Market Learning about the Stand-Alone Value of the Acquirer

Avner Kalay and Krisztina Büti †

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Avner Kalay is at the University of Utah and Tel Aviv University. E-Mail: avner.kalay@eccles.utah.edu

Krisztina Büti is at the University of Utah. E-Mail: krisztina.buti@eccles.utah.edu

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Abstract

This paper examines the relationship between the acquirer's investment policy and the market revision of the estimated stand-alone value of the firm upon the acquisition announcement. We capture the market's reaction to the revealed shift in the firm's investment policy from internal investment to acquisitions in a sample of 3,192 first-time acquirers. The results show that the market reacts less positively to announcements made by firms with greater prior internal investment than their industry-peers suggesting that the acquisition news reveals to investors that the firm's internal investment opportunities have peaked. The significant negative relationship between the firm's investment policy and shareholder gains upon the acquisition announcement is robust to controlling for firm and deal characteristics and it is unrelated to anticipation effects. High-investment acquirers tend to choose high-investment targets further supporting the hypothesis that high growth firms undertake acquisitions with the motive to compensate for the foreseen drop in internal investment opportunities, therefore the acquisition announcement causes the market to revise its estimate on acquirer stand-alone value.

1. Introduction

Academic research offers many insights on how corporate acquisitions create or destroy value for the shareholders of the acquiring firm. Evidence on the planned merger's wealth effect often relies on an event study analyzing the short-term market reaction to the announcement. The interpretation of abnormal announcement returns involves a perplexity: the market's reaction incorporates not only expectations regarding the impact of the proposed combination of assets on firm value but also the revision of investors' estimates on the stand-alone value of the firm in light of its revealed intent to make an acquisition.

Separating these two effects presents a substantial challenge. Existing evidence relies on samples of either failed acquisitions (Amihud, DeLong, and Golubov (2013)) or competed acquisitions (Bhagat, Dong, Hirshleifer, and Noah (2005), Bayazitova, Kahl, and Volkanov (2012)) where short-term abnormal returns upon the announcement of the acquisition plans can be compared to those upon the withdrawal of the bid or the arrival of a competing bid. This comparison allows inference on the estimated component of the abnormal returns due to market updating on the firm's stand-alone value upon the original announcement, but relies on small samples where endogeneity to the bidder and anticipation effects cannot be credibly excluded. For example, bid failure due disagreement regarding the price or key terms are likely to be endogenous to the bidder's offer. Bid termination due to regulatory action is likely to be anticipated from the time a complaint is filed with the regulatory authorities resulting in biased short term abnormal returns upon the news of the failure.

We base our approach on the premise that firm value is primarily determined by the firm's investment policy characteristically adapted to its investment opportunity set. We conjecture that

firms engage in high capital expenditures relative to their industry peers when they have greater real options and low capital expenditures when they have fewer real options.

The market's estimate of fundamental shareholder value is based on the firm's observed investment policy. Capital expenditures above those that serve replenishment of productive capacity generate growth in future earnings. Since firms have monopoly over their real options, internal investment that exceeds industry peers is expected to lead to superior earnings growth, which is reflected in high market valuation.

Acquisitions can be competed. Hence, when a firm makes a switch to acquisitions from a strong internal growth policy, the market recognizes that the firm's real options start to diminish. This revelation warrants a downward revision of the estimated of growth in profits, therefore the stand-alone value of the firm.

In order to capture the relationship between the firm's investment policy and market updating on its stand-alone value at the time it announces an acquisition we evaluate differences in shareholder gains between high- and low-investment acquirers. Our testable hypothesis posits that based on the revelation of the shift in high-investment firms' investment policy the market updates negatively on the stand-alone value of the firm. In the case of low-investment firms the acquisition announcement does not lead to a similar revaluation, because the market was already aware that the firm does not possess superior internal growth opportunities. Consequently, the difference in announcement abnormal returns among high- and low-investment acquirers is indicative of the actuality and magnitude of market updating on the firm's stand-alone value due to the observed shift in its investment policy.

Our results show an economically and statistically significant difference in shareholder gains. We find average shareholder gains surrounding acquisition announcements of 1.8% for all first-time acquirers. Announcements made by those with high prior internal investment generate 0.7% (39%) lower abnormal announcement returns, than their peers with low prior internal investment[1].

We find a statistically and economically significant negative coefficient on net investment in event study regressions of three-day cumulative abnormal returns on investment policy and the standard set of control variables employed in the corporate finance literature in the case of first-time acquisitions. This effect ceases to be significant in the case of repeat acquisitions. These results imply that the market recognizes the shift in the firm's investment policy for high internal growth firms only in the case of the first acquisition. Internal investment patterns do not affect the market's reaction in the case of firms that make regular acquisitions: once the firm shifts to an investment policy that includes external growth, the market incorporates in the estimated stand-alone value the understanding that the firm's real options have peaked, therefore new acquisitions no longer carry a revelation.

To the best of our knowledge ours is the first paper to show large sample evidence that the market learns about the firm's investment opportunity set from the acquisition announcement and this information leads to the revaluation of the stand-alone firm.

The paper makes three contributions to the extant literature on mergers and acquisitions. First, we provide evidence the market recognizes that firms with high real options turn to acquisitions when their real options have peaked to compensate for the drop in their internal investment

[1] Median shareholder gains are 0.8% for first-time acquirers. At the median, announcements made by first time acquirers with high prior internal investment generate 0.5% (63%) lower abnormal announcement returns, than their peers with low prior internal investment.

opportunities. Second, our results show that this recognition leads to lower shareholder gains upon the acquisition announcement and the negative difference is statistically and economically significant. Third, we report evidence that acquirer investment policy affects the choice of the target firm: high-investment acquirers are significantly more likely to choose high-investment targets.

The remainder of the paper is organized as follows: Section 2 provides a review of the literature that forms the context of our study. Section 3 describes the sample. Section 4 shows the results and Section 5 concludes the paper.

2. Related Literature

Our paper contributes to two strands of literature: the discussion on the revelation effect in acquisition gains, and the literature on the firm's investment policy.

Bradley, Desai, and Kim (1983) are the first to highlight that unsuccessful bidders in takeover contests often experience a substantial wealth loss – measured on the basis of the pre-bid firm value – when a competing bidder successfully acquires the target. They interpret this finding as evidence that the unsuccessful bidder lost a profitable investment opportunity to a competitor.

Jovanovic and Braguinsky (2004) develop a model where firms follow a value-maximizing investment policy aiming to fully utilize managerial capacity. When a firm's own projects leave managerial slack the firm is better off by taking over a target with profitable investment opportunities and firing the target's management. However, since the acquisition announcement reveals that assets in place would generate lower than expected profits, the market applies a downward revision to the estimated stand-alone value of the acquirer.

Amihud, DeLong, and Golubov (2013) conduct an empirical test of this model on a sample of failed bids. They find that the operating performance of failed bidders declines in the two years following the acquisition announcement. This evidence supports the hypothesis that these firms chose to acquire because their managers had private information about the impending decline of the firm's stand-alone productivity.

Moeller, Schlingemann, and Stulz (2005) find that a small number of acquisitions undertaken by bidders with high market valuations result in extreme losses to shareholders amounting to an aggregate wealth loss of $397 billion. The authors report that these large loss deals were made at the end of a successful acquisition sequence by large acquirers and were associated with substantial

deterioration of subsequent operating performance, leading to the interpretation that investors learned from the announcements that these acquisitions were undertaken with the motive to hide an underlying deterioration of stand-alone value.

Savor and Lu (2009) analyze the post-merger performance of successful and unsuccessful bidders in 187 stock-financed transactions, where the reason for the failure of the deal was regulatory disapproval, disagreement on the terms of the deal, or target related developments. Their find that buy and hold returns of failed bidders significantly underperform those of successful bidders in the post-acquisition years and such underperformance worsens over time.

Malmendier, Moretti, and Peters (2013) compare the post-acquisition performance of winners and losers in close bidding contests. They also find that long-run abnormal returns of losers outperform those of winners, but the differences in long-term buy and hold abnormal returns are associated with winning acquirers' increase in leverage therefore lower profitability.

Bhagat, Dong, Hirshleifer, and Noah (2005) develop the intervention method to study the revelation bias: investors' revision of the estimated stand-alone value of the bidder upon the acquisition news. Their sample includes 1,018 attempted offers, and 141 competed acquisitions. They find that three-day cumulative announcement returns are insignificant or slightly negative. The market reaction to the arrival of a competing offer shows that these announcement abnormal returns contain an economically and statistically significant expected value improvement, therefore the original implication of the news on the bidder's stand-alone value was negative. Equity offers convey worse news about the stand-alone value of the bidder than cash offers, and hostile offers convey better news regarding bidder stand-alone value than friendly offers.

Bayazitova, Kahl, and Valkanov (2012) follow the methodology of Bhagat et al (2005) to estimate the magnitude of the market's revision of acquirer stand-alone value in the case of 190 competed acquisitions separated into mega-mergers (in the top 1% of the transaction size distribution) and non-mega-mergers. They find that the market reacts negatively to the withdrawal of previously announced bids when the target accepts a competing offer in the case of non-mega-mergers, supporting the view that acquisition news implies negative information about the stand-alone value of bidders.

Malmendier, Opp, and Saidi (2015) examine the revelation effect on the target's market value. In a sample of 236 public targets in unsuccessful takeover bids by public acquirers, targets of pure cash offers are revalued 15% higher than their original market value after the failure of the acquisition attempt, whereas targets of pure stock offers return to their original valuation. Since there are no significant differences among targets of cash offers and stock offers in the likelihood of the target being acquired in a subsequent transaction, or in post-merger performance these results suggest that cash takeover attempts reveal positive information about the stand-alone value of targets. Although the paper is focused on the revaluation of targets, it also shows negative cumulative abnormal returns at the time of the deal failure for acquirers, particularly in the case of equity offers.

Masulis and Swan (2014) study shareholder wealth creation by comparing successful and failed acquisitions in seven common law countries. They find that value destruction by takeovers of public targets in the extant corporate finance literature is distorted by a revelation bias: the perception of the market that the announcement of the bid carries bad news about the bidder's stand-alone value.

We approach the revelation effect in acquisitions from the perspective of the firm's investment policy. Miller and Modigliani in their seminal paper of (1961) establish that firm value depends on the earning power of assets in place and its real options that generate a return greater than the market rate. McConnell and Muscarella (1984) provide evidence for this thesis by showing that industrial firms' unanticipated announcements of planned increases in capital expenditures generate positive abnormal returns while announcements of planned decreases in capital expenditures generate negative abnormal returns.

John and Ofek (1995) show that announcements of divestitures of assets unrelated to the firm's main operations thus increasing corporate focus are accompanied by positive abnormal returns and are followed by an improvement in operating performance. Maksimovic and Phillips (2001) document that changes in the productivity of conglomerate divisions prompt an asset reallocation by divesting assets of poorly performing divisions and investing in divisions that experienced positive demand shocks. Such reallocations improve the overall performance of the firm. These findings provide indirect support of our main hypothesis that shifts in the firm's investment policy are indicative of the time and industry variation of the a firm's real options and external acquisition opportunities.

Increasing capital expenditures indicate that the firm has plenty of real options to invest in. Acquisitions present a greater risk than developing the firm's real options partly because managers possess superior private information on the firm's existing investment opportunities and partly because external acquisitions bring about additional integration risks.

We conjecture that the acquisition announcement reveals to the market that exploiting the acquirer's real options would yield a lower net present value than the estimated net present value of the planned acquisition. Hence, if the acquirer followed a successful internal investment policy

prior to the announcement, then the market's revaluation of the acquirer's stand-alone value will result in a negative adjustment.

We expect a similar revaluation to take place in the presence of agency conflict when the firm has adequate real options but the planned acquisition yields private benefits to management. In this case the acquisition announcement reveals a prevalent agency conflict, therefore in recognition of a suboptimal investment decision investors assign a lower valuation to the firm.

3. Empirical Approach

Our sample includes completed mergers and acquisitions of US targets between 1990 and 2012 from the SDC Mergers and Acquisitions database matched to CRSP and Compustat. We keep transactions where the acquirer has not made an acquisition for at least three fiscal years before the announcement. We require CRSP return information for the year preceding the acquisition announcement and Compustat data for at least three fiscal years: the effective fiscal year of the acquisition and the preceding and the subsequent fiscal years. Acquirers are assigned to the 48 industry groups defined in Fama and French (1997) based on their primary SIC codes in Compustat in the fiscal year of the acquisition. We restrict targets to public companies, private companies and subsidiaries of private companies. We set the minimum deal value, defined as the total consideration paid by the acquirer excluding fees and related expenses, to $10 million and drop transactions where the deal value relative to the market capitalization of the acquirer 11 days before the announcement is less than 1%. In order to avoid repeat partial acquisitions we require that the acquirer controls less than 50% of the target before the acquisition and obtains 100% ownership.

We exclude transactions with missing information on the announcement date, effective date, deal value, or target organizational form. These procedures result in 3,194 acquisitions.

We evaluate the firm's investment policy relative to its industry peers on an annual basis. Our measure of internal investment is net capital expenditures (capital expenditures less depreciation) scaled by the firm's total assets. Measuring internal investment on an annual basis allows us to accommodate the cyclicality of investment while industry adjustment permits controlling for industry variation in investment patterns. We classify firms as "high investment firms" if net capital expenditures exceeded the industry median in the fiscal year preceding the acquisition announcement and "low investment firms" otherwise. The distribution of net investment adjusted for the industry-year median is depicted in Figure 1.

[Insert Figure 1 about here]

Table 1 shows the summary statistics for the sample of first-time acquirers. We measure firm characteristics at the beginning of the fiscal year of the acquisition announcement. We measure Tobin's Q as the market-to-book assets suggested in Adam and Goyal (2008) and excess cash as the difference between the firm's cash holdings scaled by total assets and the predicted median for the Fama-French 48 industry in the fiscal year suggested in Harford (1999).

High- and low-investment acquirers are similar in the size of their assets. In accordance with the prediction of Miller and Modigliani (1961) high-investment firms have significantly higher Tobin's Q measures and market to book valuations than low net investment firms. These findings

support the hypothesis that firms with more valuable real options have larger net capital expenditures and make profitable investments which is reflected in market valuations.

The comparisons indicate that acquirers with high net investment have significantly higher operating profitability and cash reserves, but lower leverage than their low-investment peers. Interestingly, high-investment acquirers undertake acquisitions of a lower relative size than low-investment acquirers. We find no significant differences in the fraction of public targets, payment patterns, or the tendency for diversification. Our (unreported) results also show that these differences are robust to separating the sample by the organizational form of the target.

[Insert Table 1 about here]

Results may be affected by variation in industry growth patterns if high- and low investment acquirers are unevenly distributed within industries. Industries might differ with respect to how internal investment policy impacts firms' propensity to undertake acquisitions. Table 2 reports the distribution of high- and low investment acquirers by industry. Although acquisition frequencies show a wide variation among industries, the number of high- and low investment acquirers is relatively evenly distributed within industries, indicating that our results are not driven by the an imbalance of the variation of acquisition propensity within industries.

[Insert Table 2 about here]

4. Results

4.1. Investment Policy and Acquisition Gains

We start by examining associations between first-time acquirers' investment policy, and the market reaction to their acquisition announcements. Mitchell, Pulvino, and Stafford (2004) show that merger arbitrageurs exert downward pressure on the share price of acquirers in deals that involve public targets resulting in a negative bias in observed abnormal returns. In order to address this issue we report results for both the entire sample and the subsample of acquisitions of private targets where merger arbitrage is not a confounding factor.

A key finding in the comparisons in Table 2 is that announcements made by high-investment acquirers generate consistently lower shareholder gains than those made by low-investment acquirers. In our sample all three-day cumulative abnormal returns are significantly positive, indicating that on an overall basis the market perceives these acquisitions as wealth creating investments. To the extent that past performance is indicative of firm quality we would expect that high-investment firms have better overall growth opportunities and higher quality management than their low-investment peers, resulting in more efficient acquisition decisions. However, when we look at post-acquisition performance we find the opposite relationship: high-investment acquirers improve their operating return on assets less than low-investment acquirers and have a greater drop in their Tobin's Q measures indicating that firm value increased less.

[Insert Table 3 about here]

4.2. Investment Policy and Market Anticipation

Abnormal returns around corporate events are not meaningful if the market anticipates the news. Cai, Song, and Walkling (2011) document that abnormal returns to anticipated takeover bids are surrounded by lower abnormal returns than to unanticipated bids. Since investment policy is endogenous, the news that a profitable firm with high capital expenditures announces an acquisition may not come as a full surprise to the market, thus lower abnormal returns could arise due to the anticipation effect, rather than investor updating on the firm's stand-alone value.

We examine this hypothesis by testing if the firm's investment policy is a significant predictor of its acquisition propensity while controlling for firm characteristics and taking into consideration that merger events cluster in merger waves (Mitchell and Mulherin (1996), Rhodes-Kropf and Viswanathan (2004), Harford (2005)). Table 3 shows the results. The sample includes all Compustat firm-year observations where information was available on all variables.

[Insert Table 4 about here]

In our sample the average predicted likelihood of a public firm undertaking an acquisition after a dormant period of at least three years is 4.7%, while the median predicted likelihood is 4.2%. The results of the logistic regression refute the hypothesis that investment policy enters investor anticipation of acquisition announcements as a significant independent variable. We find that operating profitability, cash holdings, and firm size have a significant positive coefficient while leverage has a significant negative coefficient in predicting first-time acquisition propensity. Firms are also significantly likelier to announce acquisitions during industry merger waves.

These findings suggest that internal investment patterns do not form part of investors' expectations regarding the likelihood of bidding, therefore the observed differences in acquisition announcement abnormal returns among high- and low-investment acquirers are not associated with anticipation effects.

4.3.1 Market Learning about Acquirer Stand-Alone Value

We study how the market updates its expected estimate of the stand-alone value of the bidder upon learning about the shift in its investment policy from the acquisition announcement by analyzing the relationship between investment policy and abnormal returns in the case of first-time and repeat acquisitions. First-time acquisitions are defined as those where the acquirer has not acquired another firm for at least three fiscal years preceding the fiscal year of the announcement. Inactivity in the M&A market could arise either from a strong internal investment policy implying a large set of real options, or from a weak general investment policy where the firm has low real options, but it prefers slow growth to undertaking acquisitions. The latter policy could reflect managerial risk aversion, poor cash flow, or unfavorable financing conditions.

The acquisition announcement informs investors about a change in the firm's investment policy in both cases.

Firms would choose to follow a strong internal investment policy either because value maximizing managers would capitalize on the firm's real options, or because entrenched managers pursue private benefits by overinvesting. A value maximizing firm with strong prior internal investment would switch to acquiring another firm only if the estimated net present value of acquiring the target is greater than the net present value of investing internally. Thus, for a value

maximizing firm the acquisition announcement reveals that the highest net present value investment faced by the firm is the planned acquisition. If the firm is prone to agency conflict, then the announcement of an acquisition after a period of high internal investment would reveal that management actions continue to destroy shareholder value. Masulis, Wang, and Xie (2007) document that the market reacts less positively to acquisition announcements by acquirers with weak corporate governance, indicating that investors recognize agency problems and the resulting inefficient investment and loss of operating efficiency. In consequence, an acquisition announcement after a dormant period reveals bad news about the acquiring firm's internal investment opportunities or prevalent agency conflict.

In contrast, acquisition announcements do not carry a similar revelation about the firm's prospects for acquirers that invested at or below their industry peers internally in the period preceding the acquisition announcement. A value maximizing firm would choose low internal investment if either its real options were scarce, or it was financially constrained. Agency conflict predisposes firms to overinvestment, rather than underinvestment thus an acquisition announcement by a low internal investment firm is not likely to reveal the presence of agency problems.

Consequently, the difference in short-term shareholder gains between high- and low-investment acquirers quantifies the revelation effect by showing how the market updates the estimated stand-alone value of acquirers who previously pursued a policy of strong internal investment upon learning about the acquisition plans.

We conjecture that the revelation effect is not present in the case of repeat acquisitions, where the market already recognized that the acquirer's growth is at least partly dependent on acquisition opportunities within its industry.

We begin by analyzing the sample of first-time acquirers. Table 5 shows results of explanatory regressions of announcement three-day cumulative abnormal returns on the net investment of the acquirer and control variables employed in the corporate finance literature on mergers and acquisitions in the case of first-time acquirers. Following Gormley and Matsa (2014) we control for industry variation in investment policy by including industry fixed effects in all of of the regression models. Columns (1) – (3) show the results for the entire sample and columns (4) – (6) for the subsample of private and subsidiary targets where merger arbitrage does not interfere with abnormal returns. We control for acquirer growth opportunities proxied by Tobin's Q, acquirer size (measured as the log of total assets), excess cash holdings (proxied by the cash deviation from the predicted industry-year median following Harford (1999)), leverage, relative deal size, cash payment, diversification, and target public status.

[Insert Table 5 about here]

Net investment deviation from the industry-year median is significantly negatively associated with shareholder gains upon the acquisition announcement for first-time acquirers. When we exclude acquisitions of public targets where the activities of merger arbitrageurs can add noise to announcement abnormal returns we find that the negative relationship is even stronger.

These results suggest that the difference results from the market updating on the firm's stand-alone value: the acquisition announcement reveals to investors that the firm chooses to expand externally, therefore its internal investment opportunities have peaked.

In our sample, coefficients on control variables are consistent with those found in other studies on mergers and acquisitions. The literature reports mixed results on the association between Tobin's Q and acquisition announcement abnormal returns. Lang, Stulz, and Walkling (1989), and Servaes (1991) document a significant positive relationship, while Moeller, Schlingemann, and Stulz (2004) find a significant negative relationship. In our sample the relationship between the Tobin's Q measure of the acquirer and acquisition announcement abnormal returns is insignificant.

The negative relationship between firm size and announcement abnormal returns in our sample has been well-documented in other papers as well. Moeller, Schlingemann, and Stulz (2004) and (2005) document that large acquirers experience lower shareholder at the time of the acquisition announcement. Faccio, McConnell, and Stolin (2006), Masulis, Wang, and Xie (2007), Offenberg (2009), and Harford, Humphery-Jenner, and Powell (2012) find similar results.

Excess cash holdings (Harford (1999)) and leverage (Harford, Martos-Vila, Rhodes-Kropf (2015)) have been shown to affect acquisition activity. These capital structure considerations do not affect abnormal returns in our sample, possibly because first-time acquisitions are undertaken with different corporate motivations than subsequent acquisitions.

Our results corroborate the positive relationship between relative deal size and shareholder gains first reported by (Bradley, Desai, and Kim (1983)). This finding shows that the market recognizes the larger potential for achieving productive efficiencies in the case of acquiring target firms of a greater size if the terms of the agreement provide the acquiring firm with a positive net present value.

We find a significant and negative relationship between shareholder gains and acquisitions of public targets. This finding echoes Chang (1998), and Faccio, and McConnell, and Stolin (2006) who also document that abnormal returns in acquisitions of private targets are significantly higher than in acquisitions of public targets.

In our sample, shareholder gains are not significantly associated payment and diversification patterns.

Thus, evidence shows that the market evaluates acquisition announcements by first-time acquirers not only from the perspective of expected synergies, but also within the context of the acquirer firm's investment policy. A shift to acquisitions following an investment policy focused on the firm's real options reveals bad news to the market regarding the firm's internal investment opportunities or agency conflict. In response to learning the news, investors apply a downward revision to the estimated stand-alone value of the firm.

4.3.2 The Revelation Effect in Repeat Acquisitions

Do acquisition announcements reveal bad news about the firm's internal investment opportunities for firms who make acquisitions regularly?

We continue by testing the proposition that the revelation effect is limited to first-time acquirers: the case when the market first learns that the firm's investment policy is shifting towards external growth opportunities. Market learning about the firm's real options involves the discovery that these investment opportunities are no longer sufficient to sustain superior internal growth. Subsequent acquisitions do not lead to a similar revelation leading to a revision of the firm's stand-

alone value, because the market already recognized that the firm's growth opportunities converge to those in the industry.

Table 6 reports regression results the analysis of the relationship between short-term shareholder gains and acquirer investment policy in the case of repeat acquirers.

Consistent with our prediction we find no statistically significant relationship between the firm's investment policy and three-day abnormal returns for repeat acquisitions.

We find that coefficients on control variables are similar in samples of first-time and repeat acquisitions of private and subsidiary targets. Interestingly, acquisitions of public targets show a slightly different picture: three-day cumulative abnormal returns are greater for cash-financed transactions and cases where the acquirer had high leverage. Interestingly, in acquisitions of public targets short-term shareholder gains are lower for acquirers with high Tobin's Q values, but the coefficient has low significance and economic magnitude. The extant corporate finance literature has found conflicting results on the relationship between Tobin's Q and shareholder gains: Lang, Stulz, and Walkling (1989) and Servaes (1991) document a significant positive relationship, but Moeller, Schlingemann, and Stulz (2004) report a significant negative relationship.

[Insert Table 6 about here]

4.5 Investment Policy and Target Choice

Acquisition announcements by first-time acquirers with high internal investment reveal a slowdown in the firm's real options to the market. This finding implies that such firms would likely choose targets with high real options to substitute for their diminishing internal growth opportunities. We conjecture that

We test this hypothesis on the subsample of the 336 public targets in our sample where the target's investment policy could be measured from Compustat. The results are affirmative: acquirers with high prior net investment are significantly more likely to choose high-investment targets. The finding that acquirer investment policy has a statistically significant impact on target choice corroborates that firms turn to acquisitions at the time when their real options slow down and the market evaluates this shift as a cue of lower stand-alone value.

Table 7 shows logistic regressions where the dependent variable is a binary indicator for the target's internal investment exceeding the median of its industry peers in the year prior to the acquisition announcement. All specifications include industry fixed effects and report standard errors clustered by firm. Univariate results reported in columns (1) and (2) document that high-investment acquirers are significantly likelier to buy high-investment targets than their low investment peers. Columns (3) and (4) show that this effect is robust to controlling for acquirer Tobin's Q, operating profitability, capital structure and size. Interestingly, we also find that larger acquirers are more likely to choose targets with high real options, likely indicating that growth remains a primary motivator of merger activity even beyond replenishing a firm's internal investment opportunities.

[Insert Table 7 about here]

5. Conclusion

We show large sample evidence consistent with the hypothesis that the market updates its estimate on the stand-alone value of the acquirer if the acquisition announcement reveals a shift in the firm's investment policy from internal investment to mergers.

We find that announcements by acquirers who followed a strong internal growth policy prior to the acquisition are associated with less positive short-term abnormal returns. The negative relationship between shareholder gains and prior investment policy is robust to controlling for firm size, industry, payment form, relative deal size, target organizational form, and other firm and deal characteristics. This result indicates that the market revises the previously estimated stand-alone value of the acquirer downward as it learns bad news from the announcement regarding the firm's internal growth opportunity set and/or agency conflict driven overinvestment.

We report that acquirers with high previous internal investment are significantly likelier to choose targets with high internal growth than their low investment peers. This finding suggests that the primary motive for acquisitions following a period of strong internal investment is to compensate for an impending decrease in real options.

Altogether our results suggest that the market learns about first-time acquirers' internal and external growth options from the acquisition announcement and applies a downward revision of the stand-alone value of acquirers whose announcement reveals a diminishing set of internal investment opportunities.

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Appendix: Variable Definitions

Variable	Definition
Abnormal Returns	Cumulative abnormal returns summed in three event days starting one day before the announcement over the returns predicted by the Fama-French (1993) 3-factor model. The model is estimated over the 200-day period starting 206 days before the announcement of the acquisition.
Cash Payment Indicator	=1 if the transaction was financed entirely by cash.
Diversifying Merger Indicator	=1 if the acquirer's primary Fama-French 48 industry group is different from the target's primary Fama-French 48 industry group. Public acquirers and public targets are assigned to industry categories on the basis of their primary SIC codes in Compustat. Private and subsidiary targets are assigned to industry categories on the basis of their primary SIC codes in SDC.
Earnings per Share	Basic earnings per share excluding extraordinary items. Compustat item epspx.
Excess Cash	The difference between the firm's cash holdings scaled by total assets and the predicted median for the Fama-French 48 industry in the fiscal year following Harford (1999).
Firm Age	Calculated as the difference between the fiscal year of the Compustat observation and the IPO year of the firm in the Field-Ritter dataset of company founding dates. http://bear.warrington.ufl.edu/ritter/FoundingDates.htm
Insider Shareholdings	The proportion of the firm's shares held by directors and officers in each year when information is available. Total number of shares held by insiders is calculated from ISS and ISS legacy by summarizing the number of shares held by each director in each year. The total number of shares held by insiders and directors is divided by the number of shares used for calculating basic earnings per share (Compustat item cshpri).
High-Investment Indicator	=1 if the firm's net investment (calculated as capital expenditures less depreciation scaled by total assets) is greater than the median net investment in the firm's Fama French 48 industry in the fiscal year.

Industry	The industry grouping of the firm based on the 48 Fama-French (1992) industry categories assigned by the firm's Compustat SIC code in the fiscal year.
In-Wave Indicator	=1 if the date of announcement falls within an industry merger wave. Industry merger waves are identified as in Harford (2005) in two decades: the 1990s and the 2000s.
Log(Assets)	Logarithm of the total book assets (in million dollars), constructed for each firm-year.
Leverage	Long-term debt over market capitalization in the beginning of the fiscal year, constructed for each firm-year. Calculated from Compustat as dltt / (cshpri * prcc_f).
Market to Book Equity	Total market capitalization over the book value of equity. Calculated from Compustat as (cshpri * prcc_f) / ceq.
Net Investment	The firm's capital expenditures less depreciation scaled by average total assets constructed for each firm-year, calculated from Compustat as (capx - dpc) / (average at). Industry-year adjusted net investment is the difference between the firm's net investment and the industry-year median.
Operating Return on Assets	Operating income over the book value of total assets, constructed for each firm-year. Calculated from Compustat as ebitda / at.
Public Target Indicator	=1 if the target is a publicly listed firm in SDC.
Relative Size	Transaction value in SDC divided by the acquirer's market capitalization at the beginning of the fiscal year.
Tobin's Q	Tobin's Q measured as the market to book assets ratio following Adam and Goyal (2008) as the sum of (equity market capitalization + preferred stock + debt in current liabilities + long term debt) over the book value of total assets. Calculated from Compustat as ((prcc_f * cshpri) + pstk + lct+ dltt – txditc) /at.

Figure 1: Net Investment

This figure graphs the distribution of net investment adjusted for the industry-year median and winsorized at the 1st and 99th percentiles. The sample includes acquisitions of public, private, and subsidiary targets by first-time acquirers that were announced between 1990 and 2012 with a minimum deal value of $10 million. First time acquirers are defined as cases where the acquirer makes a transaction after at least a three-year waiting period preceding the fiscal year of the acquisition announcement.

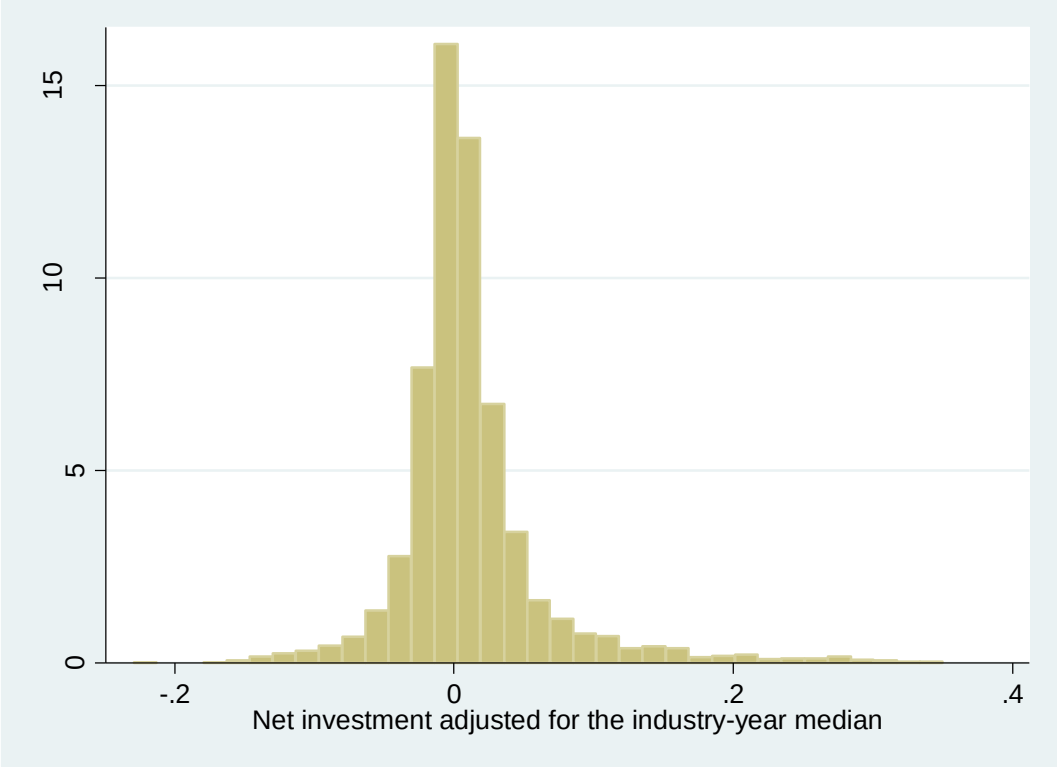

Table 1: Summary Statistics

This table reports mean and median summary statistics for acquirer, target and deal characteristics. Medians are below the means in parentheses. The sample includes first-time acquirers: firms that have not made any acquisitions for at least three years prior to the year of the announcement. High-investment (low-investment) acquirers are those whose net capital expenditures in the fiscal year preceding the acquisition announcement exceeded (fell below) the median of all Compustat firms in the same industry.

Firm characteristics are measured at the beginning of the fiscal year. Variables are winsorized at the 1st and 99th percentiles. Variable definitions are included in the Appendix. P-values show the significance of the two-sided difference in means test and the Wilcoxon rank-sum test. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

	All	High-Investment	Low-Investment	P-values for Difference	
Net Investment	1.1%	3.8%	-2.3%	0.00	***
	(0.0%)	(1.9%)	(-1.5%)	(0.00)	***
Tobin's Q	1.9	2.0	1.7	0.00	***
	(1.4)	(1.5)	(1.4)	(0.00)	***
Market to Book Equity	3.0	3.1	2.9	0.04	**
	(2.1)	(2.2)	(1.9)	(0.00)	***
Total Assets (USD million)	2,772	2,928	2,577	0.32	
	(391)	(408)	(397)	(0.12)	
Market Value of Equity (USD million)	2,181	2,335	1,986	0.06	*
	(458)	(520)	(372)	(0.00)	***
Operating Return on Assets	11.7%	13.1%	9.8%	0.00	***
	(13.2%)	(13.9%)	(12.2%)	(0.00)	***
Leverage (Book)	17.2%	15.6%	19.2%	0.00	***
	(12.7%)	(11.1%)	(15.1)	(0.00)	***
Excess Cash	4.4%	5.6%	2.9%	0.00	***
	(0.0%)	(0.6%)	(-0.1%)	(0.00)	***
Relative Deal Size	39.2%	32.2%	48.0%	0.00	***
	(15.7%)	(13.3%)	(19.6%)	(0.00)	***
Fraction of Pure Cash Deals	27.8%	27.8%	27.8%	0.99	
Fraction of Public Targets	20.6%	20.8%	20.1%	0.60	
Fraction of Diversifying Deals	40.6%	41.8%	39.1%	0.11	
Number of Observations	3,194	1,784	1,410		

Table 2: Summary Statistics

The table reports the distribution of the sample by the industry of the acquirer. Industry classifications follow the 48 Fama-French categories. The sample includes first-time acquirers: firms that have not made any acquisitions for at least three years prior to the year of the announcement. High-investment (low-investment) acquirers are those whose net capital expenditures in the fiscal year preceding the acquisition announcement exceeded (fell below) the median of all Compustat firms in the same industry.

Industry	Internal Investment		
	High	Low	All
Agriculture	3	2	5
Food products	19	24	43
Soda and candy	2	6	8
Beer and liquor	5	4	9
Tobacco products	3	2	5
Recreation and toys	7	17	24
Entertainment and movies	15	30	45
Printing and publishing	23	18	41
Consumer goods	25	33	58
Apparel	18	24	42
Healthcare	30	45	75
Medical equipment	37	65	102
Pharmaceuticals	56	68	124
Chemicals	33	30	63
Rubber and plastic products	15	14	29
Textiles	14	11	25
Construction materials	23	38	61
Construction	20	28	48
Steel works and primary metals	29	39	68
Fabricated metal products	7	10	17
Machinery	56	81	137
Electrical equipment	28	31	59
Automobiles and trucks	26	27	53
Aircrafts	15	11	26
Shipbuilding and railroad equipment	3	2	5
Defense and guns	8	6	14
Precious metals	6	9	15
Mining	6	6	12
Coal	5	5	10

Industry	Internal Investment		
	High	Low	All
Oil and natural gas	61	78	139
Utilities	66	66	132
Telecommunications	46	50	96
Personal services incl. legal and educational	24	27	51
Business services	178	201	379
Computers	71	94	165
Electronic equipment	67	126	193
Laboratory measuring equipment	33	47	80
Paper and office supplies	23	34	57
Shipping containers and boxes	4	7	11
Transportation	43	40	83
Wholesale	65	67	132
Retail	72	71	143
Restaurants and hotels	22	31	53
Banking and financial services	16	11	27
Insurance	43	57	100
Real estate	4	7	11
Financial trading	16	58	74
Other	19	26	45
All	1,410	1,784	3,194

Table 3: Internal Investment, Announcement Abnormal Returns, and Post-Merger Performance Indicators

The table reports three-day cumulative abnormal returns surrounding the acquisition announcement as well as measures of performance change in year [+1] relative to year [-1] for first time acquirers. Abnormal returns are calculated as the cumulative residuals from the Fama-French three-factor model. The model is estimated over the 200-day period ending on the sixth day before the announcement. Abnormal returns are significantly positive in both samples. P-values reflect the significance in the difference in means tests and the Wilcoxon rank-sum tests. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Entire Sample

	All	High-Investment	Low-Investment	P-values	
3-day CARs – Average	1.8%	1.5%	2.2%	0.02	**
Median	0.8%	0.6%	1.1%	0.01	***
Fraction that Improved Operating ROA	41.5%	38.7%	45.0%	0.00	***
Change in Operating ROA – Average	-1.11%	-2.0%	0.0%	0.00	***
Median	-0.9%	-1.2%	-0.5%	0.00	***
Fraction that improved Tobin's Q	48.9%	46.7%	51.7%	0.00	***
Change in Tobin's Q – Average	-0.21	-0.27	-0.14	0.00	***
Median	-0.01	-0.04	0.00	0.00	***
Number of Observations	3,194	1,784	1,410		

Panel B. Subsample of Private and Subsidiary Targets

	All	High-Investment	Low-Investment	P-values	
3-day CARs – Average	2.6%	2.2%	3.1%	0.02	**
Median	1.1%	0.9%	1.5%	0.01	***
Fraction that Improved Operating ROA	42.5%	39.7%	46.0%	0.00	***
Change in Operating ROA – Average	-1.0%	-1.9%	0.0%	0.00	***
Median	-0.8%	-1.1%	-0.4%	0.00	***
Fraction that improved Tobin's Q	48.9%	46.5%	52.0%	0.01	***
Change in Tobin's Q – Average	-0.23	-0.27	-0.17	0.01	***
Median	-0.02	-0.04	0.0	0.00	***
Number of Observations	2,539	1,414	1,125		

Table 4: Predictive Regression for First-Time Acquirers

The logistic regression predicts which firms will become first-time acquirers based on net investment, firm characteristics and an indicator variable for industry merger waves. The sample includes all Compustat firm-year observations with available information. Explanatory variables are defined in the Appendix. Variables are lagged and winsorized at the 1st and 99th percentiles. Standard errors are clustered at the firm level. P-values are shown in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)		(2)	
Intercept	-5.6	***	-6.0	***
	(0.00)		(0.00)	
Net Investment	-0.04		-0.03	
	(0.89)		(0.97)	
Tobin's Q	0.02	*	0.02	
	(0.06)		(0.16)	
Operating Return on Assets	1.50	***	1.50	***
	(0.00)		(0.00)	
Excess Cash	0.86	***	0.87	***
	(0.00)		(0.00)	
Leverage	-0.44	***	-0.44	***
	(0.00)		(0.00)	
Size (Log of Total Assets)	0.13	***	0.14	***
	(0.00)		(0.00)	
In Merger Wave	0.14	***	0.09	*
	(0.00)		(0.09)	
Year FE	No		Yes	
Acquirer Industry FE	Yes		Yes	
Number of Firm-Year Observations	70,451		70,451	
Pseudo R-squared	0.02		0.03	

Table 5: Investment Policy and Shareholder Gains for First-Time Acquirers

The table shows regressions of three-day cumulative abnormal returns expressed as a percentage on internal investment at the acquiring firm and control variables. The sample includes first-time acquirers: firms that did not acquire another firm for at least three years preceding the fiscal year of the current acquisition announcement.

We calculate abnormal returns as the cumulative residuals from the Fama-French three-factor model over a three-day period starting one day before the announcement. Model parameters are estimated over a 200-day period ending on the sixth day before the announcement. Explanatory variables are defined in the Appendix. Columns (1) - (3) show the results on the entire sample, columns (4) – (5) on the subsample of private targets. Acquirer firm characteristics reflect values at the beginning of the fiscal year of the acquisition announcement. Variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered by acquirer. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)		(2)		(3)		(4)		(5)		(6)	
			Entire Sample						Private and Subsidiary Targets			
Intercept	0.31		2.8	***	2.59	*	1.2		3.31	***	3.54	**
	(0.71)		(0.01)		(0.08)		(0.28)		(0.01)		(0.03)	
Net Investment	-9.6	***	-4.43	*	-5.56	**	-10.48	***	-6.57	***	-7.75	***
	(0.00)		(0.07)		(0.05)		(0.00)		(0.01)		(0.01)	
Tobin's Q			-0.09		-0.02				-0.01		0.02	
			(0.45)		(0.88)				(0.95)		(0.89)	
Log of Total Assets			-0.38	***	-0.32	***			-0.41	***	-0.31	***
			(0.00)		(0.00)				(0.00)		(0.01)	
Excess Cash			-1.00		-1.38				1.53		-1.37	
			(0.37)		(0.30)				(0.22)		(0.39)	
Leverage			-0.31		-0.84				-0.54		-1.1	
			(0.77)		(0.46)				(0.64)		(0.38)	
Relative Deal Size			1.81	***	1.79	***			2.44	***	2.65	***
			(0.00)		(0.00)				(0.00)		(0.00)	
Cash Payment			0.35		0.36				-0.38		-0.37	
			(0.25)		(0.26)				(0.26)		(0.30)	
Diversifying			-0.2		-0.26				-0.24		-0.33	
			(0.55)		(0.46)				(0.51)		(0.41)	
Public Target			-3.91	***	-3.92	***						
			(0.00)		(0.00)							
Year FE	Yes		No		Yes		Yes		No		Yes	
Industry FE	Yes		Yes		Yes		Yes		Yes		Yes	
Number of Observations	3,194		3,194		3,194		2,539		2,539		2,539	
Adjusted R-squared	0.02		0.07		0.08		0.02		0.07		0.08	

Table 6: Investment Policy and Shareholder Gains for Repeat Acquirers

This table reports regression results analyzing shareholder gains surrounding the acquisition announcements of repeat acquirers. The sample includes repeat transactions that follow first-time acquisitions. First time acquisitions are defined as transactions where the acquirer has not acquired another firm for at least three years preceding the fiscal year of the acquisition announcement.

The dependent variable is acquirer three-day abnormal returns expressed as a percentage. We calculate abnormal returns as the cumulative residuals from the Fama-French three-factor model over a three-day period starting one day before the announcement. Model parameters are estimated over a 200-day period ending on the sixth day before the announcement. Explanatory variables are defined in the Appendix. Columns (1) - (3) show the results on the entire sample, columns (4) – (5) on the subsample of private targets. Acquirer firm characteristics reflect values at the beginning of the fiscal year of the acquisition announcement. Variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered by acquirer. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)		(2)		(3)		(4)	(5)		(6)	
			Entire Sample					Private and Subsidiary Targets			
Intercept	3.34	*	6.03	***	6.28	***	4.11	5.82	***	5.94	***
	(0.08)		(0.00)		(0.00)		(0.04)	(0.00)		(0.00)	
Net Investment	1.39		1.22		1.51			0.80		0.98	
	(0.56)		(0.60)		(0.52)			(0.74)		(0.70)	
Tobin's Q			-0.26	**	-0.23	**		-0.11		-0.10	
			(0.03)		(0.05)			(0.47)		(0.51)	
Log of Total Assets			-0.40	***	-0.39	***		-0.41	***	-0.40	***
			(0.00)		(0.00)			(0.00)		(0.00)	
Excess Cash			0.48		0.32			0.46		0.31	
			(0.70)		(0.79)			(0.75)		(0.83)	
Leverage			1.46	*	1.36	*		1.02		0.85	
			(0.07)		(0.10)			(0.23)		(0.33)	
Relative Deal Size			0.64		0.65			2.22	***	2.22	***
			(0.16)		(0.16)			(0.00)		(0.00)	
Cash Payment			0.42	*	0.41			-0.06		-0.05	
			(0.09)		(0.11)			(0.83)		(0.85)	
Diversifying			0.07		0.08			0.25		0.27	
			(0.83)		(0.79)			(0.44)		(0.43)	
Public Target			-2.80	***	-2.83	***					
			(0.00)		(0.00)						
Year FE	Yes		No		Yes		Yes	No		Yes	
Industry FE	Yes		Yes		Yes		Yes	Yes		Yes	
Number of Observations	4,100		4,100		4,100		3,280	3,280		3,280	
Adjusted R-squared	0.00		0.03		0.03		0.00	0.02		0.02	

Table 7: Acquirer Investment Policy and Target Choice

This table shows the results of a logistic regression predicting the acquirer's propensity to buy a target with high internal investment. The dependent variable is a binary indicator that equals one if net investment at the target firm exceeded the median of the industry in the beginning of the fiscal year of the announcement. Explanatory variables are defined in the Appendix. Variables are winsorized at the 1st and 99th percentiles. P-values are indicated in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)		(2)		(3)		(4)	
Intercept	-0.32		-0.51		-1.69		-2.41	
	(0.85)		(0.78)		(0.36)		(0.18)	
Acquirer High-Investment Indicator	0.64	***	0.65	***	0.73	***	0.67	**
	(0.01)		(0.01)		(0.01)		(0.02)	
Acquirer Tobin's Q					-0.03		0.01	
					(0.75)		(0.91)	
Acquirer Operating ROA					-0.33		0.41	
					(0.77)		(0.70)	
Acquirer Excess Cash					-0.90		-1.50	**
					(0.29)		(0.09)	
Acquirer Leverage					0.59		0.26	
					(0.46)		(0.77)	
Acquirer Log of Total Assets					0.15	**	0.22	**
					(0.04)		(0.02)	
Year FE	No		Yes		No		Yes	
Acquirer industry FE	Yes		Yes		Yes		Yes	
Number of observations	336		336		336		336	
Pseudo R-squared	0.05		0.09		0.08		0.161	