedy to existing problems, and research consistently finds a positive market reaction to divestment announcement (e.g. Brauer and Wiersema, 2012; Moschieri and Mair, 2008; Mulherin and Boone, 2000; Lee and Madhavan, 2010). Positive explanations for divestiture involve firms refocusing to reduce diversification costs (Berger and Ofek, 1995; Curi and Murgia, 2018; Shyam Kumar, 2005), improving cost and revenue efficiency (Berry, 2010, 2013; Cummins and Xie, 2009), or eliminating negative synergy (Cohen, 2013). Firms also apply divestments to remove underperforming units and restore coherent organizational identity (Shimizu, 2007; Wang and Jensen, 2019). Further, research shows divestments can help to align managerial incentives with the firm performance to address potential agency issues (Feldman 2015; Pathak *et al.*, 2014). Corporations also divest to address financial constraints (Borisova *et al.*, 2013) to facilitate investment in their future growth (Vidal and Mitchell, 2018). Thus, research identifies many positive aspects and outcomes from divestment (e.g., Lee and Madhavan, 2010; Markides, 1992).

The current paper develops and empirically tests different explanations of divestment (i.e., mistake correction, indigestion, and financial distress) by examining performance consequences to divestment of prior acquisitions. This enables comparing different explanations

for divestment to investigate the role and performance implications of divestiture in the context of strategic change (Brauer, 2006; Buchholtz *et al.*, 1999; Villalonga and McGahan, 2005). Specifically, we examine the ability of different explanations for divestment to predict abnormal returns for the full divestiture (sell-off) of an acquired unit among public U.S. high technology firms. Sell-offs represent separating out a business unit and selling it to another organization (Kahneman *et al.*, 1991). As a result, sell-offs disrupt operations, and increase employee stress (Corley and Gioia, 2004) and perceptions of injustice from resulting change (Lenses *et al.*, 2016). Further, we explore how characteristics of a prior acquisition (e.g., acquisition announcement return, method of payment, relative size, and acquirer profitability prior to divestment) influence the market reaction to the subsequent divestment of a formerly acquired business. Our primary contribution involves empirically testing different explanations for divestiture of former acquisitions, and finding support that divestments help firms manage their portfolio of businesses. Next, we summarize different explanations for divestment and their performance implications.

## **Literature Review**

Generally viewed as the opposite of acquisitions in corporate restructuring research, divestitures are less studied than mergers and acquisitions (Brauer, 2006; Buchholtz *et al.*, 1999). While related, acquisitions and divestitures differ in multiple respects. First, divestitures reflect sellers' planned partial sell-off of either tangible or intangible assets of a business unit or segment (Clubb and Stouraitis, 2002). Divestitures also tend to be less public, and they have less liquid markets than acquisitions (Datta *et al.*, 2003; Laamanen *et al.*, 2014). One reason is that asset sell-offs are associated with firms' or their managers' negative prior performance (Markides and Singh, 1997). Therefore, managers usually look for buyers privately. Additionally, there are less

market disclosure regulations on divestitures than for acquisitions. This suggests a need for a distinctive research focus on performance outcomes of divestitures to recognize they are not mirror images of acquisitions (Brauer, 2006). Research has applied multiple theories to the study of divestitures. We focus on theories associated with the divestiture of a single, prior acquisition, so we do not examine building experience across multiple acquisitions and divestitures.

In the current paper, we briefly summarize and compare expectations from agency, institutional and behavioral theories. Research applying agency theory mainly focuses on corporate governance and ownership structure of firms and implies a positive post-divestiture performance when divestitures are associated with improved alignment of the agent-principal interests and reduced cost of control (Berger and Ofek, 1995; Chen and Feldman, 2018; Feldman *et al.*, 2019). However, research applying institutional theory mainly considers divestiture timing to determine whether a divestiture decision is a legitimate one driving positive investor reaction (Flickinger and Zschoche, 2018), or simply a pursuit of crowd wisdom followed by negative market response (Brauer and Wiersema, 2012). Both agency and institutional perspectives' expectations often align with expectations that divestitures represent the correction of a prior mistake. Meanwhile, research applying behavioral theory focuses on relative to aspiration performance and reports positive market responses to divestitures preceded by performance below aspiration (Feldman, 2014; Golder *et al.*, 2018). This theoretical perspective is consistent with indigestion, or problems in integrating an acquisition that may be due to financial constraints.

### **Comparison of Divestiture Explanations**

In comparing explanations, we focus on correction of mistake, indigestion, and financial constraints tied to different acquisition characteristics (see Table 1).

----- Insert Table 1 about here -----

***Correction of mistake (announcement return)***

After observing that more than half of the acquisitions are subsequently divested, Porter (1987) argues that divestitures involve corrective actions to fix acquisition mistakes. For example, Kaplan and Wesibach (1992) find that about half of divestments signal acquisition failure and that announcement returns are lower for divestiture of unsuccessful acquisitions. Further, Allen *et al.* (1995) argue that divestment abnormal returns are inversely related to the abnormal returns of the prior acquisition announcement. With a sample of 40 divestments resulting from acquisitions between 1962 and 1991, Allen and colleagues (1995) find a significantly negative relationship between divestment and a prior acquisition's announcement returns. This finding has contributed to an interpretation that investors react more positively to divestiture of units that, when they were acquired, were perceived negatively and displayed a negative announcement abnormal return. In other words, divestments represent the correction of a prior mistake.

Therefore, we predict:

*Hypothesis 1a: The market reaction to the divestment of a prior acquisition is negatively associated with the market reaction to the original acquisition.*

However, persuasive arguments have been developed that divestment can be part of implementing successful strategies (Barkema and Schijven, 2008; Weston, 1989). In a critique of Porter (1987), Weston (1989: 74) calculates the long-term returns of firms reviewed by Porter (1987) to suggest that continued restructuring by firms contributed to above average long-term stock market returns by acquirers that made divestments. This result suggests that positive market reactions to divestment announcements may result from investor expectations of improved performance that are later validated. For example, when an acquirer has learned what was needed, divesting a unit could make resources available for more productive uses. This



reasoning would also be consistent with transaction cost economics views of markets being more efficient than internal coordination in the absence of market failures (Williamson, 1975).

Overall, this suggests that divestment may reflect appropriate adjustment of a firm's portfolio of businesses in response to shifting conditions (Weston, 1989), and leads to the following competing hypothesis:

*Hypothesis 1b: The market reaction to the divestment of a prior acquisition is positively associated with the market reaction to the original acquisition.*

### ***Correction of mistake (method of payment)***

An acquiring firm can pay for an acquisition using cash, stock, or a mix of both. Generally, research suggests that managers pay for acquisitions with stock when an acquirer's shares are overvalued (Martynova and Renneboog, 2008). An alternate explanation for why method of payment may impact divestment performance is that it can reflect uncertainty on the benefits of an acquisition (Martin, 1996). If stock payment reflects uncertainty surrounding an acquisition's benefits, then paying for an acquisition with stock can help to align target firm managers interests with those of an acquirer. However, if an acquisition financed with stock is later divested, then aligning a target firm's managers with the interest of an acquirer was not necessary, and it unnecessarily diluted the ownership of an acquiring firm's shareholders.

In other words, the divestment of a firm acquired with stock likely signals a failure that also diluted shareholder ownership. Consistent with this idea, Chang and Suk (1998) find acquisitions financed with stock experienced a positive abnormal return when an announced deal is terminated, and a negative abnormal return if the offer involved cash. Once an acquisition is completed, its later divestment should have the opposite impact from deal termination.

Therefore, we predict:

*Hypothesis 2: Acquisitions that were paid for with stock are associated with lower market reaction on their subsequent divestment.*

### ***Indigestion (relative size)***

Generally, research finds relative size is positively associated with return to acquisitions and divestitures (Asquith *et al.*, 1983; Hite and Owers, 1983; Jory and Ngo, 2005; Lal *et al.*, 2013; Veld and Veld-Merkoulova, 2009). Scholars argue that the positive effect of deal size on performance can ease corporations' access to complementary resources and boost their investment capabilities (Love and Nohria, 2005), improve managerial focus and asset fit (Feldman, 2014), and urge development of new routines versus salvaging old routines dysfunctional under the new organizational structure. Additionally, Cummins and Xie (2009) argue and find that larger relative acquisition and divestment size facilitates scale and scope economies, enhancing cost and revenue efficiencies.

However, Gaddis (1987) suggests that divestment can result from indigestion, or an acquirer making an acquisition of a target firm that is larger than it can effectively integrate. This is consistent with views that acquisition difficulties increase the likelihood of divestment (e.g., Hitt *et al.*, 2012). Everything else equal, larger acquisitions are more difficult to integrate making the relative size between a target and its acquirer relevant. The relative size between an acquirer and its target is analogous to a cookie jar problem where it is harder to extract your hand if you grab too many cookies. Similarly, if a target firm is too large, it can exceed an acquiring firm's ability to integrate it. Once an acquisition that was too large has been completed, full or partial divestiture may offer the only way to reduce integration demands to manageable levels. For example, Schipper and Smith (1983) recognize that divestment may follow acquisitions and reflect attempts to reduce firm size. This reflects that the benefits anticipated from an acquisition are not possible, if a target is not effectively integrated (Paruchuri *et al.*, 2006). This suggests

that divestment of larger targets may signal difficulty in achieving the benefits from an acquisition and result in a negative market reaction; therefore, we predict:

*Hypothesis 3: The larger relative size of an acquisition is associated with lower market reaction to the subsequent divestment of that acquired unit.*

### ***Financial constraints (acquirer profitability)***

Another perspective of divestments suggests that they result from seller's financial distress. Asset sell-offs have long been associated with firm or manager poor performance that increases pressure on managers to change a firm's business portfolio (Markides and Singh, 1997). Several researchers contend that firms pursue divestment following poor performance (e.g., Bergh, 1997; Borisova and Brown, 2013; Dranikoff *et al.*, 2002; Hoskisson *et al.*, 1994; Jain, 1985; Laamanen *et al.*, 2014; Lockett and Wild, 2013; Montgomery and Thomas, 1988). Firms can use cash proceeds from a divestment to repay debt, pay dividends to their shareholders (Bowman *et al.*, 1999), or fund continued operations.

Montgomery and Thomas (1988) argue that divestitures trigger market re-evaluation of the scope and direction of corporations' strategies, and investors would reward a strategy only when perceived as to the best of shareholders' interest. However, benefits depend to a large extent on involved parties' bargaining power, or sellers with larger bargaining power tend to gain more (Laamanen *et al.*, 2014). Conversely, lower performance at the time of divestment may signal a fire-sale under pressure (Finlay *et al.*, 2018), or low bargaining power for a firm making a divestment. If a divestment results from an acquirer's financial distress, then selling a previously acquired unit that was intended to improve an acquirer's performance will likely be perceived as a failure. Because the dominant explanation for making an acquisition is that it will increase a firm's performance (e.g., King *et al.*, 2004), divestment will likely be viewed more positively if an acquirer is performing well. Therefore, we predict:

*Hypothesis 4: An acquirer's higher financial performance prior to announcing divestment of a prior acquisition is associated with a higher stock market reaction to the divestment.*

## **Methodology**

Thomson's SDC Platinum database was used to identify U.S. acquisitions taking place among public companies within high technology industries from January 2003 to June 2008 that were later divested through the end of 2015. The minimum seven and half years from the middle of 2008 to the end of 2015 provides a sufficient time window for acquirers to complete the integration process and make subsequent divestment decisions. High technology industries were identified using two-digit SIC codes for acquiring firms in chemicals (28), computer equipment (35), electronics (36), aerospace (transportation: 37), instruments (38), communications (48), or software (business services: 73) industries (King *et al.*, 2008; Ranft and Lord, 2002). One reason that conflicting results may exist relates to heterogeneous samples that include contexts that display important differences. Bower (2001) identified that high-technology acquisitions are distinct, and we focus on this sample to eliminate a potential source of heterogeneity in our analysis. A total of 370 acquisitions were identified, and two steps were used to identify divestment of an acquired unit. First, LexisNexis Academic and Bloomberg online sources were reviewed for each acquirer to identify divestiture activity following an acquisition. A total of 166 divestments were identified for acquiring firms. Next, company SEC filings (10Ks and 8Ks) from the Edgar database were used to link a divestiture to a prior acquisition by a firm in the identified timeframe. This resulted in a final sample of 69 acquisitions that were subsequently divested.

## ***Dependent variable***

Event study is commonly applied by studies to measure CARs over an event window around the announcement date of acquisitions and divestitures (King *et al.*, 2004; Moschieri and Mair,

2008). Accordingly, our dependent variable, *divestiture performance* (*Return.div*), represents cumulative abnormal return over a three-day window (-1, +1) around the divestiture announcement date (e.g., Brauer and Schimmer, 2010; Feldman, 2014; Mulherin and Boone, 2000; Nguyen, 2013), with the announcement date regarded as (t=0).

We calculated *Return.div* by adding abnormal daily returns over a period of three days spanning from one day prior to one day after the divestiture announcement date. Following prior research (e.g., Gaur *et al.* 2013), daily abnormal return was measured using the standard market model:  $AR_{j,t} = R_{j,t} - (\alpha + \beta \times R_{m,t})$ . Where  $AR_{j,t}$ ,  $R_{j,t}$ , and  $R_{m,t}$  represent abnormal return, firm j's daily return, and market return, respectively, and  $\alpha$  and  $\beta$  are parameters representing the constant and systematic risk of firm j. Parameters were calculated over an estimation period of 365 days (250 trading days) ending 45 days before the event date to leave a gap between the estimation period and the event date (Brauer and Wiersema, 2012). Market adjusted returns were used with the S&P 500 Index used as the market portfolio.

### ***Independent variables***

*Acquisition announcement return*, or the market reaction to an acquisition (*Return.acq*) represents cumulative abnormal return over a period of three days from one day prior to one day after (-1, +1) the acquisition announcement date. It is calculated the same as divestment abnormal return above.

*Relative size* represents the ratio of a target's total asset to acquirer's total assets as reflected in the latest financial statements of the firms prior to the initial acquisition (Ellis *et al.*, 2011).

*Acquirer performance prior to divestment* (*NM pre-divest*) represents the financial performance of the parent firm (former acquirer) one year prior to the divestment announcement

measured through industry adjusted return on sales (net margin) as reflected on the latest financial statements of the firms prior to the divestiture announcement date. First, the net margin (NM) for each firm making a divestment was identified from Compustat for the prior year. Second, the net margin for that firm's industry, defined by the four-digit primary SIC codes, was calculated as total net income (NI) of the focal industry divided by its annual total sales. Finally, the industry NM was subtracted from that of the firm to obtain the industry adjusted NM.

*Method of payment (Pay method)* represents a categorical variable used to measure if an acquisition was paid with cash = 0, a mix of cash and stock = 1, or only with stock = 2.

### ***Control variables***

This study controls for several variables that may influence divestment performance beginning with *acquisition premium* that represents a sunk cost at divestment, but it is consistently examined in acquisition research (e.g., King *et al.*, 2004). *Premium* represents the percentage premium offered by acquirer at the time of acquisition announcement ( $P_0$ ) over the target shares' market price one week prior to the acquisition announcement ( $P_{t-1}$ ), and subtracting one from the outcome as:  $Premium = (P_0 / P_{t-1}) - 1$ . Data on acquisition premium is obtained from the SDC Platinum database.

*Acquisition experience (Experience.acquire)* may enable firms to capitalize the inter-firm diversities to develop their post-merger integration process. We measured acquisition experience using a count of all acquisitions performed at the corporate level by a firm for the five years prior to the focal acquisition. We excluded acquisitions done by any legal entity other than the focal acquirer, such as subsidiaries or international affiliates.

The *time interval* between acquisition and divestiture could influence the abnormal return at the time of divestiture, as it may signal whether a divestment was planned or not. We control

for the number of days elapsed between acquisition and divestment announcement dates (*Interval*).

*Acquirer's leverage*, defined as level of debt in its capital structure is argued to affect the abnormal return at the time of acquisition announcement as it has implications regarding the acquirer's level of slack (Haleblian and Finkelstein, 1999). Therefore, we control for *Leverage* using the ratio of total debt to total capital with data from Compustat.

An *Acquirer's financial performance* prior to the acquisition (*NM pre-acquire*) could impact the abnormal return to acquirers at the time of acquisition announcement (e.g., Servaes, 1991). Therefore, we control for *NM pre-acquire* as the difference between firms' and industries' average return on sales calculated for the year prior to acquisition using the same procedure as *NM pre-divest*.

The *size* of an acquirer may reflect codification of routines and an acquisition capability, so we control for *Size* calculated as the natural logarithm of the acquirer's total net sales in the latest fiscal year prior to the acquisition announcement (Brauer and Schimmer, 2010).

*Relatedness*, or the amount of fit between an acquirer and target, is the most studied variable in acquisition research (Hitt *et al.*, 2012), and we control for it using a dummy variable (*Related*) that takes a value of one if there is any same four-digit SIC code shared between target and acquirer, and zero otherwise (Haleblian and Finkelstein, 1999).

*Divestment experience* (*Experience.divest*) may be positively related to stock returns (Markides, 1992), so we use a count measure (*Experience.divest*) representing the number of divestitures over the 3 years before divestiture or the acquisition-divestiture interval (whichever longer). Our measure is distinguished from prior studies, as it only accounts for divestitures within a corporation and excludes divestments by subsidiaries and international affiliates.

## ***Analysis***

This study investigates whether observed wealth gains from the divestment of formerly acquired units are associated with the value destroyed at the time of the prior acquisition. Hierarchical regression examined the relationship between the dependent variable, control variables and independent variables. Residual plots checked for the linearity and homoscedasticity assumptions in our models, and the plots do not indicate an evident curvature or violation of linearity assumption. Additionally, the homoscedasticity assumption is met in all models from an examination of residual plots. We did not observe any sign of megaphones or deviation from the constant variance. Q-Q plots examined the normal distribution of the sample residuals in our models. Even though there are slight deviations from the normal line at two ends of normal quantiles, deviations are negligible and the normality assumption was met in all our models.

## **Results**

Table 2 reports the correlation matrix, means, and standard deviations for all our variables. There is no clear sign of multicollinearity as all the correlation coefficients are within an acceptable range ( $< 0.65$ ). We separately calculated the variance inflation factor (VIF) for each model and all VIF values were well below the suggested threshold of 5 (Sheather, 2009), suggesting there is no multicollinearity. Several variable values and relationships also deserve comment. First, our measure of divestiture performance (*Return.div*) has a positive mean of 1.3 percent. This is in line with prior divestiture studies' findings (e.g., Jain, 1985; Brauer and Wiersema, 2012). Additionally, consistent with prior acquisition research (e.g., King *et al.*, 2004), the mean of acquisition announcement abnormal return (*Return.acq*) is close to zero, and positively correlated with divestment CARs. In other words, our sample's descriptive statistics are consistent with prior research, or they appear unbiased. Second, our measure of relatedness



*(Related)* has a mean of 0.797 out of 1, indicating that a considerable proportion of the acquisitions took place between firms operating in similar industries. Further, a related acquisition is positively related to acquisition performance (*Return.acq*), suggesting that investors prefer related deals. Third, an acquiring firm's debt at the time of acquisition (*Leverage*) is negatively correlated with CARs at the time of divestment (*Return.div*), implying that higher leverage at the point of acquisition is associated with unplanned divestment. Fourth, the method of payment (*Pay method*) has a mean of 1.8 reflecting that acquirers commonly use stocks as means of payment. Stock payment shows negative and positive correlations with CARs at the time of divestiture (*Return.div*) and acquisition (*Return.acq*), respectively. Finally, the average interval (*Interval*) between the time of acquisition and divestment is 971 days. This suggests that on average divestments occur more than 2.5 years after an acquisition, supporting observations that integration can take up to three years to complete (e.g., Ingham *et al.*, 1992; Lubatkin *et al.*, 2001).

----- Insert Table 2 about here -----

Table 3 presents our regression models illustrating the impact of our explanatory variables on the CAR at the time of divestment announcement as our response variable with coefficients and standard errors (in parentheses) reported. Model 1 contains only control variables, and the model is not a significant predictor of divestment performance. Still, we suggest caution in interpreting non-significant results. In the case of acquisition premium, the amount paid for a firm likely matters and our results likely reflect our rather small sample size and focus on high technology industries where higher premiums are common (Laamanen, 2007). Likewise, while firms may exploit their past experience to improve divestment performance, we did not find statistically significant impact for experience. Model 2 tests hypotheses 1a and 1b.

The coefficient for acquisition return (*Return.acq*) is positive and significant ( $\beta = 0.255$ ;  $p = 0.008$ ; 95% CI 0.07; 0.44). While this result is contrary to H1a prediction, it supports H1b to suggest that more capable acquirers are rewarded for making divestments. Model 3 supports H2, that paying for an acquisition with stock (*Pay.stock*) performs significantly worse at the time of divestment ( $\beta = -0.036$ ;  $p = 0.046$ ; 95% CI - 0.06; - 0.01). While this may support markets viewing the divestment of an acquisition paid with stock as an indication of failure, it may also be due to paying with stock diluting shareholder ownership (Blackburn *et al.*, 1997).

While Model 3 falls short of offering a statistically significant improvement over Model 1, it offers over a fifty percent improvement in adjusted R-squared. Adjusted R-squared indicates explanatory power of a model after adjusting for number of variables to make sure any improvement is not by chance, suggesting the payment method (stock) substantially adds to the model's explanatory power. The adjusted R-squared of 0.087 for Model 3 also compares favorably to the average R-square Sirower (1997, p. 158) reported for acquisition research of 0.10.

Model 4 tests H3 that the acquisition of larger targets (*Relative size*) is associated with lower performance, and it is not supported. Model 5 evaluates H4 and it shows that acquiring firm's financial performance prior to divestment (*NM pre-divest*) is not a significant predictor of divestment performance. Model 6 combines all variables and it confirms the findings of other models.

----- Insert Table 3 about here -----

## **Discussion**

This study examines market reaction to divestment of a prior acquisition to compare different theoretical explanations for divestment. The results show a positive relationship between an

acquisition's and subsequent divestiture's announcement returns, suggesting that better acquirers benefit from making divestitures. This finding contradicts explanations of divestments as corrections of prior mistakes (Porter, 1987). However, other theoretical expectations based on institutional and behavioral theory are also not supported. This highlights the need to identify 'positive' explanations for divestment. For example, General Electric (GE) has a history of making divestments, and Jack Welch divested 20 percent of GE's assets in his first four years as CEO (Dranikoff *et al.*, 2002). Continued corporate restructuring that included both acquisitions and divestment could go a long way in explaining why GE was the last firm remaining in the Dow Jones Industrial Average from the original 1896 list (Richards and Gladwin, 1999).

One promising option is to consider acquisitions and divestment together using portfolio theory. In other words, firms can use acquisition and divestitures to restructure their portfolio of businesses to improve performance (e.g., Dranikoff *et al.*, 2002; Mulherin and Boone, 2000) and manage liquidity (Schlingemann *et al.*, 2002), environmental uncertainty (Bergh, 1998), and geographic diversification (Berry, 2013). Further, divestitures can complement acquisition practices to reduce risk or manage firm resources. For example, Keil *et al.* (2009) maintains that an acquired unit can be divested once resources are transferred. Further, Capron *et al.* (2001) argue that resource redeployment in the aftermath of acquisitions can serve as a source of value creation by enabling a new business reconfiguration and raising efficiency through disposal of redundant assets. A related research implication is the strategic intent behind divestitures may determine the stock market's reaction (Hite and Owers, 1983; Love and Nohria, 2005; Rubera and Tellis, 2014). For example, Brauer and Schimmer (2010) report higher stock market returns for divestiture programs than a stand-alone divestiture.

Additionally, we find that stock payment for an acquisition is negatively linked with the performance to subsequent divestment of an acquisition. Managers can use stock, cash (debt) or a combination of both to pay for an acquisition. Research assumes that managers have better insight into a firm's stock price, and that this informs their selection of the method of payment (King, Bauer and Schriber, 2018). For example, there is an expectation that managers use stock as a method of payment when their firm's shares are overvalued (Rau and Vermaelen, 1998; Schijven and Hitt, 2012). This implies that stock as a method of payment provides a signal that a firm's shares are overvalued, and it is associated with a negative market reaction on acquisition announcement (e.g., Kaplan and Weisbach, 1992). However, this does not explain reasons for a negative market reaction upon the announcement of the divestment of a prior acquisition. A possible explanation is offered by Schijven and Hitt (2012) who suggest that stock payment is also used when there is greater uncertainty surrounding an acquisition and that it can help align incentives with a target firm. When considering divestment, this explanation suggests that managers may have been unable to handle uncertainty of an acquisition paid for with stock and that divestment could then reflect recognition of a mistake. Still, theoretical explanations for the impact of method of payment on subsequent divestment of an acquisition remain undeveloped.

Relatedly, our results suggest that divestments serve as a potential signal to investors. First, our findings show an average time interval over 2.5 years between acquisition and subsequent divestment. This is in line with prior studies' findings that post acquisition integration process takes up to three years, and that even two years may not allow enough time for firm operations to stabilize (Colman and Lunnan, 2011). The likely implication is that unexpected divestments that follow acquisition completion may be viewed negatively. However, we were not able to distinguish between planned and unplanned divestment. Second, our findings show that in majority of acquisitions a target and an acquirer operate in similar

industries, and that relatedness is positively correlated to acquisition announcement abnormal returns. Related target and acquirer businesses may signal that managers have a better understanding over the target business and industry, so they make better acquisition and integration decisions (Laamanen *et al.*, 2014). This is also consistent with the Kaplan and Weisbach (1992) finding that unrelated acquisitions are four times more likely to be divested.

### ***Limitations and future research***

This research exhibits multiple limitations. First, we only examine U.S. high technology industries. While high technology acquisitions represent a significant share of observed activity (Inkpen *et al.*, 2000), high technology acquisitions have also been recognized as a distinct type of acquisition (Bower, 2001). We also do not control for different industries within the high technology sector. While some prior research focuses on a specific sector (e.g., Anand and Singh, 1997), our approach enables greater generalization of our findings. However, our sample is relatively small, though it compares favorably to other research in this area (e.g., Allen *et al.*, 1995). Another limitation related to our sample is that we only consider U.S. firms. Cao *et al.* (2006) reports negative market reaction to cross-border divestment by British firms, but Borisova *et al.* (2013) reports positive market response to cross-border divestments by liquidity seeking U.S. firms. As a result, our findings may be sensitive to national setting.

We also do not separately examine the impact of different modes of divestitures (e.g., spin-offs, management buy-outs, or equity carve outs), as they were largely absent in our sample. Another limitation is that we do not examine the divested business unit's performance prior to the divestiture. In many cases, following the acquisition, divested units were not autonomous units and their financial statements were not separately reported. However, research indicates that business unit financial performance prior to the divestment is an important factor influencing

the divestiture practice and announcement return (e.g., Duhaime and Grant, 1984). We also only examine voluntary divestment, and divestment imposed by external regulations has been linked to poor performance (Hite and Owers, 1983).

Additional limitations represent clear opportunities for additional research, such as examining a firm's strategic intent in divestiture decisions. For example, Dawley *et al.* (2002) argue that firm strategic choices, resources, and external environment drive post divestiture accounting performance. However, future research can investigate whether the strategic intent of an acquisition included plans for a divestment, and its implications for performance of a subsequent divestment. We also find that stock payment for an acquisition is negatively linked with the performance to subsequent divestment, and research is needed to develop theoretical explanations for this relationship. We also do not account for divestiture process factors, including the governance structure (Johnson *et al.*, 1993), and future research should examine the influence of divestiture processes. Another shortcoming is that we only examine the market return over a short-term window around the announcement date, and performance implications of divestiture take time to be realized. Future research can apply long term measures of performance, such as accounting returns or long-term stock market measures used in acquisition research (i.e., Cording *et al.*, 2010). Future research may also examine the impact of industry characteristics (e.g., industry growth rate) on divestiture performance.

In closing, we find existing explanations of the divestiture of prior acquisitions display significant shortcomings. While present results discount several existing explanations for the divestiture of acquisitions, they also suggest divestment is part of unlocking value from an acquisition. Using divestiture to manage a firm's business portfolio would be consistent with

process perspectives of acquisitions. Overall, there is a continuing need for theoretical and empirical research on divestment and corporate restructuring.

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Table 1

Summary of Explanations for Acquisition Divestment

<b>Perspective</b>	<b>Acquisition Announcement</b>	<b>Post-Acquisition Completion</b>
<b>Correction of Mistake</b>		
<ul style="list-style-type: none"> <li>Market reaction signals acquisition was a mistake</li> <li>Method of Payment (stock)</li> </ul>	Allen, Lummer, McConnell, and Reed (1995) Porter (1987) Kaplan and Weisbach (1992)  Chang and Suk (1998)*	
<b>Indigestion</b>		
<ul style="list-style-type: none"> <li>Acquirer has difficulty integrating target (relative size)</li> </ul>		Gaddis (1987) Kaplan and Weisbach (1992)
<b>Financial Constraints</b>		
<ul style="list-style-type: none"> <li>Acquirer experiences lower performance prior to divestment, or needs to raise cash</li> </ul>		Bergh (1997) Berry (2013) Borisova and Brown (2013) Dranikoff, Koller, and Schneider (2002) Duhaime and Grant (1984) Hoskisson, Johnson, and Moesel (1994) Jain (1985) Laamanen, Brauer, and Junna (2014) Lockett and Wild (2013) Markides and Singh (1997) Montgomery and Thomas (1988)

\* Examine acquisition abandonment versus divestment

Table 2

## Variable Correlations, Means and Standard Deviations

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Return.div	1												
2. Return.acq	0.367**	1											
3. Interval	0.197*	0.176	1										
4. Pay method	-0.026	0.215*	0.045	1									
5. Related	0.121	0.239**	-0.049	-0.026	1								
6. Experience.acquire	-0.084	-0.159	0.040	-0.436**	-0.052	1							
7. Experience.divest	-0.088	0.109	0.357**	-0.106	-0.160	0.020	1						
8. Premium	-0.005	-0.225*	-0.058	-0.25**	-0.018	0.025	-0.066	1					
9. Relative size	0.108	0.087	-0.133	0.473**	0.232**	-0.315**	-0.162	-0.200*	1				
10. NM pre-acquire	-0.044	-0.067	0.070	-0.237**	-0.085	0.133	0.099	0.136	-0.084	1			
11. Leverage	-0.258**	0.028	-0.236**	-0.016	0.033	-0.138	0.170	-0.244**	0.220*	0.236**	1		
12. NM pre-divest	-0.054	0.117	0.004	-0.259**	-0.012	0.136	0.009	-0.010	-0.093	0.230**	0.122	1	
13. Size	-0.226*	-0.069	0.062	-0.479**	0.116	0.409**	0.277**	0.008	-0.346**	0.558**	0.296**	0.345**	1
Mean	0.013	0.002	971.768	1.812	0.797	9.029	3.261	0.359	0.323	-0.020	0.293	-0.354	7.513
STDV	0.062	0.082	847.258	0.896	0.405	10.917	5.066	0.411	0.411	0.274	0.219	1.600	2.661
VIF		1.304	1.373	2.157	1.451	1.543	1.515	1.286	1.819	1.255	1.625	1.258	3.145

Note 1: \*  $p < 0.05$ ; \*\*  $p < 0.01$

Note 2: VIF scores extracted from Model 6. VIF scores from other models are quite similar.

Table 3

## Regression Results for Divestment Abnormal Return

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>	<b>Model 6</b>
<b>Intercept</b>	5.318e-02 (3.356e-02)	5.566e-02** (3.189e-02)	8.920e-02* (3.928e-02)	4.876e-02 (3.713e-02)	5.552e-02 (3.490e-02)	8.585e-02* (3.808e-02)
<b>Related</b>	2.727e-02 (1.935e-02)	1.300e-02 (1.910e-02)	2.833e-02 (1.904e-02)	2.535e-02 (2.061e-02)	2.766e-02 (1.956e-02)	2.274e-03 (2.013e-02)
<b>Experience.acquire</b>	-7.321e-05 (7.922e-04)	1.286e-04 (7.561e-04)	-3.146e-04 (8.204e-04)	-5.767e-05 (8.002e-04)	-7.005e-05 (7.985e-04)	-2.255e-04 (7.701e-04)
<b>Size</b>	-6.688e-03 (4.141e-03)	-5.711e-03 (3.949e-03)	-9.987e-03* (4.384e-03)	-6.145e-03 (4.577e-03)	-6.989e-03 (4.317e-03)	-6.818e-03 (4.510e-03)
<b>NM pre-acquire</b>	9.170e-04 (7.878e-04)	8.324e-04 (7.489e-04)	9.861e-04 (7.751e-04)	8.696e-04 (8.107e-04)	9.125e-04 (7.941e-04)	7.337e-04 (7.422e-04)
<b>Leverage</b>	-5.466e-02 (4.109e-02)	-5.382e-02 (3.903e-02)	-5.321e-02 (4.040e-02)	-5.797e-02 (4.296e-02)	-5.496e-02 (4.142e-02)	-6.393e-02 (3.936e-02)
<b>Interval</b>	1.281e-05 (1.003e-05)	9.320e-06 (9.608e-06)	1.507e-05 (9.919e-06)	1.291e-05 (1.011e-05)	1.274e-05 (1.011e-05)	1.220e-05 (9.359e-06)
<b>Experience.divest</b>	-3.826e-04 (1.718e-03)	-8.906e-04 (1.642e-03)	-7.665e-05 (1.732e-03)	-3.663e-04 (1.732e-03)	-8.458e-04 (1.666e-03)	-8.721e-04 (1.645e-03)
<b>Premium</b>	-9.345e-03 (1.914e-02)	1.377e-03 (1.860e-02)	-1.725e-02 (1.955e-02)	-8.333e-03 (1.960e-02)	-9.258e-03 (1.929e-02)	-5.156e-03 (1.869e-02)
<b>Return.acq</b>		2.553e-01** (9.318e-02)				3.066e-01** (9.373e-02)
<b>Relative size</b>				6.490e-03 (2.248e-02)		-4.197e-03 (2.103e-02)
<b>NM pre-divest</b>					1.353e-03 (4.983e-03)	-5.343e-02* (2.068e-02)
<b>Pay. cash&amp;stock</b>			5.858e-03 (2.146e-02)			2.601e-02 (2.218e-02)
<b>Pay. stock</b>			-3.623e-02* (2.041e-02)			-3.933e-03* (2.338e-03)
<b>Adj. R<sup>2</sup></b>	0.055	0.147*	0.087	0.040	0.040	0.200*
<b>F-Statistic</b>	1.493	2.306	1.646	1.316	1.315	2.314
<b>ΔF-Statistic</b>		0.813	0.153	-0.177	-0.178	0.821
<b>P-value</b>	0.178	0.027	0.116	0.248	0.249	0.015

Note 1: “, \*, and \*\*, represent significance at 0.1, 0.05, and 0.01 levels, respectively.

Note 2: Values in parenthesis are the standard errors from the *t*-tests for each partial coefficient

Note 3: ΔF-Statistic reflects the difference in statistical significance between models 2-6 and model 1.