

Learning in Bargaining and Value Capturing in M&A

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Abstract: I aim to test whether serial acquirers are learning from their past acquisition experience and becoming better at bargaining to capture more wealth in an M&A transaction over their deal series. Using mergers and acquisitions data in U.S. from 1980 to 2011, I verify the positive relationship between value-capturing performance and acquisition experience. On average one prior acquisition experience of a public target can help a bidder capture additional 108.5 million dollar from a target in later acquisitions or secure extra 0.385% of synergy created. I provide evidence that serial acquirers are getting efficient in negotiation and able to bargain for a lower premium as M&A experience accumulates. I also test the rate of learning and find an inverted U-shape relationship. Such learning effect is also found to reside in CEOs of acquiring companies. However, their improving ability in value-capturing might develop from general managerial or daily activities, other than from past M&A experience.

Keywords: Mergers and acquisitions, Bargaining Ability, Value Capturing, Acquisition Experience

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1. Introduction

This thesis uses mergers and acquisitions (M&A) data in the United States to test whether serial acquirers, both in organizational and executive level, are becoming better at bargaining for better terms to capture larger fraction of total gain from each M&A transaction over serial M&A process.

M&A activities are a crucial routine for companies to grow, to improve operational efficiency, capture additional value, gain market power, obtain innovation externally, and sustain competitiveness. Besides seeking methods to develop internally, board of directors periodically review and consider potential strategic alliance or business cooperation opportunities for their companies in light of business needs, their relative performance in the industry and the challenges and opportunities that they face under certain economic and market environment. Both of size and volume of acquisitions have increased dramatically in the recent two decades. The market for M&A is formed by thousands of acquirers and targets. Some acquirers are serial acquirers who complete M&A transactions more than once. Among all the M&A transactions in US from 1980 to 2011, 84.25% in number (30957 out of 36741¹) and 93.55% in total transaction value are conducted by serial acquirers. Thus it is of great interest to understand their behaviors, since they make up a significant part of the M&A market.

Ample of existing papers have studied performance of serial acquirers using panel data and all agreed in an existing trend of declining average announcement returns for serial acquirers (Fuller et al. (2002), Croci (2005), Billett and Qian (2005), Ismail (2005) and Conn et al. (2005)). It not only casts doubts on the ability of company executives, but also brings up concerns of agency issues. It is believed that announcement return (CAR²) is a reliable event study measurement that captures the market's perception on changes that are brought to an acquirer from an M&A transaction. It can be used as a proxy for the acquirer's ability in creating value for the shareholders.

¹ Data source: M&A database in Thomson One Banker

² CAR is short for cumulative abnormal return

The ability to add value to shareholders is of great importance to companies and shareholders. The mechanism through which acquirers can add value to their shareholders can further be disentangled into two dimensions, value creation and value capturing. On one hand, an acquirer might be good at selecting target, integrating resources and managing the combined company, from which higher synergy is created. On the other hand, an acquirer can be efficient in negotiating with target for a lower premium payment, in a way to capture larger fraction of synergy gain to its own shareholders. Both approaches can boost the acquirer's stock performance. Thus both abilities mean a lot to shareholders of a company. Literatures in business strategy first raised the idea of value creation and capturing (see, for instance, Porter 1980 and Brandenburger 2002). I quote them here since they are well fitted in the M&A setting. Although there is not necessarily learning effect that is reflected in CARs, there could be still learning found in either of the two dimensions.

It has been researched by some scholars on total M&A synergy gains, which related to value creation ability (Bradley (1988), Moeller, Schlingemann, Stulz (2002)). However, studies on bargaining ability and negotiation skills (value capturing side) are severely deficient and largely neglected by academia. Ahern (2008) claims that acquirers apply cost-minimization strategy by picking a target small in relative size in order to secure deal success as well as to capture more wealth from target. Acquiring a target with smaller size over deal sequence also implies small potential wealth created, *ceteris paribus*. Similarly, Custodio and Metzger (2012) further point out executives' past industry experience impacts target selection, and that experienced CEOs who anticipate securing a larger fraction of the surplus are willing to undertake acquisitions with a lower total surplus at first. In other words, CEOs strategically substitute greater bargaining power for a higher potential synergy gains. Despite of the obscuring reality of declining trend of bidders' returns along deal sequence, it does not necessarily point to the conclusion that CEOs are hubris or chasing their empire building dreams. It is possible that the observed declining return trend might be attributable to the decline of total synergy creation, with specific suite of target-selection strategy. Thus only looking at acquirer's announcement return without considering how much of gain is captured by CEO is insufficient or even misleading.

And it is still unknown, on value capturing side, whether an acquirer is becoming better at negotiating favorable terms to secure larger proportion of total announcement return from an M&A transaction. In my thesis I aim to focus on negotiation ability for serial acquirers, and to test if such ability improves as the acquisition experience accumulated. This is to my best knowledge the first thesis that analyzes bargaining skills development over deal sequence.

2. Literature Review

2.1 Serial Acquirers

For serial acquirers who have made multiple merger&acquisition transactions over their life time, ample of empirical researches have all found a declining trend in the cumulative abnormal return (CARs) of serial acquirers in M&A program (Fuller et al. (2002), Croci (2005), Billett and Qian (2005), Ismail (2005) and Conn et al. (2005)). And the explanations vary among scholars.

Roll (1986), Rau and Vermaelen (1998), Malmendier and Tate (2006), Moeller et al. (2005) all attributed this declining bidder CARs to executives' overconfidence that led to overpaid premium. *Hubris assumption* can affect both value creation and value capturing ability, by overestimating one's ability and underestimating potential risks, which leads to underperformance. However, it is irregular to observe continuous declining performance, since market for corporate control will replace unqualified management and the underperforming company can easily become target of acquisition, leading to management or control right transferred to capable entities for better use of social recourse. Klasa et al (2005) found that M&A sequences correlated with expansions of the *investment opportunity set* and argued that declining return trend was caused by diminishing investment opportunities of good acquisitions. *Capitalization theory* posits that serial M&A is a whole program where the first deal already reflects the entire benefit of subsequent acquisitions (Schipper and Thompson (1983)). Equivalently, signaling theory proposes that new information released by subsequent deals is diminishing, and abnormal announcement return only captures market surprise. Therefore with less uncertainty over M&A sequence, return declines accordingly (Asquith, Bruner, and Mullins, Jr. (1983)).

Prior research has identified particular characteristics, such as method of payment, transaction value and target's public-status, which are correlated with acquisition returns and also change over deal order. Thus chances are great that it's these confounding factors, rather than manager's own ability, that contribute to the observed declining trend of acquirer's abnormal return. It is important to identify these factors and control for their impacts when running regressions to find out the relationship between acquisition experience and announcement return.

Deals settled by cash are perceived positively by market more often than deals financed by stocks. The choice of payment method may deliver signals that market relies on to form perspective on the value of firms and the possible synergy from combination (Shleifer and Vishny (2002), Travlos (1987), Fuller et al. (2002)). It is noted in Bradley and Sundaram (2006) that acquirers who pursued a strategy of growing via acquiring small targets significantly outperformed those that acquired large targets. Alexandridis, Fuller and Travlos (2011) reports a negative correlation/relationship between target size and takeover premium, and small-target acquirers continuously outperform large-target acquirers both in stock market and in operating performance in the long-run. Market rewards acquisition of private and subsidiary targets, while acquisition of public target usually generates negative returns (Fuller et al, (2002)). Other influencing factors include but are not limited to, target-bidder-industry-similarity (diversifying effect) and relative size of target.

2.2 Learning

2.2.1 Relationship between experience and return

The obscuring reality of declining trend of acquirer's announcement returns along deal sequence also arouses a lot of concerns on company managerial ability, and people may wonder why companies repeat doing M&As if it does not create any value to their shareholders and whether CEOs are only chasing empire building dream to obtain private benefit, in terms of control power and private wealth, but at the sacrifice of shareholders. Then many papers start to analyze the relationship between acquisition experience and company returns, aiming to find out whether managers are learning and acting in the best interest of shareholders. However, the results are

quite mixed. Halebian and Finkelstein (1999) derived a U-shape relationship between acquisition experience and acquisition performance. Some scholars have found a positive relationship between performance and experience (Fowler and Schmidt (1989), Bruton, Oviatt & White (1994)), and some others reported an insignificance relationship (Zollo & Leshchinskii, 2004; Zollo & Singh, 2004).

Differences in positive, non-significant and U shaped relationships might suggest that acquisition experience is not equivalent to learning. Thus even after controlling confounding factors, acquirer return is not positively related to acquisition experience, implying that experience cannot simply accumulate. Only in similar industry can prior experienced be generalized, (Halebian & Finkelstein, 2002). Only through careful post-codification can learning happen (Zollo Singh, 2004). Zollo et al (2004) found that prior acquisition experience does not improve post-acquisition performance but the degree to which acquirers articulate and codify their experiences in ad-hoc tools does. Ashkenas (1998) found that experience is not simply added but aggregated through feedback loops. After each deal closure, certain participating team will assess the whole procedure, reflect dos & don'ts and adjust their acquisition codification/routine, which will be applicable in future deals. Hitt et al (1998) documents that too intense acquisitions would be detrimental for skills transfer because acquires will lose control of acquisition process and experienced acquirers would develop adaptive skills and are better at breaking inertia.

2.2.2 Incorporate new information into decision making

Luo (2005) finds that company are learning from market reaction to early M&A announcement and will apply such information into later decision making, in particular, the decision to consummate, renegotiate or abandon a deal. It illustrates a significant and positive relationship between predicted total synergy from acquirer-target combination and the probability of closing the deal successfully. Thus it clearly indicates that acquirer-companies are learning by incorporating new information released from market into deal decision.

Aktas (2005) develops *A.D.R. model* assuming that CEOs choose the current bid price by balancing the risk of overpayment (being fired) and risk of underbidding (losing the deal) and apply *Bayesian Inference Theory* incorporating information of market reaction to last deals (CAR

of last deal) into current decision making. Years after, Aktas (2009) conducts empirical study to support his A.D.R. model prediction of declining CARs on average, with positive performance trend for hubris-infected CEOs and negative trend for rational CEOs. Their theory suggests that rational CEOs bid more aggressively over deal sequence in order to win and secure private benefit, willing to concede larger fraction of synergy to target shareholder by over-payment, while hubris-infected CEOs learn from past to bid more rationally for fear of being replaced in case of over-payment.

To explain the declining acquirer announcement return trend, Ahern (2008) documented a new interpretation that CEOs were actually learning from his acquisition history and implementing a cost minimization strategy by choosing organizational form of target and method of payment consistent with their best prior returns. It finds no support for hubris, agency and diminishing investment opportunities.

2.2 Value Creation and Value Capturing

Value creation: Prior acquisition experience provides insight into M&A procedure, making acquirer familiar with due diligence and better understanding relevant industry development trend. Historical deal experience also helps enhance acquirer's efficiency in selecting suitable targets from which great synergy can be generated by alliance and provide guidance in choosing the right investment banks who have close connection with top executives of potential targets.

Value capturing: Experience in acquisition will help bidder grasp the necessary technique in preparing marketing materials in negotiation that will best cater to potential target. It also gives acquirers a lesson on identifying potential challenges and equips acquirers with know-how to address those difficulties. In bargaining process, experienced dealer will act in discreet while adaptive manner. Thus from the beginning, the experienced bidders will act more professionally than inexperienced ones to ensure transaction negotiation would move in favorable direction to themselves. Besides the general techniques, acquisition experience in certain industry may provide insights related to target's industry. Culture difference in target industry may lead to different negotiation style and requirement (Custodio and Metzger (2012)). Obtaining industry

information, conforming to negotiation style, developing close relationship with key players in industry can be valuable for future possible transaction.

Jaffe, Pedersson and Voetmann (2009) investigate acquirer's ability in three dimensions: the ability to create, the ability to extract, and the ability to bargain. They focus on identifying skills difference cross different managers by running cross-sectional regression and testing for performance persistency between two successive transactions or in the case of executive turnover.

Early papers examine bidder return, target return and total gains of target and bidder from transaction. Jensen (1984) found that "overall corporate takeover generate positive gains; target firm shareholder benefit and acquirer lose". Later, researchers recognized the possible capital redistribution happens in M&A between acquirer and target. It is argued by Roll (1986), who proposed "Hubris Hypothesis", that part of the gains to target-firm represents a wealth transfer from acquirer-firm due to overestimation combined value and potential synergy, not necessarily from the synergy created.

Some scholars start to study how the synergy is divided between acquirer and target. Ahern (2008) studied the bargaining power of acquirers in synergy division and found that targets that have greater dependence on acquirers are vulnerable from final gains splitting. Ahern introduced relative gain of target as a measure of how the synergy is divided between bidder and target. Stulz, Walkling, Song (1990) discovered that target ownership structure has impacts on the division of total gain and that in multiple-bidder contests target's gain is positive related to managerial shareholding but negative related to institutional ownership and that bidder ownership is only effective in single-bidder contest with a decreasing effect on target's gain. Most gains in takeovers accrue to targets, suggesting the presence of strong competition among acquirers (single vs multiple bidder contest).

Some scholars found that acquirers pay more attention to value capturing and are willing to strategically substitute greater bargaining power for a higher potential synergy gains. Ahern

(2008) claims that acquirers apply cost-minimization strategy by picking small relative size target to secure deal success as well as capture more wealth from target. Acquiring a target with smaller size over deal sequence also implies small potential wealth created from such transaction *Ceteris paribus*. Similarly, Custodio and Metzger (2012) find industry experience is valuable for CEOs in negotiating for better value capturing performance but do not bring significant help for value creation and that in order to have a better bargaining power in negotiation CEOs can undertake acquisition from which a lower synergy can be generated in the first place.

Up to now, there has been no paper testing whether an acquirer, both the company and individual executive, is becoming better at bargaining in negotiation acquisition transaction over acquisition sequence. Negotiating ability is also an important ability which can add value to company shareholder as well, beside value creation.

Jaffe, Pedersson and Voetmann (2009) have done some study on CEO's bargaining ability, but only focus on examining skills difference between different CEOs using cross-section study rather than bargaining ability development over deal sequence. Besides, their dependent variable, ratio of bidder gain to combine gain, is only valid for transaction within which both target return and bidder return are positive, leading to shape deduction in sample volume and thus result soundness. In this thesis, relative gain of bidders is borrowed from Ahern (2008) as measurement for bidder's bargaining performance. Since relative gain is a difference rather than a ratio, there is no restriction for target return and bidder return, thus sample volume is much larger than Jaffe, Pedersson and Voetmann (2009)

3. Data and Key Variables

I aim to identify the learning effect in negotiating and bargaining ability for serial acquirers both for bidder-companies and for their key decision-makers, chief executive officers (CEOs). Serial acquirers are generally large companies that have their own specific M&A departments forming of finance, legal, technology and operation teams. I am interested in finding whether negotiating knowledge and expertise reside within the company as a whole, or mainly are contributed by CEOs and whether they are learning. To verify the learning effect, I test the relationship between bidder's bargaining performance and bidder's acquisition experience. My dependent variables for bargaining performance are relative gain of bidder to target and ratio of bidder's gain to total synergy. My key explanatory variables use different measures of bidder's acquisition experience, either counts of historical all acquisitions that an acquirer has made up to and including current deal or counts of historical acquisitions of public targets.

The data used for various tests in this thesis consists of M&A deal characteristic, company characteristics of target and bidder, CEO and sales process data. M&A deal data is the initial data. It is matched with company data to form a sample to explore learning effect in bargaining on organizational level. Then this formed sample is further matched with CEO data and sales process data to construct the sample used in analyzing CEO's bargaining ability.

It involves many difficulties in matching M&A data, company financials and CEO data. Since these data come from different databases, which use different company identifiers. *Thomson One Banker* database (M&A deal data) reports only limited identifiers, namely 6-digit CUSIP or SEDOL. However, *CRSP* (stock price) and *COMPUSTAT* (Executive data, company financials) can only recognize GVKEY, PERMNO or 8/9 digit CUSIP. And only GVKEY, PERMNO and 6-digit CUSIP can be used to track a company over time, whereas 8/9-digit CUSIP cannot as it may change several times over life of company. Linking table (*CRSP/COMPUSTAT merge*) is used to transfer 6-digit CUSIP into PERMNO and GVKEY. For remaining unmatched companies, I apply internal searching engine in *CRSP* and *COMPUSTAT* database to validate their PERMNO and GVKEY by entering company names.

3.1 M&A Data

My M&A data are obtained from *Thomson One Banker Database*. The initial data contains of all completed M&A deals in U.S. with initial bids announced between Jan 1st, 1980 and Dec 31st, 2011. An acquisition transaction must meet following listed criteria to be selected in my sample:

1. (Public status) Bidder and target are both public companies listed in one of US stock exchange. Since my main dependent variables are only available in transactions within which both target and bidder have to be public companies that have stock trading in market, thus their cumulative abnormal returns are measurable³.
2. (Frequency) Bidder is a multiple acquirer who has at least two completed M&A deals during period Jan 1st, 1980 and Dec 31st, 2011.
3. (Transaction size) The deal value is above U.S. \$10 million. The transaction value is defined as the total value of consideration paid by acquirer, excluding fees and expenses.
4. (Toehold and shares acquired) I only include a transaction significant enough to make a transfer of control, thus the percentage of shares that bidder held should be below 50% before the initial deal announcement date and above 50% after deal completion. During the transaction at least 20% of shares are acquired by bidders.
5. (Stock and accounting data) The stock data of both acquirers and bidders must be available with at least 63 days of return data before the first takeover announcement date from the *Center for Research in Security Prices (CRSP)* database. Since estimation window for calculating CARs is (-255, -43) before the announcement date with a minimum expansion of 20 days. And both acquirer and target have available financial data from *COMPUSTAT*.

M&A deal data includes information of transaction value (expressed in Log term, and adjusted in 2011 U.S. dollar), toehold, shares acquired, takeover attitude, bidder number, payment method and diversifying. I regard an M&A transaction as diversifying using a dummy variable if target and bidder differ in their Fama-French 48 classification (FF48). (Detailed information for my variables is listed in Appendix). Summary of M&A deal information is shown in Panel A of table 1. There are 3723 transactions included, which are all with public targets.

³ Cumulative abnormal return (CAR) is only available for public company, and CAR is used in measuring acquirer's bargaining ability. (see output data for details)

3.2 Company Characteristics

I include company data of target ownership, target pre-announcement stock performance, target corporate governance, financial ratios of target and bidder obtained from as control variables. These data are all retrieved from database *Thomson-Reuters Institutional Holdings (13F)*, *Center for Research in Security Prices (CRSP)*, *COMPUSTAT*. Target ownership is closely related to the relative strength of bargaining power between bidder and target and Stulz, Walkling, Song (1990) find target shareholding structure has impact on the division of gain. To test the bidder's bargaining ability, I use two variables, *institutional total shareholding* and *Herfindah Index* (measuring institutional shareholding concentration) to control the influence brought by target ownership. Target 6-month pre-announcement stock return is also included. It is believed that prior poor stock performance may put target in an adverse position in negotiation during acquisition. In recent two decades, defensive tactics have become popular in company's corporate governance in preventing hostile takeover. The forms of defensive tactics include white knight, asset lockup, greenmail, proxy fight, repurchase and poison pill etc. Last but not least, six financial ratios of bidder and target companies (Free cash flow, Tobin's q, leverage, ROA, liquidity and Market-to-Book) are involved. (Detailed information for my variables is listed in Appendix.)

3.3 CEO Data

I further construct a CEO-company matched panel, which can be used to illustrate CEO's acquisition history. CEO data are obtained from COMPUSTAT's Executive Compensation database (COMPUSTAT ExecuComp). Since ExecuComp only collects executives' data from year 1992 onwards, my panel for studying CEO learning is limited from 1992 to 2011. I collect CEO data including company name, position, gender, age at announcement, tenure and the summary of these statistics are shown in Panel C in table1. To investigate the development trend of CEO's bargaining ability, only serial acquirer CEOs, who have at least acquired two targets in the same acquirer companies, are included in CEO-company panel to eliminate CEO heterogeneity.

3.4 Sales Process Data

This data refers to whether the acquisition sales process is between one bidder and one target (one-on-one negotiation) or between multiple bidders and one target (auction). It costs a great amount of time and effort to collect these data, which are extracted from background session written in Securities and Exchange Commission (SEC) files (14A and S-4 filings for mergers and 14D filings for tender offers). EDGAR system of the SEC collects all SEC filings from 1994. Sales process data from 1994 to 2007 are kindly shared by Aktas et al. (2010). Then I manually collect data from 2008 to 2011 from EDGAR system.

This variable is also important in understanding how final gain is divided between bidder and target. Firstly, Stulz, Walkling, Song (1990) document that there is a difference between single-bidder contests and that in multiple-bidder contests target ownership structure has a greater effect on gain division than in single-bidder contests. Competition tension in M&A market can greatly influence the price premium that a bidder offers to its interested target. Secondly, it is believed that the acquisition experience CEOs gain from different sales process (in negotiation or in auction) is different, thus their learning effects also vary. It is advisable to study separately how CEOs learn bargaining in different contests, which is provided in later session of this thesis.

Most researchers use number of bidders during a transaction that publicly announced their interest in acquiring a target to gauge competitiveness, finding that 95% transactions are modest competitive (Andrade, Mitchell, and Stafford (2001)). However, such measure greatly underestimates the competitive tension between different bidders. In fact, competitions have already started in the form of confidential contacts or meeting between prospective buyers and target several months before a deal announcement. Boone and Mulherin (2007) and Aktas et al. (2010) find background section written in SEC files for acquisitions is a reliable source for this information. Background section spends tens of pages describing how acquisition is initiated, negotiated and settled. Following Mulherin (2007), Aktas et al. (2010), I create negotiation dummy if only one buyer is mentioned in background session.

3.5 Outcome Data

3.5.1 Key dependent variable

In my thesis the main measures for acquirer's bargaining performance, also dependent variable, are relative gain of acquirer to target and ratio of acquirer's return to total gain. The fundamental parts forming these two variables are target announcement return (CAR_{tar}) and bidder announcement return (CAR_{bidder}). And they are with market capitalization weighted in the following forms to construct the two dependent variables.

$$\text{Rela Gain1} = \frac{CAR_{bidder}(-1,1) * MV(Bidder) - CAR_{tar}(-1,1) * MV(Target)}{MV(Bidder) + MV(Target)}$$

Relative gain of bidder to target measures in an acquisition transaction the relative gain of bidder versus target gain for each dollar of their combined market value. It is expressed in percentage thus is comparable between different transaction. Also it is close to a normal distribution (verified by QQ-plot). There is no restriction on values of CARs.

$$\begin{aligned} \text{Share of synergy1} &= \frac{MV(Bidder) * CAR_{bidder}(-1,1)}{\text{Total synergy gain from combination of target and bidder}} \\ &= \frac{MV(Bidder) * CAR_{bidder}(-1,1)}{MV(Bidder) * CAR_{bidder}(-1,1) + MV(Target) * CAR_{tar}(-1,1)} \end{aligned}$$

Share of synergy is the most intuitive measure that expresses bidder's gain as a fraction of total synergy. Such a faction/ratio is only meaningful when both bidder's gain and target's gain are nonnegative. This requirement will reduce greatly transactions involved. However it is a strong backup for relative gain for measuring bidder's negotiation performance.

MV stands for 4-week pre-announcement market capitalization, which is the number of outstanding common share multiplied by stock price 4 weeks before announcement. Cumulative abnormal return (CAR) aggregates daily abnormal return, which is difference of actual daily return and counterfactual "normal" return estimated. Following Brown and Warner (1985) and Fuller (2002), I calculate abnormal return using a market adjusted model with value-weighted CRSP as market index:

$$AR_i = r_i - r_m$$

where r_i is the return of company i and r_m is the value-weighted CRSP market return. I do not use estimation window because of high likelihood of confounding and competing events for my panel data of serial acquirers. Over an estimation window (for example 255 days), it is possible for serial

acquirers to include previous deal acquisition attempts in estimation window in later acquisitions, thus weakening the estimation power of beta, which is essential in estimating “normal” return. Additionally, it has been proved that in short window event study there is not much difference among estimation models (Fama French 3 factors, CAPM or market model), and that introducing beta in estimation won’t improve accuracy and efficiency (Brown and Warner (1980)).

In most of my specifications, 3 days symmetric event window around announcement date (-1, 1) is applied to report CARs for bidder and target announcement return. In later robustness test session I also apply longer event window, either 5 days (-2, 2) or 11 days (-5, 5) to calculate CARs, to capture possibility of early information leakage to market.

CAR is an essential portion of both of my main dependent variables. Since market value of target and bidder are known to be relatively stable, the final value of dependent variable can be sensitive to value of CAR. Thus the accuracy of relative gain (*Rela gain*) and bidder’s share of synergy (*ShareSyn*) depends on whether CAR itself is reliable and informative.

In order to study the profitability of an acquisition to a bidder company, most papers look at acquirer’s announcement abnormal return which captures the market’s perception on changes that are brought to an acquirer from an M&A transaction. If CAR is positive, it means that investors predict the bidder will benefit from current transaction, in contrary, negative CAR indicates that this is a value destruction deal. CARs can be a reliable predictor of company’s profitability under efficient market hypothesis. U.S. security market is generally thought to be relatively efficient. In papers of Haleblan and Finkelstein (1999) and Metzger and Custodio (2012), they use both accounting measure, adjusted return to asset (ROA), and cumulative abnormal return (CARs) to measure bidder’s performance, and two results are mostly consistent. M&A is a significant allocation of resource and capital for company and deserves great amount of time and effort from both target and acquirer. Under efficient market hypothesis, investors in market can capture all relevant information, especially for such a significant event.

Thus CARs of target and bidder can largely give an accuracy and reliable of estimation of their

respective gain from an acquisition. So the computation of relative gain to bidder and bidder's fraction of total synergy can reliable and precise measures, reflecting their relative strength or ability in capturing value and in bargaining with each other.

3.5.2 Alternative dependent variable as robust check

$$\text{Premium}_{4\text{week prior}} = \frac{\text{offer price} - \text{target stock price}_{4\text{week prior}}}{\text{target stock price}_{4\text{week prior}}} \times 100\%$$

In general, the party processing higher bargaining power or superior negotiating ability stands in an advantageous position in capturing wealth from the total synergy created. It can be viewed as if wealth flows from one party weak in negotiating to the other party with strong bargaining ability, when both parties are comparable in size and are not dependent on each other. The mechanism through which wealth transfers from one party to the other is largely dependent on payment premium size. Premium in M&A is defined as excess (in percentage) of offer price or final settled price per share in a transaction to target's stock price 4 weeks before announcement (only for public target). Normally, the lower premium bidder pays to target, the better bargaining performance a bidder is. Please note that premium is not the same as relative gain, which is the key dependent variable in my thesis. It reflects bidder's bargaining performance from a different aspect. Because premium only compares the offer price that target receives with prior target stock price, and it does not consider total synergy size and how total synergy is distributed between target and bidder.

3.6 Key Explanatory Variables

The most intuitive measure for acquirer's acquisition experience is the count of acquisitions that meet several requirements and are conducted by the same acquirer or its executive. The main requirements for acquisition to be counted as experience is that transaction value of acquisition is over 1 million and that control right is transferred after the acquisition. Thus the decision of such acquisition is essential for acquirers and it requires considerable amount of time and efforts, in which bargaining ability matters.

The sample of transactions used to count acquisition experience is different from the sample described in session 3.1 where only acquisitions with public targets and with deal value over 10million are selected. I use an extended sample of transactions formed of deals with targets in any status from 1980 to 2011 and the size threshold of transactions with private and subsidiary target is lower to 1 million. It is worth mentioning that I only focus the acquisition history of serial acquirers that is selected in section 3.1. In other words, this new sample is formed to supplement their acquisitions of public targets with acquisitions of private or subsidiary targets. And 9229 transactions are included (see data description in Panel C in table1).

Two different measures of bidder's acquisition experience are used. The first is the number of historical all acquisitions that acquirer has made up to focal deal regardless of target's public status. The size threshold for transaction value for target regardless of public status is at least 1 million. The second is the number of historical acquisitions of public targets with transaction value above 10 million, as stated in requirements of being selected in M&A deal data. Since outcome variables relative gain (*Rela gain*) and share of synergy (*ShareSyn*) are only available for acquisitions of public target, threshold of 10 million for M&A transaction size is applied and most analyses in this thesis also focus on transaction above 10 million. However, threshold of 1 million is applied in measuring acquirer's general acquisition experience, because acquisitions of private or subsidiary target can also be seen as experience, even though bargaining performance variable is available for acquisitions of public targets.

3.7 Summary of Statistics

To study the learning of serial acquirers, I construct a panel data consisted of 3723 M&A transactions of public target conducted by 1061 acquirers. Table 1 shows a summary of data description. Panel A presents deal and company characteristics. On average a serial acquirer has 5.9 transactions with public target and the median is 4. 27.3% of deals are settled fully by cash. Only 1.88% of transactions are hostile takeovers. Nearly 32% are diversifying acquisitions. Target companies are generally much smaller than acquiring companies. In most cases their relative size is only 8.3% (median) of public bidders measured by their market value and the

average relative size is 25%. Panel B reports the transaction distribution among acquirers of different acquiring frequency. It shows that my panel is unbalanced and majority of serial acquirers are low frequency acquirers. Panel C summarizes deal statistics for all M&A transactions over 1 million during 1980 to 2011 regardless of target statues. It shows that if acquisition experience with private and subsidiary target also counts, serial acquirers on average has completed 14.7 transactions. Panel D illustrates summary of some CEO characteristics. They are mostly male (at 99.16%). Averagely they worked with current companies for over 8 years. And they are on average 64 years old (in 2010) and 55 years old at deal announcement date.

4. Acquisition Experience and Value Capturing Performance

4.1 Identification Strategy

In this thesis I would like to test the *hypothesis* that a serial acquirer is becoming better at negotiating and capturing larger fraction of surplus gain from a transaction over its acquisition series. I use relative gain to bidder and bidder's shares of total surplus gain as proxy for bidder's bargaining performance. Acquisition experience of a bidder is measured as counts of its historical acquisitions. If my hypothesis is true, an increase of bargaining performance over its deal sequence will be seen and so is a positive relationship between relative gain and acquisition experience of bidder.

To provide a comprehensive analysis and test for my hypothesis, I start with univariate regression and provide with an intuitive graph showing how bargaining performance of bidder progresses over deal sequence. Then multivariate Ordinary Least Squares (OLS) regression is run to control for possible confounding factors, followed by multivariate regression with bidder fixed effect. The sufficient number of M&A transactions carried out by serial acquirers form panel data and provide me with valuable resource to analyze my hypothesis. Panel data is a better source than cross-sectional or time-series data for several reasons: firstly, by first difference or adding fixed effect, panel data can solve omitted-variable-bias problem; secondly, information on both

cross-sectional and time series level can help identify the main causing factors.

There is evidence that several possible alternative explanations can be ruled out. It is possible that the increasing observed bargaining performance is driven by bidder's bargaining power such as market power. Relative company size is added as a control in multivariate regression. The size of transaction and synergy created can also affect relative gain of bidders. *Ceteris paribus*, large transaction value implies higher possible synergy and higher synergy ability can lead to an advantage position in value division. Thus it is necessary to distinguish the contributing effect from value creating ability from value capturing ability which is my main research interest. Both transaction value and synergy size are controlled then. Sample structure should also be examined. My panel sample is highly unbalanced. Serial acquirers of high acquiring frequency are far fewer than those of low frequency. Learning effect might only reside with low frequency acquirers. However, because they are the majority, they can dominate the whole result. To tackle this, I divided my sample into subsamples grouped by high, middle and low frequency acquirers and then run regression within subsamples. Subsamples can illustrate different learning pattern and effect. This leads me to explore rate of learning. Because of unbalance panel sample, survival bias can be a problem. Several facts are provided to rule out this possibility.

4.2 Baseline Question: is acquirer becoming better at capturing value?

To answer this question, the first step I take is to illustrate how on average a serial bidder's value-capturing performance changes over its historical acquisition transactions. Following Aktas (2010), I use relative gain to bidders as a proxy for bidder's bargaining ability. It is a ratio calculated as the difference of dollar gain between bidder and target in an acquisition weighted by total market value of target and bidder. This ratio reflects relative value capturing ability of bidder to target. To reduce the effect brought by outliers, key dependent *variable relative gain to bidder* is winsorized at 5% level and 95% level. Both original data and winsorized data are shown in graph, and they are highly similar.

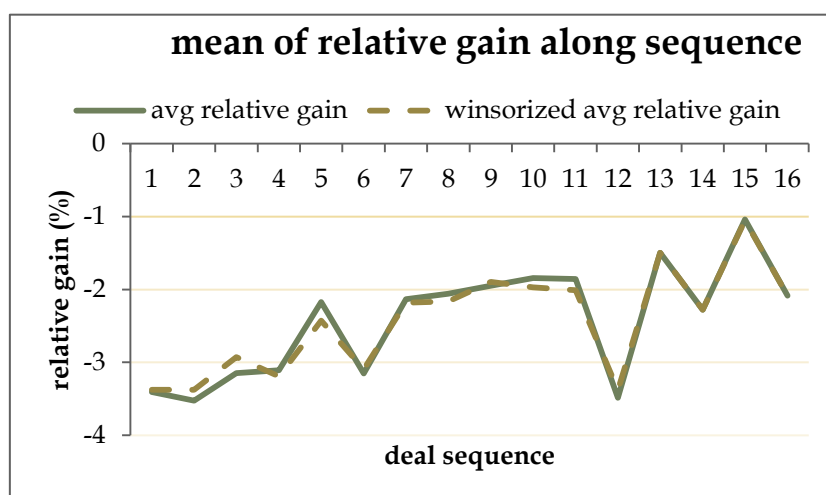


Figure1 plots means of relative gain to serial acquirer along its acquisition experience. Relative gain to bidder is used to measure bidder’s bargaining ability. It is increasing along deal sequence, illustrating that serial acquirer is progressing in bargaining ability as acquisition experiences add.

Analyzing serial acquirers’ relative gain over their acquisition deal sequence illustrates that acquirers are becoming better at capturing larger fraction of wealth from synergy gain over deal sequence, at least over first 11 deals. Since my sample only includes transactions with public targets, acquirers having 11 deals of public targets can be viewed as quite experienced in M&A. Only 3% (31 out of 1061) of serial acquirers in my sample (see panel B in table1) conduct more than 11 acquisitions with public targets from 1980 to 2011. From data summary session, it is known that serial acquirers averagely took 5.9 public deals with (with median of 4). And the learning effect is most significant in first five deals, slowing down from 7th to 11th deal as shown in figure1. In later session I will analyze rate of learning to verify this. As a double check, I also conduct t-tests for mean performance of each deal sequence, and difference in means between early deal performances and later deal performances. The results are shown in table 2. Means of relative gain to bidders are all significant different from zero over deal series. And mean differences between early deals and later deals are also significant smaller than zero, which confirms that there exists an improvement in value-capturing thus bidders in later transaction capture significantly higher value from transaction than previous. However, it is also worth noting that all means are negative along deal series in panel A of table 2, which is consistent with prior findings that on average bidders lose and targets gain. Thus negative relative gain to bidder implies that on average bidder are at disadvantage in capturing wealth from transaction. While it

should be noticed that relative “loss” along deal sequence is gradually decreasing, as serial acquirers cumulate their deal experiences.

The second measurement for serial acquirer’s bargaining ability is acquirer’s share of synergy. It is quite intuitive, measuring how total synergy gain is divided between target and bidder. Panel A of table 3 presents means of bidder’s share of total gain over deal series with t-statistics of T-tests in parentheses below. Mean statistics along deal series shows that it is not a continuous increasing curve but an upward trend with some spikes and falls. Panel B aims to test whether value-capturing performance between early deals and later deals are significantly positive. As reported in panel B, most means in later deals outperform those in early stages. However, difference is not significant in every comparison, which possibly implies that there is large variation around mean in each sequence. This can be explained by the structure of sample, within which only deals with both positive target gain and bidder gain are included, thus many gaps exist along acquisition sequence and available data are just alternate between deals. Thus only looking at particular difference between two deals over sequence may not illustrate a significant improvement. Besides, it is interesting to observe means of bidders’ share are over 50% mostly. It implies that bidder’s share of wealth captured from transaction is averagely greater than target’s share. It is possible related to the setting of sample again. As we know that on average CARs for bidder are slightly negative or zero but CARs for targets are significant positive as shown by a bunch of existing literature. Because of availability of dependent variable, however, only deals with both positive bidder’s gain and target’s gain are selected, resulting in a possible bias that only transactions in which bidders earn a profit are remained and those of negative bidder return are just deleted. Since in my thesis I focus on difference between successive deals or changes over a whole M&A series, this bias is not a concern any more.

Even though only a subsample of transactions, within which both target gain and bidder gain are positive, are selected in figure2, its pattern is very close to figure describing relative gain, especially similar at turning points. Thus even changing specification for value-capturing performance and analyzing in a much smaller subsample does not alter the result of increasing trend of value-capturing performance for serial acquirers.

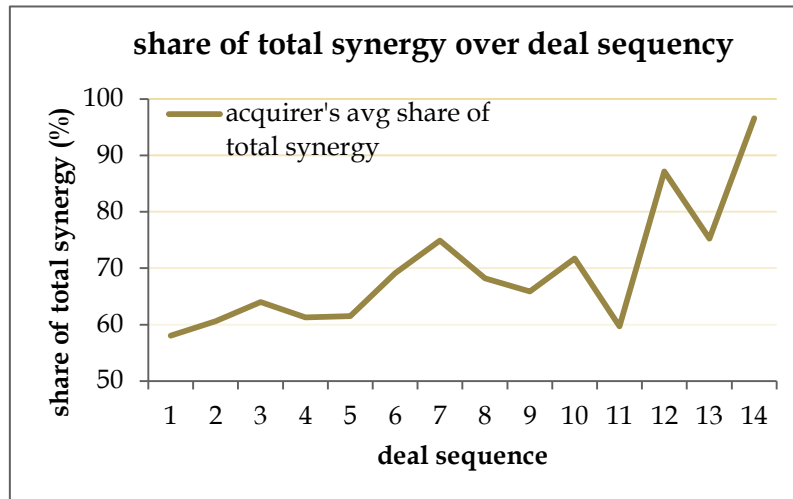


Figure2: serial acquirer learning in value capturing. Bidder's share of total synergy from transaction is plotted against time line, which measures acquirer's deal experience. Bidder's share of synergy follows an increasing trend over deal sequence, although with some spike and falls in some stage.

To further support my hypothesis that acquirer's bargaining performance is improving along deal sequence with acquisition experiences accumulated, I use an alternative measurement for acquirers' bargaining ability. Premium payment in M&A measures the percentage of higher price over current stock price of target that a bidder is willing to offer in order to buy sufficient amount of targets' shares to acquire the target. Capable acquirers are able to lower premium payment by efficient bargaining. If my hypothesis holds, a decreasing trend of premium that acquirer paid over his acquisition sequence is expected. And it is true as shown in figure 3. The two curves, although with some small fluctuations, follows a falling trend.

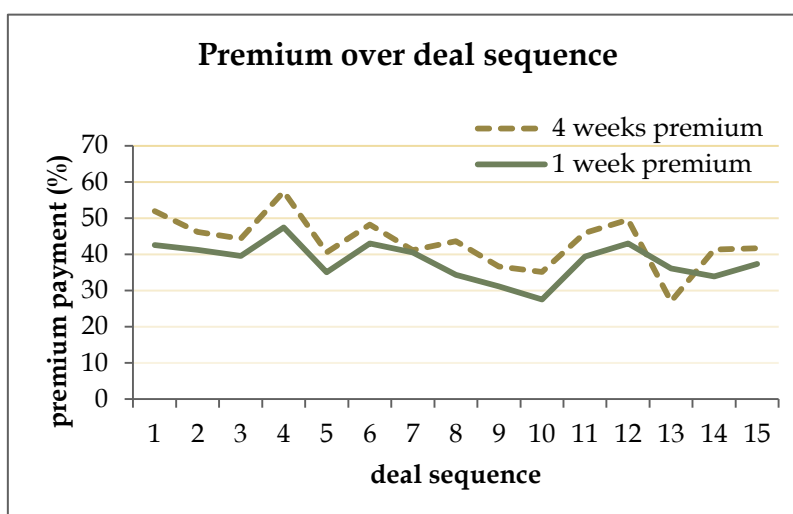


Figure3: alternative measure for serial acquirers' bargaining power. The premium size along deal sequence that serial acquirers pay to target is decreasing, showing that an acquirer is becoming better at capturing value from target by lowering transaction payment.

In this section, I use regression to support my hypothesis that serial acquirers are becoming better at negotiating thus securing more wealth from transactions. Part A provides systematic analysis using regressions on relative gain to bidder. Part B repeats the same analysis with regressions on bidder's share of total gain. Part C illustrates the results of regressions on premium payment.

A. Relative gain to acquirer

Hypothesis 1: *as acquisition experience accumulates, acquirers are better at bargaining thus relative gain to acquirer is increasing.*

A1. Univariate regression

$$\text{Rela gain}_{j(t)k} = \alpha_0 + \alpha_1 \text{Dealseq}_{jt} + \varepsilon_{j(t)k} \quad (1)$$

I start with naive univariate regression to study the relationship between bargaining performance and acquisition experience. Relative gain to bidder ($\text{Rela gain}_{j(t)k}$) measures acquirer j 's performance in value capturing in its $(t)th$ transaction with target k , reflecting bidder's bargaining ability. Dealseq_{jt} is a proxy for serial acquirer's acquisition experience. It stands for the number of historical acquisitions a serial acquirer j has made up to current deal. I use two different measurements. One only counts acquisitions with public targets, in line with dependent variable, which is only measurable for transactions with public targets. The other counts all acquisitions a serial acquirer has made, regardless target status, up to current transaction. All regressions are conducted under *robust* to correct for heteroscedasticity among acquirers. *Cluster(acquirers)* option is added to control for autocorrelation within deals by same serial acquirers.

In column (1) of table 4, acquisition experience with public targets is regressed on relative gain to bidder. The coefficient is positive and statistically significant. It means that on average one prior acquisition with a public target will help bidder in capturing an additional 0.129 percentage of combined market value of target and bidder. This is economically significant as well. 0.129 percentage of total market value of target and bidder is over 66.67 million *U.S. Dollar*, assuming average size of target (1114.8 million) and bidder (50573 million). (Target and bidder average market value refers to panel A of table1). Column (2) presents the result of regression of bargaining performance on general acquisition experience (including all targets) and coefficient is

also significantly positive. The contribution from one general acquisition experience is smaller than that from an acquisition with a public target. Since public target is averagely much larger than target in private or subsidiary status, acquisition process with public target is more complex and time-consuming. Acquirer learns more from acquiring a public target than from a private or subsidiary target.

A2. Multivariate regression by OLS

$$\text{Rela gain}_{j(t)k} = \alpha_0 + \alpha_1 \text{Dealseq}_{jt} + \alpha_2 X_{j(t)k} + \alpha_3 Y_{j(t)k} + \alpha_4 Z_{j(t)k} + \varepsilon_{j(t)k} \quad (2)$$

$X_{j(t)k}$ = Controls for Alternative explanation

$Y_{j(t)k}$ = Deal and company characteristics

$Z_{j(t)k}$ = Bidder and target financials and year x industry dummies

Univariate regressions do not exclude other possible alternative explanatory factors. Although it illustrates a positive relationship with acquisition experience with value-capturing performance, such improvement can be due to increasing market power of acquirer, rather than its bargaining ability. Since acquirers are also getting larger in size by acquiring many targets and large market value means large market power, market value of bidder and relative size of bidder to target can be the underlying driving force of better bargaining performance. Size of synergy created and transaction value should also be controlled. *Ceteris paribus*, large transaction value implies higher possible synergy. Higher synergy ability can lead to an advantageous position in negotiation stage of surplus gain division. Besides, given an offer price premium that a bidder can afford and a target can accept, the excessive portion of total synergy to premium are all captured by bidder. Thus improvement in relative gain to bidder is contributed by bidder's value creation ability. So it is necessary to distinguish the effect contributed by value creating ability from value capturing ability which is my main research interest. Researches show that target ownership structure influences division of total surplus. I add *target total institutional ownership* and *ownership concentration (Herfindahl index)* as controls. Payment methods are also discovered to greatly influence bidder's announcement return. Acquisition settled by cash generate better than by stock, and possible explanation is that stock payment has a signal effect that bidder's stock is overvalued. Details about $X_{j(t)k}$ and $Y_{j(t)k}$ can be found under regression (2) with definition for

variables in appendix. Bidder's and target's company financial ratios are also included to control for respective profitability, growth, leverage and liquidity. 6 financials are ROA, free cash flow, Tobin's Q, market to book, liquidity and leverage (see appendix for item definition). (Time X Industry) is also included in regression to control for acquisition clustering in certain industry and during M&A waves. All regressions are conducted under *robust* to correct for heteroscedasticity among acquirers. *Cluster(acquirers)* option is added to control for autocorrelation within deals by same serial acquirers.

Regression results are listed in column (3)-(6) of table 4. Column (3) and (5) use public acquisition experiences as main explanatory variable, while (4) and (6) apply general acquisition experience. Column (3) and (4) only add $X_{j(t)k}$ and $Y_{j(t)k}$ as controls, followed by (5) and (6) further involving Z_{jk} as controls. Coefficients of acquisition experience, either public or general acquisition experience, are all significantly positive and their values are higher than result given in univariate regression. After controlling for possible confounding factors, explanatory power of acquisition experience is greatly increased. Coefficients of 0.210 percentage (column 5) and 0.08 percentage (column 6) stand for economic value of 108.5 million and 41.35 million *U.S. Dollar* respectively, assuming the average size of target and bidder.

Some controls are also statistically significant. Acquirers can capture more wealth from deals settled by cash, which is consistent with previous findings that acquirers' abnormal return is higher in acquisition paid by cash. Acquirers' bargaining performance is significantly reduced in hostile takeover or in target-company that has defensive tactics such as poison pills and knight. Significant positive coefficient of synergy control supports that some of value-capturing performance is contributed by higher value-creation ability. It is also found that acquirers' negotiation performance is hindered in acquiring a large target, measured by large transaction value. It is consistent with Aktas (2008) that serial acquirers are willing to acquire a target with a relative small size to secure deal completion as well as to capture more wealth in transaction. Lastly, acquirers perform worse in bargaining during recession, which might be explained by the fact that targets are reluctant to sell its assets for fear of underselling and M&A transactions are booming in a bull market when a high selling price is possible.

Moreover, to account for possible cross-sectional correlation around announcement date, regression with *cluster(announcement date)* option is alternatively performed. It also gives consistent result that the coefficients for main interest as well as controls are mostly similar (Table 6).

A3. Multivariate regression with Fixed Effect

$$\text{Rela gain}_{j(t)k} = \alpha_0 + \alpha_1 \text{Dealseq}_{jt} + \alpha_2 X_{j(t)k} + \alpha_3 Y_{j(t)k} + \alpha_4 Z_{j(t)k} + \varepsilon_{j(t)k} + f_j \quad (3)$$

f_j = acquirer's fixed effect, capturing unobservable acquirer heterogeneity.

To take advantage of my panel data, I further add bidder fixed effect (f_j) to account for unobserved acquirer heterogeneity and to avoid endogeneity problem caused by omitted variables which are correlated with residual. Adding fixed effect dummies are equivalent to estimating by first-difference to rule out acquirers' unobserved heterogeneity. Acquirer heterogeneity might include different management style, corporate culture, general skills in M&A, social connects and other generic quality of companies. In the presence of these unobserved but confounding factors in regression, OLS is unable to give a reliable and unbiased estimation. Absorbing acquirer heterogeneity by adding fixed effect dummies helps to exclude possible confounding factors that might bias the explanation power of my main factor, acquisition experience, thus providing a high confidence to my hypothesis.

The results present in table5. Column (1) and (2) use univariate regressions with acquirer fixed effect dummies. The positive relationship in previous OLS regressions vanishes. Therefore the model using only uni-variable does not have explanatory power. Column (3)-(6) show results from multivariate regressions by adding deal, company characteristics and financials controls using fixed effect. All coefficient of acquisition experience become significant positive, with value very close to those in OLS. Other controls also have similar coefficient estimation as those in OLS.

Just as case in OLS regression, the last step is to check for cluster effect around announcement date. Then I conduct regression with *cluster(announcement date)* to account for this (see Table6). And the result given is just similar. These results strongly support my hypothesis that serial

acquirers are getting better at value-capturing.

B. Acquirer's share of total synergy

Acquirer's share of total synergy ($ShareSyn_{j(t)k}$) is used as a proxy for serial acquirer's bargaining ability or value capturing ability. To test whether this ability is increased over deal sequence as acquirer conducts successive deals, I perform regression of bargaining performance ($ShareSyn_{j(t)k}$) on acquisition experience ($Dealseq_{jt}$). Since $ShareSyn$ is a fraction of bidder's gain on total gain of bidder and target, it is required that both bidder's gain and target's gain is positive, as a consequence, only one fifth of transactions (710 out of 3723) are remained in sample.

Hypothesis 2: *bidder can secure a higher fraction of wealth from total synergy over its acquisition sequence.*

B1. Univariate regression

$$ShareSyn_{j(t)k} = \alpha_0 + \alpha_1 Dealseq_{jt} + \varepsilon_{jk} \quad (4)$$

For acquirer's acquisition experience, I follow procedure in analysis in relative gain (part A) and use two measurements. One counts historical acquisitions of public target conducted by the same acquirer until current transaction. The other counts prior acquisitions of target of any status up to current deal completed by an acquirer.

Regression results are shown in column (1) and (4) of table 7. Coefficients of both regressions are significantly positive. It suggests that acquirer with additional one acquisition experience with public target are more efficient in bargaining and are able to capturing higher wealth with the value of 0.599 percentage of synergy created. And one acquisition experience in general with no restriction on target status can also help capture additional 0.385 percentage of synergy on average.

B2. Multivariate regression by OLS

$$ShareSyn_{j(t)k} = \alpha_0 + \alpha_1 Dealseq_{jt} + \alpha_2 X_{j(t)k} + \alpha_3 Y_{j(t)k} + \alpha_4 Z_{j(t)k} + \varepsilon_{j(t)k} \quad (5)$$

$X_{j(t)k}$ = Controls for Alternative explanation

$Y_{j(t)k}$ =Deal and company characteristics

$Z_{j(t)k}$ =Bidder and target financials and year x industry dummies

After adding more controls to exclude possible competing factors, coefficients of main explanatory variable are still significantly positive, as shown in column (2) (3) and (5) (6) of table 7. Most of them are larger than those in univariate regression. It supports that acquirers' bargaining performance is increased to secure higher fraction of synergy in later acquisitions.

Several controls whose coefficients are statistically significant also present some interesting findings. A higher transaction value is not good for acquirer to secure more wealth, which is consistent with the conclusion of part A. Coefficient of target's relative size is significantly negative, suggesting that acquiring a large target hampers acquirer in wealth capturing. In contrast, diversifying transactions will reward acquirer. Acquiring a target in different industry will help acquirer gain a higher fraction of synergy in transaction.

B3. Multivariate regression with fixed effect

$$\text{ShareSyn}_{j(t)k} = \alpha_0 + \alpha_1 \text{Dealseq}_{jt} + \alpha_2 X_{j(t)k} + \alpha_3 Y_{j(t)k} + \alpha_4 Z_{j(t)k} + \varepsilon_{j(t)k} + f_j \quad (6)$$

f_j = acquirer's fixed effect, capturing unobservable acquirer heterogeneity.

Further adding acquirer's fixed effect in multivariate regression does not weaken the significance of results, as shown in column (1) and (2) of table 8. All coefficients are similar to those in OLS multivariate regression in value as well as in statistical significance. It again lends a support to my hypothesis.

C. Alternative measure: premium payment

Hypothesis 3: *acquirer is getting better at bargaining thus size of premium payment is decreasing as acquirer gains more experience.*

$$\text{Premium}_{j(t)k} = \alpha_0 + \alpha_1 \text{Dealseq}_{jt} + \alpha_2 X_{j(t)k} + \alpha_3 Y_{j(t)k} + \alpha_4 Z_{j(t)k} + \varepsilon_{j(t)k} \quad (7)$$

$$\text{where Premium}_{4\text{week prior}} = \frac{\text{offer price} - \text{target stock price}_{4\text{week prior}}}{\text{target stock price}_{4\text{week prior}}} \times 100\%$$

In tender offer, an acquisition is only possible if bidder is offering to buy stock from shareholder with a premium over market price. I use 4 week premium and 1 week premium that acquirer j pays to target k . Again, *Dealseq* is measured by both public deal acquisition and general deal acquisition as defined early. The result for both univariate regression and multivariate regression are provided in table 9. It demonstrates a negative relationship, in most regressions, between acquisition experience and bidder's premium pay, which is in line with hypothesis. Column (1) and (2) test univariate regressions of acquisition experience on 4-week-premium, and column (3) and (4) use multivariate regressions on 4-week-premium, followed by multivariate regressions on 1-week-premium on column (5) and (6). It is evidence that on average a serial acquirer pays 1.196% premium lower than its last transaction (column (3)). It also provides further evidence that serial acquirer is better at capturing value by effective bargaining.

Some controls are also statistically significant. Acquirers using all cash to cover payment generally pay a higher premium, and if target has certain defensive tactics, for example poison pill, premium payment required is also higher. On the contrary, acquirer can save a higher fraction of premium payment if target's institutional ownership is high, which is consistent with Stulz, et al (1990) who finds that target's gain is negatively related to the institutional ownership.

In summary, results of part A, part B and part C all lead to the same conclusion that serial acquirers are learning from prior transaction experience and getting better in negotiation, which leads to higher relative gain, higher fraction of total synergy and lower premium payment.

4.3 Sensitive Test in Subsamples: Low, Middle, High Frequency Acquirers

To increase analytical confidence, I need to test how sensitive are my results within different subsamples of acquirers grouped by acquisition frequency. Frequency is defined as how many acquisitions in total an acquirer has completed up to the end of sample, Dec.31th 2011. Since my panel sample is highly unbalanced. As can be seen from panel B of table1, serial acquirer who completed 2, 3 and 4 deals makes up roughly 50%, 20% and 10% among whole serial acquirer population respectively, and those completing over 10 deals occupy only 3% of sample

population. Learning effect might only reside within low frequency acquirers. However, because lower frequency acquirers are the majority, they can dominate other effects. Thus it is arbitrary to extrapolate increasing negotiating performance to whole sample. It is possible result is driven by sample structure. To tackle this, I divided my sample into three subsamples grouped by high (>10), middle ($4\sim 9$) and low (≤ 3) frequency acquirers and regressions are then conducted for each subsample. All subsamples demonstrate a positive relationship between deal experiences with value-capturing performance (see table 10). Thus I can conclude the learning pattern is not driven by specific group but is the general improvement in serial acquirers of different frequency. This strongly supports my learning hypothesis.

Learning effect is present in every subsample, but with different learning rates. Highest improvement in bargaining performance belongs to low frequency acquirers, followed by middle frequency, and the mildest improvement sit in group of high frequency acquirers. This raises my curiosity to study rate of learning in next section.

4.4 Rate of Learning

By observing different learning effect among subsamples of acquirers grouped by different frequency, I believe that learning trend cannot be linear with experience. It means rate of learning varies at different stage over acquisition sequence. The mechanism of experience accumulation and generalization might follow the law of diminishing marginal utility. Utility can be contribution from prior acquisition experience, which is thought to be lower over later acquisitions.

Hypothesis4: *learning effect in bargaining is high during early few acquisitions and slowing down in late acquisitions, illustrating an inverted U-shape pattern.*

4.4.1 U shape? (Regression with quadratic terms)

To verify inverted U-shape learning curve, I introduce an additional quadratic term of the key explanatory variables and keep all controls to run a multivariable regression using OLS.

$$\text{Rela Gain}_{j(t)k} = \alpha_0 + \alpha_1 \text{Dealseq}_{jt} + \alpha_2 (\text{Dealseq}_{jt})^2 + \alpha_3 X_{j(t)k} + \alpha_4 Y_{j(t)k} + \alpha_5 Z_{j(t)k} + f_j + \varepsilon_{j(t)k} \quad (8)$$

$$\text{ShareSyn}_{j(t)k} = \alpha_0 + \alpha_1 \text{Dealseq}_{jt} + \alpha_2 (\text{Dealseq}_{jt})^2 + \alpha_3 X_{j(t)k} + \alpha_4 Y_{j(t)k} + \alpha_5 Z_{j(t)k} + f_j + \varepsilon_{j(t)k} \quad (9)$$

f_j = acquirer's fixed effect, capturing unobservable acquirer heterogeneity.

The results of regressions on relative gain are provided in table 8, with first two columns using public-target acquisitions as experience and last two columns using general acquisitions experience regardless of public status of target. In all regressions, acquirers' fixed effect is controlled. Regressions that use general experience have both significant estimates for first-order and quadratic terms of general acquisition experience (see column (3) and (4) in table 11). Its quadratic term is slightly negative and first-order term is positive, and both are significant at 1% confidence level, confirming my hypothesis that an inverted U-shape learning curve. However, in regressions that use public acquisitions experience as key explanatory variables, only first-order term of key explanatory variable is significant. The reason might be the distribution of public target acquisitions of a serial acquirer, displayed in a same coordinate system with general acquisitions, is intense (for example, a given acquisition can be the 3rd public target acquisition but the 10th on its whole acquisition serial) and a decaying pattern is just absent.

The results for regressions use *ShareSyn* as a dependent variable are displayed in column (3) and (4) of table 8. In all regressions, acquirers' fixed effect is controlled. Regression in column (3) uses acquisition experiences measured by number of historical acquisitions of a public target. Column (4) replaces key explanatory variable with general acquisition experience variable. Both their first order and quadratic terms are significant, suggesting an inverted U-shape learning pattern, consistent with the results presented regressions using relative gain as the dependent variable.

4.4.2 Slowing down? (Regression using first-difference)

To test the rate of learning, I take first difference treatment to dependent variable and numeric control variables, mainly $X_{j(t)k}$ dummies, but keep dummy controls unchanged. Main explanatory variable acquisition experience is also kept in original form. First difference measures the change of current deal (q) from previous adjacent deal ($q-1$). On the right hand side, I only take first difference for transaction value, relative size of target and size of synergy. I do not repeat this

regression on share of synergy, because of its limited sample size. And transactions conducted by same acquirer is not necessarily successive, thus first-different will not give a good interpretation.

$$\text{Dif_Rela Gain}_{j(t)k} = \alpha_0 + \alpha_1 \text{Dealseq}_{jt} + \alpha_2 \text{Dif_X}_{j(t)k} + \alpha_3 Y_{j(t)k} + \alpha_4 Z_{j(t)k} + f_j + \varepsilon_{j(t)k} \quad (10)$$

f_j = acquirer's fixed effect, capturing unobservable acquirer heterogeneity.

Table 12 reports all regression results. Column (1) and (2) are multivariate regressions with deal and company characteristics controls but without financials controls and (year X industry) control. Column (3) and (4) are multivariate regressions comprehensively controlled for deal, company characteristics, financials and (year X industry). All four regressions show a significant negative relationship between rate of increasing in value-capturing performance and acquisition experiences. It verifies a declining rate of improvement in value-capturing skills over acquisitions for a serial acquirer.

4.5 Alternative Explanations: Is Survival Bias a Problem?

Another concern caused by unbalanced panel sample is survival bias, which means only good performance acquirers tend to repeat acquisitions and those who survive after tens of acquisition may be by themselves better than others. Thus improved performance is not due to ability but sample selection.

I use two methods to exclude this possibility. The first method is to compare first N deals performance between group 1 of acquirers who complete N+1 in total and group 2 of acquirers who complete N in total. I take N for 2, 3 and 4 to test three pairs of groups. The purpose of setting up experimental group pairs to test whether it is performance difference that leads some top acquirers to continue their success by further acquisitions. If group 1 of serial acquirers perform better in first N deals than group 2 counterparties in all three experiments, then chance is great that only good performance tend to repeat acquisition and group 2 acquirers who stop acquisitions after N acquisitions might be due to low performance.

For instance in column (1) and (2) of panel A table 13, I examine first two acquisitions performance between serial acquirers who complete only three deals (A1) and those completing only two deals (A2). Column (3) and (4) compares performance of first three deals between acquirers who has four acquisition experiences in total (B1) with acquirers who has three in total (B2). Column (5) and (6) repeat this process by comparing first 4 deals between acquirers whose acquiring frequency is 5 (C1) and acquirers whose frequency is 4 (C2).

The result is mixed. A1 outperform A2 significantly, which supports the claim that good performance leads to further acquisition activities. B2, however, perform better than B1, suggesting that a good performer can be those who acquire less and stop further acquisitions. And Both C1 and C2 do not show significant learning effect. Thus these results reject survival bias concern that is caused by sample selection: only good performers remain in sample. In return, it supports that observations in my panel data can be viewed as random selected, which provides solid support to all of my above regression analyses.

The second method is to test the first 3 deals performance for different acquirer subsamples grouped by acquisition frequency. In other words, I aim to compare the first 3 deals among bidders who have exactly 3 deals, bidders who have 5 deals, and bidder who have 10 deals. The groups of acquirers thus are all balanced panel sample. Panel B of table 13 shows the respective mean of relative gain of first 3 transactions in each subsample. Panel C reports mean difference of first 3 transactions between two subsamples. There is not significant mean difference of first 3 deals between subsamples consisted of bidders who have exactly 3 deals experience and subsamples whose acquisition frequency is 4, 5 or 6. It infers that those who acquiring more (frequency= 4, 5 or 6) did not perform better in prior deals (first 3 deals that are overlapping among all subsamples) than those only finished 3 deals. Although the difference mean is significant between subsample of frequency 3 and subsample of frequency 10, mean of subsample of frequency 10 itself is insignificant different from zero. Thus no clear evident supports that it is good early performance that leads acquirers to carry on more acquisitions.

Regression analyses within each subsample are further conducted as double check to test

learning among first 3 transactions. Regression results are reported in Panel D of table 13. Also no evidences show that high frequency acquirers performed better than low frequency acquirers in their overlapping early transactions. Coefficients for acquisition experience are insignificant across regressions of different subsamples. In sum, under both testing methods, no clear evidence is found to support the alternative survival bias problem which may ruin my analysis soundness.

4.6 Heterogeneous Effects: Top, Middle, Bottom Performing Acquirers

The analysis in last section mentions the concept of good performers, which arouses my interest to look into their learning pattern. Because ability varies among different acquirers, let alone the difference in other factors such as industry environment, corporate innovation and management style and performance. In this section, I aim to conduct categorical analysis by dividing serial acquirers into three categories based on their first five deals' performance in capturing value or bargaining. I calculate the average relative gain of first five deals by every acquirer. For those who acquire fewer than 5 deals in total, I calculate their average performance for their total acquisitions. Top performers are the group of acquirers whose average relative gain captured is top25% among sample population (1061 acquirers). Bottom performers are the bottom 25%. The remaining 50% ones are middle performers. After grouping them, I examine their respective learning progress over their whole acquisition series.

I illustrate them in figure4. Three curves are shown with clear different trend of learning. The curve connected by dots is for bottom performer, showing a remarkable improvement in bargaining performance. It might be due to market of corporate control. Acquirers that continuously make large loss deal will become target in market and its executives will be replaced. However, a declining performance is presented in the solid curve, which is for top performers. To verify if the declining trend is really significant for top performing acquirers, I use t-tests to test mean difference between deals over acquisition sequence. The results shown in table 14 are consistent with the trend in figure4 that the mean difference between 1st and 3rd deal are significant negative, and declining trend is also significant from 1st to 10th deal. However, 1st to 5th

and 3rd to 5th are not significant at all, as at 5th deal there clearly a upwards spike shown. I further perform regression analysis for top, middle and bottom acquirers groups separately. Only regression for bottom acquirers presents a significant positive relationship between experience and performance. There is an insignificant declining trend for top performers. I do not show results for this analysis in this thesis, but they are available upon request.

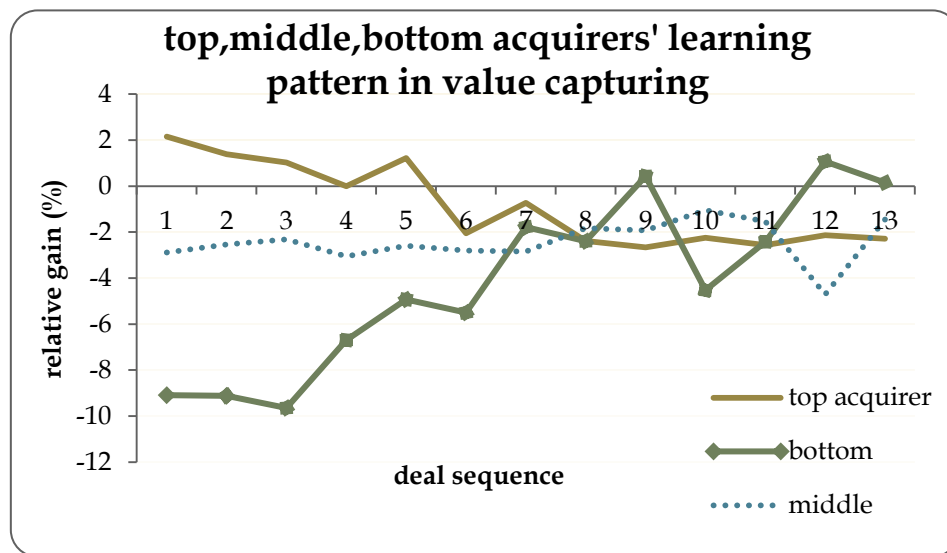


Figure4: categorical analysis by dividing whole acquirers into 3 subsamples based on first 5 deals performance in value capturing, and then plotting learning pattern for 3 subsamples respectively.

The three different patterns of performance trend for different groups of companies, grouped by their first 5 deals' performance in value capturing, demonstrate that early performance, to some extent, indeed influences serial acquirers' later deals' performance, which is consistent with prior papers. Aktas (2008) and Aktas (2010)) distinguish hubris infected CEOs and rational CEOs and also find an improving announcement return for hubris infected CEOs and decreasing trend for rational CEOs. The reasons behind given by them are also related to bidding behavior. Rational CEOs bid more aggressively over deal sequence attempting to win and secure private benefit, willing to concede larger fraction of synergy to target shareholder by over-payment, while hubris-infected CEOs learns from past to bid more rationally for fear of being replacing in case of over-payment. Their grouping methods are also based on previous deal performance. Thus my results just tell the story that early failures (in terms of low returns) can becomes valuable learning source as well as incentive for acquirers to progress, while early success might not be

necessarily imply continuous success but might lead to overconfidence or irrational bidding strategy. Although a seeming declining trend is found to reside on prior top performance, it is not wise to ignore the fact that their performance over first eight deals are still far better than other groups and their performance over later acquisition series are also stable without much fluctuation as in other group. Top performing acquirers, in their first five deals, also capture positive relative gain, which cannot be obtained by other groups. Thus although top performers in later acquisitions are not doing as good as their previous successful deals, their performance are still better than other groups, even if some other acquirers are actually progressing. This is my new findings which are not raised by prior researches.

4.7 Robust Test: Alternative Event Windows

In previous sections of analyses, all specifications of relative gain to bidder (*Rela Gain*) and bidder's share of synergy (*ShareSyn*) is computed by 3 days cumulative abnormal returns (CARs). In this section I conduct robustness test for previous analysis using CARs formed by alternative event windows. Both 5days and 11days event windows, symmetric around announcement date, is applied. Longer event window has an advantage of capturing early information about acquisition thus fully considering market reflection on this event, and also a risk of capturing many noises irrelevant to current M&A.

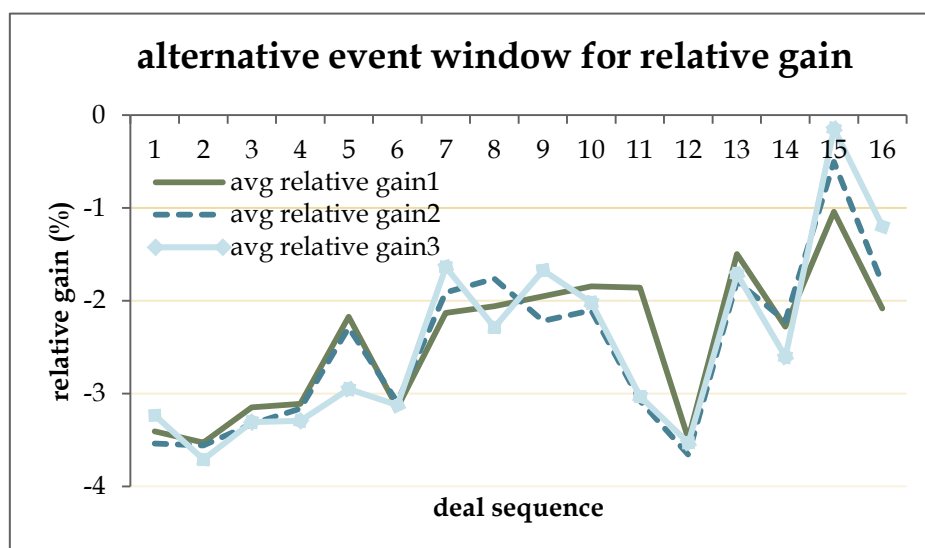


Figure 5: robust test of relative gain to bidder using alternative event window, where relative gain1 uses event window (-1, 1), relative gain2 uses (-2, 2) and relative gain3 uses (-5, 5).

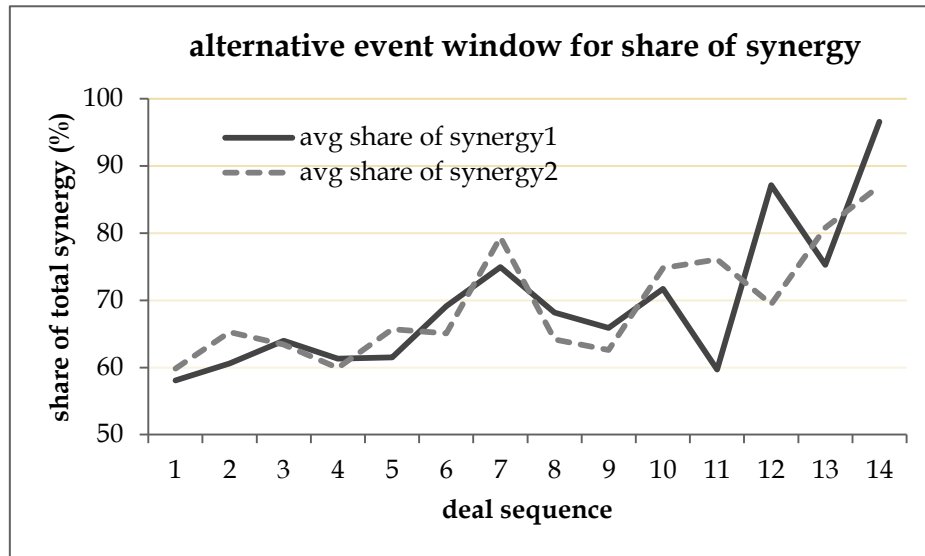


Figure 6: robust test of bidder's share of synergy using alternative event window, where share of synergy1 uses event window (-1, 1) and share of synergy2 uses event window (-2, 2).

Figure 5 displays serial acquirer's relative gain over deal sequence computed by CARs using 3 different event windows. All of them are highly similar, thus CARs using different event windows can mostly capture market reactions to current acquisition with similar accuracy. Figure 6 presents bidder's fraction of synergy calculated using alternative event window, which is consistent with previous findings using 3days event window. Thus, it proves that my previous analyses are reliable which won't be sensitive to alternative measures of information.

Regressions are also used to test if the performance of value capturing is sensitive to alternative event window which are used to construction my main dependent variable. The results are shown in table 15 for relative gain and in table 16 for bidder's share of synergy. Overall, the results are consistent with previous results, confirming that my previous analysis is robust.

4.8 Executive Learning in Value Capturing

Systematic analysis in previous sessions confirms that serial acquirers are learning from past acquisition experience and they are becoming better in negotiation to capture more wealth from target in a transaction over its acquisition sequence. Although serial acquirer generally has its specialized M&A department that is responsible for the whole process of takeover, CEO is the key decision maker in signing the final acquisition contract as well as negotiation. It is of great

importance to understand whether CEO is learning and improving his bargaining ability at securing higher fraction of synergy. I refer to “he” for individual CEO for simplicity, since over 99% of CEOs are male, as indicated in Panel C in table1.

Hypothesis 5: *CEO is learning from past experience and is becoming better at bargaining to capture more wealth from an acquisition over deal sequence.*

Figure 7 shows that actually on executive level learning is also present and CEO is getting better at capturing more wealth in acquisition over his acquisition series.

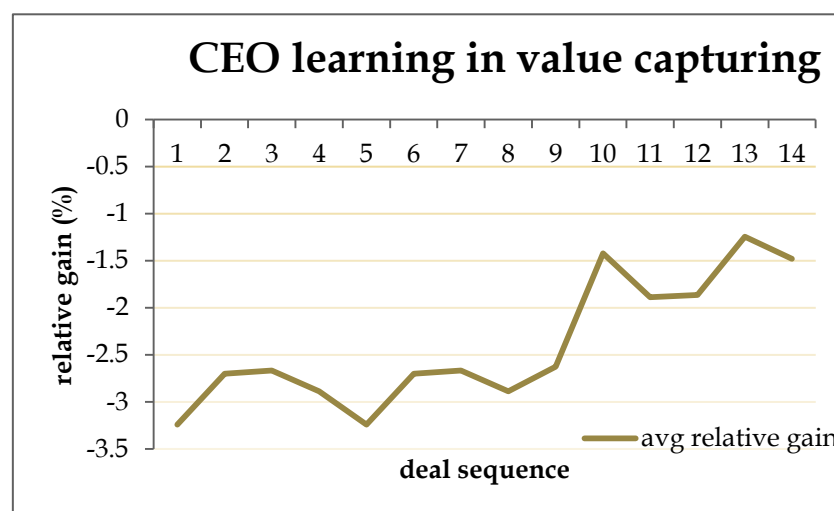


Figure7: executive learning in value-capturing: plotting relative gain to bidder-company over his deal sequence.

The panel available to test executive learning is different from that in organizational learning. Firstly, panel data for executives, including name of company, name of executives, age, compensation, tenure, gender and position retrieved from database *COMPUSTAT ExecuComp*, start from 1992. It largely reduces the time series side of my panel, compared to panel data for organizational learning, which starts from 1980. Secondly, it further provides many variables of CEO that can be used as controls to test executive learning.

I perform following two regressions using both OLS and fixed effect estimations to test my hypothesis.

1. Multivariate regression without CEO age and tenure controls

$$\text{Rela gain}_{j(t)k} = \alpha_0 + \alpha_1 \text{Dealseq}_{jt} + \alpha_2 X_{j(t)k} + \alpha_3 Y_{j(t)k} + \alpha_4 Z_{j(t)k} + \varepsilon_{j(t)k} + (f_j) \quad (11)$$

$X_{j(t)k}$ =Controls for Alternative explanation

$Y_{j(t)k}$ =Deal and company characteristic

$Z_{j(t)k}$ =Bidder and target financials and year x industry dummies

In regression (11), all explanatory variables, dependent variable and all controls are the same as explained in last section of organizational learning. The only difference is that now the acquirer j is an executive, rather than an acquirer-company. Executive j is paired with its working company within which he is responsible for managerial activities including M&A.

2. Multivariate regression with CEO age and tenure controls

$$\text{Rela gain}_{j(t)k} = \alpha_0 + \alpha_1 \text{Dealseq}_{jt} + \alpha_2 X_{j(t)k} + \alpha_3 Y_{j(t)k} + \alpha_4 Z_{j(t)k} + A_{j(t)} + \varepsilon_{j(t)k} + (f_j) \quad (12)$$

$A_{j(t)}$ = Age, Age², Tenure and Tenure² of CEO

f_j = CEO acquirer's fixed effect, capturing unobservable CEO heterogeneity.

In regression (12), I include additional CEO characteristic controls, which are related to their general negotiation experience or skills, either developed during general managerial events in company or formed during his daily life. Since acquisition experience is highly correlated with age, tenure, the improvement in negotiating performance might be contributed by general experience as well. To clarify the direct source of bargaining performance progress, it is necessary to control for these general experience. After adding CEO age controls, if the acquisition experience (*Dealseq*) is still positively related to bargaining performance (*Rela Gain*), then it is experience gained from past deal negotiation process that helps to improve his future negotiation performance.

Table 17 reports the results using OLS estimation and table 18 presents the results using fixed effect estimation. Using OLS estimation, the coefficients of acquisition experience are all significant positive, no matter whether adding CEO's age and tenure controls or not. However, in fixed effect estimation, acquisition experience is only significantly positive related to bargaining performance in regression (11) without adding CEO's age and tenure, and in regression (12) after

controlling for CEO's general experience, the coefficient of acquisition experience is not significant any more. The interpretation for this is that CEO is actually becoming better at capturing value during his acquisition series, but it is not solely due to learning from past deal experience. Such improving performance can be contributed by CEO's general negotiation experience, rather than negotiation process in M&A.

Considering the fact that adding executive age and tenure into regression diminishes learning effect brought by acquisition experience, it would be important and interesting to study the influence from company/institution age. Either executive age/tenure or company age is, to some extent, correlated with acquisition experience. And executive age and tenure can be proxy of executive's general experience obtained from work or daily life, in which negotiation and bargaining can also be developed. Thus controlling for executive age and tenure can help distinguish the real effect brought by prior acquisition experience from general life or work experience. It is equivalent to compare performance in value capturing between a serial acquiring CEO senior in age and another same serial acquiring CEO in his 30s/40s. The same might be true for company age. Company age can be used as proxy for institution general experience. Further adding company age controls in regression can help clarify the contribution of learning between an institution as a whole and executive individual. It is believed that a CEO with many deal experiences in a young company is different from a CEO with comparable deal experiences in an experienced company, although they are close in age. Company age data is defined as the time span in years from company IPO (initial public offering) date to current announcement date. Company IPO date can be obtained from COMPUSTAT database. However, many acquiring companies in my sample do not release their IPO date data in COMPUSTAT, thus severely reducing sample size (only 498 out of 1795 deals) for testing learning from institutional experience. The regression result of further adding company age is consistent with prior regression including only CEO age and tenure. Coefficient for acquisition experience is only significant at 10% confident level in OLS estimation and the learning effect from prior past deal experience vanishes in fixed effect regression. To avoid duplication, I do not post these regression results in the thesis.

4.9 Heterogeneous Effect: is negotiation “know-how” industry-specific?

To provide further evidence that CEO can learn from his general negotiation experience rather than negotiating experience in M&A transaction, it is necessary to determine whether the negotiation “know how” used in M&A stems from target’s industry insights or can be developed from other activities in general.

To test this, I set up another panel data by filtering transactions in *Excel*. The first step is to identify a group of transactions that an acquirer for the first time conducts an acquisition in current target’s industry. The next step is to pair these transactions with previous one transaction, if there are any, which are conducted by same acquirers. The final step is to run regression with these panels made up of pairs of successive transactions using regression (12). If the coefficient of acquisition experience is significantly positive, then I can conclude that negotiation skills can be generalized in applying in industries that acquirers do not have acquisition experience before. The results are reported in table 19. The coefficient is positive at 5% confidence level, thus confirming that negotiation skills used in acquisitions is not dependent much on industry specific knowledge. And this is consistent with my previous finding that the improvement in negotiation performance can stem from other places than prior acquisition process.

4.10 Negotiation vs Auction

The selling process can be either negotiation or auction. Negotiation is a selling process between one bidder and one target, while auction is a process involving multiple bidders and a target. It is related to completion level in bidding process thus can affect how final gain is divided between bidder and target. Stulz, Walkling, Song (1990) document that there is difference between single-bidder contests and multiple-bidder contests and that target ownership structure can affect gain division in multiple-bidder contests. Competition tension in M&A market can greatly influence the price premium that a bidder offers to its interested target. Besides, it is believed that acquirers obtain different knowledge and experience from acquisition under different sales process, thus learning effect may differ between in negotiation process and in auction process. It is advisable to explore separately how CEO learns in different contests in bargaining.

I set up two different panel samples to study whether CEOs have different learning pattern between in negotiation and in auction. I first divide the sample into two parts, with one containing all negotiation transactions and the other consisted of auction transactions. For every CEO, I count his historical acquisitions in each subsample before current transaction. Negotiation experience stands for the number of historical acquisitions that an acquirer conducts negotiation with target and completes the deal. Auction experience stands for the number of historical acquisitions that an acquirer joins auction among many bidders and wins a bid.

Table 16 presents the results for negotiation experience in column (1) and (2). And column (3) and (4) report the results for auction experience. In table 20, regression without CEO's age, tenure controls illustrates a significant positive effect of negotiation experience on value-capturing performance (see column (1)). While in regression of performance on auction experience without CEO's age controls (column (3)), the coefficient value of auction experience is smaller than that of negotiation experience, and it is also insignificant. After adding CEO's age, tenure as controls, the coefficient of negotiation experience become insignificant but still positive (column (2)), but that of auction experience turns to negative, albeit insignificant (column (4)). Thus it can be inferred that CEO can learn faster in negotiation process than in auction process. It makes sense since CEO acquirers can be more focused in one-on-one negotiation process.

5. Discussion and Conclusion

5.1 Discussion

In this section I will discuss some limitations of my analysis.

One concern is the limitation of data used in my thesis. Since the key dependent variables are only measurable for M&A transactions between public acquirers and public targets, it raises concerns about whether my conclusion from above analysis can be extrapolated to general acquisition transactions. Three main dependent variables are relative gain to bidder, bidder's share of synergy, and premium payment in an M&A transaction. These performance measurements of bargaining ability are derived from cumulative abnormal returns (CARs) of bidders and targets. Thus for target in private or subsidiary status, relative gain to bidder and

bidder's share of synergy cannot be estimated using CARs. Premium payment for non-public targets also cannot be derived from stock premium. Thus to measure the relative gain to bidder from a non-public target in a transaction, the only data sources that can be relied on are financial ratios and accounting numbers, which may suffer from risks of low frequency of data release and possibility of manipulation. Thus I only focus on public deals in my thesis because their data are accessible and reliable.

Also I believe the conclusion drawn from above analysis that serial bidders are getting better at value-capturing, to some extent, can be generalized to whole M&A sample. The reasons are twofold. Firstly, public targets are general larger than targets in private or subsidiary status. Public targets might also have greater market power than private targets, *ceteris paribus*. Thus acquisition process with public target is more time-consuming and challenging. Secondly, a host of studies such as Fuller (2002) have documented that bidder's CAR when acquiring a private target significantly excels acquiring a public target. Thus if serial bidder can exhibit improving ability in acquisition series with public targets, it is reasonable to predict that they can perform better, or at least equally well, when doing a transaction with private and subsidiary targets, than with public targets.

Another concern is participation of investment banks. Since many serial acquirers invite several financial advisories and legal advisories during their M&A processes, who are responsible for target-selection, business contacts, material preparation and even strategic negotiation. Thus it is probable that the improvement of value capturing over deal series are actually attributable to investment banks. Investment banks are professionals in M&A business and have deep understanding of industry that bidder and target are in, and they are exposed to M&A process thus accumulate deal experience over the deal series. To exclude the contribution of investment banks, I conduct analyses on serial acquirer sample after deleting deals which are advised under the same or same group of investment banks three in a row over M&A series of an acquirer. The regression results do not alter previous conclusion and can still support my hypothesis. However, this is only a naive approach to control effect from investment banks. Future research might address this through other better approaches.

5.2 Concluding Remarks

Acquirer's ability to create value to shareholders has continuously been valued by market. The mechanism through which acquirers can add value to their shareholders can be divided into two channels: value creation and value capturing. Despite of the observed declining announcement return trend for serial acquirers over their acquisition series, it might be attributed to the declining synergy created, which is related to value-creation. There still could be improvement found in the other channel. Value capturing is of great importance to acquirers. Efficient negotiation in M&A process can also add value to shareholders by lowering the premium payment and securing higher fraction of synergy. My empirical tests provide support that serial acquirers are actually becoming better at bargaining to capture more wealth from a transaction over its acquisition sequence, by analyzing M&A transactions in the U.S. from 1980 to 2011. The results are robust using different specifications of bargaining performance and in different samples. It is shown that relative gain to bidder is increasing along the deal sequence for serial acquirers and bidder's share of synergy is also positively related to acquirer's acquisition experiences. Moreover, it is found that as acquisition experiences accumulated acquirers are efficient in negotiating for a lower premium, thus lowering transaction costs and securing more wealth from target. Although it is thought that high frequency acquirers are different from low-frequency acquirers, regressions in subsamples still do not weaken my hypothesis and learning effect is proved to reside within different samples. Interestingly, my analysis is not sensitive to alternative measures of acquisition experience, either. Survival bias is not a concern either. Even my panel sample is unbalanced, I provide evidence that good performers do not tend to repeat their early success by continuous acquisitions. To test the rate of learning, I introduce quadratic terms in regression and find an inverted U-shape relationship between value-capturing performance and acquisition experience. To investigate whether learning effect is present among executives, the key decision maker in M&A process and main participants during M&A negotiation, I set up a new panel sample and further add controls for CEO's age and tenure. The results demonstrates that CEOs in bidders' companies are also getting better at bargaining to capture more wealth in transaction, while such ability improvement might not attribute to past acquisition experiences, but general managerial or daily activities.

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7. List of Tables

Table1: Summaries of Descriptive Data

Panel A shows characteristics of serial acquirers, who complete at least two M&A transactions of public targets from 1980 to 2011 with transaction value threshold of 10 million, and characteristics for their transactions.

Panel B reports the distribution of serial acquirers selected in my sample.

Panel C is a supplement table for panel A. It displays the characteristics of acquisitions regardless target status for the same serial acquirers selected in Panel A to give a comprehensive description for these acquirers' historical transactions.

Panel D shows the characteristic of executive serial acquirers (CEOs) who manage to do at least two acquisitions of public targets from 1980 to 2011 with transaction value threshold of 10 million, and characteristics for their deals.

Panel A: Serial acquirers and *deal characteristics

Variable	N	mean	median
Frequency (#)	3723	5.917	4
Deal value (Mil)	3718	1447.92	177.45
Adjusted Deal value (Mil)	3718	1905.83	260.77
Relative size of target (%)	3331	34.26%	8.31%
Acq. Market value (Mil)	3689	50573.1	1897.85
Tar. Market value (Mil)	3362	1114.82	137.26
All cash (%)	3723	27.93%	n/a
All stock (%)	3723	39.48%	n/a
Stock>50% (%)	3723	56.94%	n/a
Hostile (%)	3723	1.88%	n/a
Toehold (%)	3723	0.878 %	n/a
Shares acquired (%)	3723	98.44%	n/a
Bidders Number	3723	1.0577	n/a
Diversifying (%)	3723	32.72%	n/a
Target defensive tactics (%)	3723	22.40%	n/a

* Only including acquisitions with public targets

Panel B: Serial Acquirers' Distribution

Freq*	#Acquirer	Fraction	Freq*	#Acquirer	Fraction
2	561	52.87%	8	18	1.70%
3	196	18.47%	9	7	0.66%
4	104	9.80%	10	14	1.32%
5	76	7.16%	11	5	0.47%
6	30	2.83%	>11	31	2.92%
7	19	1.79%	total	1061	100.00%

* Only including acquisitions with public targets

Panel C: Deal Characteristics of Acquisitions* regardless target status

variable	N	mean	p50
Frequency	9229	14.7363	11
Public status (%)	9229	41.84%	n/a
Acquirer Market value (mil)	9109	42991	2019.1
Deal value	9224	704.06	79.45
All cash	9229	31.17%	n/a
All stock	9229	28.72%	n/a
Hostile	9229	0.73%	n/a
Diversifying	9229	38.75%	n/a

*Including public, private and subsidiary targets

Panel D: Executive Serial Acquirers (CEO) and *Deal Characteristics

Variable	N	mean	median
<i><u>CEO characteristics</u></i>			
Tenure (Yrs)	1795	8.297	6.8361
Male (%)	1795	99.16%	1
Present age	1795	64.1476	64
Age at announcement	1795	54.8507	55
<i><u>Deal characteristics</u></i>			
Frequency	1795	5.7309	4
Transaction value (Mil)	1794	2040.775	292.788
Adjusted Deal value (Mil)	1794	2602.77	373.59
Relative size of target (%)	1667	25.02%	5.42%
Bidder Market value (Mil)	1795	98188.5	4532.15
Target Market value (Mil)	1795	1574.47	215.235
All cash (%)	1795	28.86%	n/a
All stock (%)	1795	41.78%	n/a
Stock>50%	1795	60.17%	n/a
Hostile (%)	1795	1.23%	n/a
Toehold (%)	1795	0.635%	n/a
Shares acquired (%)	1795	99.07%	n/a
Bidders Number	1795	1.0423	n/a
Diversifying (%)	1795	31.62%	n/a
Target defensive tactics (%)	1795	23.23%	n/a

* Only including acquisitions with public targets

Table 2: Univariate Analyses: Mean of Relative Gain along deal sequence in Full sample

Panel A presents the mean relative gain received by bidder along deal sequence 1st, 3rd, 5th and 10th with respective t-statistics in parentheses below means. It shows that all means are significantly different from zero at 99.9% confidence level. And from mean performance of deal 1st to deal 10th there is an increasing trend. Panel B reports the mean difference of performance between early deals and later deals. It aims to whether their differences, for example between 1st deal and 3rd deal, 1st and 5th, 1st and 10th and 3rd and 10th, are significantly small than zero. Also t-statistics are reported under mean difference within parentheses.

Panel A: Mean of Relative Gain to Bidder

	(1)	(2)	(3)	(4)
	Deal sequence=1	Deal sequence=3	Deal sequence=5	Deal sequence=10
Mean	-3.9407*** (-16.0470)	-3.2854*** (-11.1561)	-2.5999*** (-7.1672)	-2.0881*** (-4.8228)
Observations	906	483	311	107

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Panel B: Mean difference of Relative Gain to Bidder

T-test Ho: diff= 0 Ha: diff<0

	(1)	(2)	(3)	(4)
	(Deal Seq=1)- (Deal Seq=3)	(Deal Seq=1)- (Deal Seq=5)	(Deal Seq=1)- (Deal Seq=10)	(Deal Seq=3)- (Deal Seq=10)
Diff of Mean	-0.2577 (-0.614)	-1.2355** (-2.1571)	-1.5619* (-1.4552)	-1.3042* (-1.432)

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Univariate Analyses: Mean of Share of total Synergy by deal sequence in Full sample

Panel A presents the means of bidders' share of total gain along deal sequence 1st, 3rd, 5th, 7th and 10th with respective t-statistics in parentheses below. It shows that all means are significantly different from zero at 99.9% confidence level. Value of means along deal series shows that it is not a continuous increasing curve but an upward trend with some spikes and falls. Panel B reports the mean difference of performance between early deals and later deals. It aims to test whether their differences, for example between 1st deal and 3rd deal, 1st and 5th, 1st and 10th and 3rd and 10th, are significantly smaller than zero. Also t-statistics are reported in parentheses below. As reported in panel B, most means in later deals outperform those in early stages. However, difference is not significant in every comparison, which possibly implies that there is large variation around mean in each sequence. This can be explained by the structure of sample, in which only ones with both positive target gain and bidder gain are included. It makes many gaps over an acquirer's deal series and available data are just alternate between deals. Thus only looking at particular deal sequence may not illustrate a significant improvement.

Panel A: Mean of Bidder's share of total synergy

	(1) Deal Seq=1	(2) Deal Seq =3	(3) Deal Seq =5	(4) Deal Seq =7	(5) Deal Seq =10
Mean	58.0674 *** (23.2161)	64.0032 *** (23.2415)	61.52305 *** (-7.1672)	74.9285 *** (14.3443)	65.9679 *** (7.9137)
Observations	149	102	50	25	14

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Panel B: Mean difference of Bidder's share of total synergy

T-test Ho: diff= 0 Ha: diff<0	(1) (Deal Seq=1)- (Deal Seq=3)	(2) (Deal Seq=1)- (Deal Seq=5)	(3) (Deal Seq=1)- (Deal Seq=7)	(4) (Deal Seq=1)- (Deal Seq=10)	(5) (Deal Seq=3)- (Deal Seq=7)	(6) (Deal Seq=5)- (Deal Seq=10)
Diff of Mean	-5.9357* (-1.579)	-3.4555 (-2.1571)	-16.8610*** (-2.6045)	-7.9004 (-0.9241)	-10.9253*** (-1.7805)	-4.4448 (-0.4637)

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: OLS Regression of Relative Gain to Bidder

This table shows Ordinary Least Squares (OLS) regression of relative gain on acquisition experience. Column (1)&(2) use univariate regressions, (3)&(4) control for deal, company characteristics, (5)&(6) further control for financials. Cumulative abnormal return (CAR), the essential part in *relative gain* and *synergy*, are computed using (-1, 1) event window.

VARIABLES	(1) Relative gain to bidder	(2) Relative gain to bidder	(3) Relative gain to bidder	(4) Relative gain to bidder	(5) Relative gain to bidder	(6) Relative gain to bidder
<u>Key explanatory variables</u>						
Acq experience public	0.129*** (0.0252)		0.211*** (0.0237)		0.210*** (0.0259)	
Acq experience general		0.0451*** (0.0121)		0.0853*** (0.0136)		0.0804*** (0.0149)
<u>Controls for alternative explanation</u>						
synergy1			0.294*** (0.0459)	0.293*** (0.0461)	0.290*** (0.0478)	0.289*** (0.0479)
Transaction value (log)			-0.737*** (0.116)	-0.741*** (0.115)	-0.829*** (0.128)	-0.827*** (0.128)
Relative size of target			-0.134 (0.0940)	-0.135 (0.0940)	-0.133 (0.0941)	-0.134 (0.0942)
Acq. experience in industry			0.275 (0.269)	0.269 (0.272)	0.0434 (0.286)	0.0226 (0.287)
<u>Deal and company characteristic</u>						
Diversifying			0.259 (0.268)	0.185 (0.271)	0.315 (0.282)	0.262 (0.286)
Defensive			-0.808*** (0.262)	-0.741*** (0.263)	-1.015*** (0.297)	-0.973*** (0.297)
Hostile			-3.309*** (0.840)	-3.361*** (0.840)	-3.684*** (0.885)	-3.698*** (0.885)
All stock			0.335 (0.279)	0.384 (0.281)	0.411 (0.311)	0.469 (0.312)
All cash			1.197*** (0.299)	1.208*** (0.303)	1.171*** (0.324)	1.199*** (0.327)
Target run-up			-5.26e-05 (0.319)	-0.00536 (0.316)	0.0258 (0.346)	0.0266 (0.344)
Target Herfindahl index			0.777 (0.591)	0.636 (0.596)	0.610 (0.708)	0.450 (0.714)
Target institutional ownership			0.216 (0.654)	0.0812 (0.662)	0.809 (0.704)	0.700 (0.711)
Recession			-1.188*** (0.409)	-1.105*** (0.412)	-1.142*** (0.414)	-1.063** (0.417)
Financials of Acq.&Target	No	No	No	No	Yes	Yes
Time x Industry Dummies	No	No	No	No	Yes	Yes
Observations	3,054	3,053	2,891	2,891	2,632	2,632
R-squared	0.006	0.003	0.173	0.169	0.192	0.188

All regressions are conducted under robust and cluster(acquirer) options to correct for heteroscedasticity and autocorrelation. Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Table 5: Fixed Effect Regression of Relative Gain to Bidder

This table shows fixed effect regression of relative gain on acquisition experience. Column (1)&(2) use univariate regressions, (3)&(4) control for deal, company characteristics, (5)&(6) further control for financials. Cumulative abnormal return (CAR), the essential part in *relative gain* and *synergy*, are computed using (-1, 1) event window.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Relative gain to bidder		Relative gain to bidder			
<i>Key explanatory variables</i>						
Acq experience public	0.0198 (0.0365)		0.167*** (0.0380)		0.210*** (0.0495)	
Acq experience general		0.00443 (0.0199)		0.0792*** (0.0237)		0.0966*** (0.0305)
<i>Controls for alternative explanation</i>						
synergy1			0.338*** (0.0505)	0.338*** (0.0506)	0.344*** (0.0530)	0.344*** (0.0532)
Transaction value (log)			-1.569*** (0.157)	-1.568*** (0.156)	-1.611*** (0.168)	-1.615*** (0.167)
Relative size of target			-0.156 (0.0952)	-0.156 (0.0951)	-0.156 (0.0995)	-0.156 (0.0989)
Acq. experience in industry			0.605* (0.338)	0.606* (0.341)	0.439 (0.351)	0.443 (0.354)
<i>Deal and company characteristic</i>						
Diversifying			0.319 (0.351)	0.335 (0.349)	0.287 (0.364)	0.290 (0.361)
Defensive			-0.861*** (0.312)	-0.868*** (0.313)	-1.032*** (0.344)	-1.052*** (0.346)
Hostile			-2.395** (1.029)	-2.438** (1.026)	-2.888*** (1.083)	-2.959*** (1.079)
All stock			0.431 (0.352)	0.440 (0.351)	0.489 (0.391)	0.493 (0.392)
All cash			0.142 (0.363)	0.116 (0.366)	0.113 (0.389)	0.104 (0.391)
Target run-up			0.0829 (0.308)	0.0879 (0.309)	0.117 (0.333)	0.124 (0.336)
Target Herfindahl index			0.476 (0.715)	0.384 (0.717)	0.428 (0.881)	0.311 (0.884)
Target institutional ownership			1.111 (0.924)	1.069 (0.936)	1.212 (1.017)	1.218 (1.027)
Recession			-1.259*** (0.474)	-1.227** (0.478)	-1.382*** (0.486)	-1.339*** (0.491)
Financials of Acq.&Target	No	No	No	No	Yes	Yes
Time x Industry Dummies	No	No	No	No	Yes	Yes
Acquirer fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.000	0.000	0.253	0.252	0.278	0.276
Number of acquirers	1,009	1,009	994	994	952	952

All regressions are conducted under robust and cluster(acquirer) options to correct for heteroscedasticity and autocorrelation. Robust standard errors in parentheses (***) p<0.01, ** p<0.05, * p<0.1)

Table 6: Clustering at announcement date for both OLS and Fixed effect regression

	(1)	(2)	(3)	(4)
	ols1	ols2	fe1	fe2
VARIABLES	Relative gain		Relative gain	
<i><u>Key explanatory variables</u></i>				
Acq experience public	0.211*** (0.0232)	0.205*** (0.0236)	0.167*** (0.0384)	0.187*** (0.0405)
<i><u>Controls for alternative explanation</u></i>				
synergy1	0.294*** (0.0451)	0.296*** (0.0456)	0.338*** (0.0463)	0.344*** (0.0470)
Transaction value (log)	-0.737*** (0.109)	-0.841*** (0.111)	-1.569*** (0.144)	-1.562*** (0.145)
Relative size of target	-0.134 (0.0940)	-0.135 (0.0948)	-0.156* (0.0883)	-0.155* (0.0908)
Acq. experience in industry	0.275 (0.267)	0.150 (0.267)	0.605* (0.335)	0.542 (0.338)
<i><u>Deal and company characteristic</u></i>				
Diversifying	0.259 (0.247)	0.276 (0.246)	0.319 (0.368)	0.376 (0.369)
Defensive	-0.808*** (0.254)	-0.849*** (0.261)	-0.861*** (0.322)	-0.945*** (0.321)
Hostile	-3.309*** (0.830)	-3.420*** (0.853)	-2.395** (1.015)	-2.339** (1.045)
All stock	0.335 (0.272)	0.339 (0.271)	0.431 (0.342)	0.392 (0.340)
All cash	1.197*** (0.299)	1.141*** (0.303)	0.142 (0.364)	0.0958 (0.368)
Target run-up	-5.26e-05 (0.316)	0.0480 (0.330)	0.0829 (0.320)	0.144 (0.342)
Target Herfindahl index	0.777 (0.572)	0.596 (0.584)	0.476 (0.705)	0.519 (0.716)
Target institutional ownership	0.216 (0.635)	0.560 (0.646)	1.111 (0.973)	1.060 (0.995)
Recession	-1.188*** (0.397)	-1.117*** (0.401)	-1.259*** (0.471)	-1.311*** (0.475)
Financials of Acq. And Target	No	Yes	No	Yes
Time x Industry Dummies	Yes	Yes	Yes	Yes
Acquirer fixed effect	No	No	Yes	Yes
Observations	2,891	2,848	2,848	2,848
R-squared	0.173	0.186	0.575	0.575

All regressions are conducted under robust and cluster (announcement date⁴) options to correct for heteroscedasticity and cross-sectional correlation around announcement date. Robust standard errors in parentheses (***) p<0.01, ** p<0.05, * p<0.1)

⁴ Besides cluster(announcement date) option, I also go for cluster (announcement month) option as a double check for possible cross sectional correlation around announcement, and the result is consistent. So I do not post it here to avoid duplicates.

Table 7: OLS Regression of Bidder's Share of Synergy

This table shows Ordinary Least Squares (OLS) regression of bidder's share of gain on acquisition experience. Column (1)&(2) use univariate regressions, (3)&(4) control for deal, company characteristics, (5)&(6) further control for financials. Cumulative abnormal return (CAR), the essential part in *share of synergy* and *synergy*, are computed using (-1, 1) event window.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Bidder's share of synergy			Bidder's share of synergy		
<i>Key explanatory variables</i>						
Acq experience public	0.599*	0.643**	0.636**			
	(0.323)	(0.299)	(0.299)			
Acq experience general				0.385***	0.409***	0.376***
				(0.118)	(0.103)	(0.108)
<i>Controls for alternative explanation</i>						
synergy1		-0.0451	-0.0965		-0.0249	-0.0816
		(0.172)	(0.167)		(0.174)	(0.168)
Transaction value (log)		-3.842***	-4.358***		-3.764***	-4.247***
		(0.847)	(0.939)		(0.847)	(0.935)
Relative size of target		-0.413***	-0.388***		-0.416***	-0.391***
		(0.0738)	(0.0571)		(0.0728)	(0.0570)
Acq. experience in industry		2.709	3.009		1.568	2.017
		(3.712)	(3.520)		(3.698)	(3.556)
<i>Deal and company characteristic</i>						
Diversifying		9.433***	10.06***		8.461***	9.294***
		(3.181)	(2.859)		(3.117)	(2.900)
Defensive		-3.341	-6.129*		-3.079	-5.969*
		(3.022)	(3.137)		(3.035)	(3.127)
Hostile		-24.80***	-22.91***		-25.05***	-23.13***
		(6.432)	(6.536)		(6.443)	(6.576)
All stock		1.695	0.727		1.388	0.623
		(2.861)	(3.093)		(2.836)	(3.048)
All cash		7.154**	5.913**		7.148**	5.952**
		(2.797)	(2.831)		(2.769)	(2.813)
Target run-up		0.997	0.124		0.762	-0.00909
		(2.985)	(2.727)		(2.927)	(2.702)
Target Herfindahl index		9.402	9.602		9.462	9.578
		(6.993)	(7.265)		(6.933)	(7.259)
Target institutional ownership		3.859	3.974		2.707	2.855
		(5.366)	(5.452)		(5.374)	(5.490)
Recession		-0.871	-2.561		-0.651	-2.266
		(3.046)	(2.961)		(3.032)	(2.943)
Financials of Acq.&Target	No	No	Yes	No	Yes	Yes
Time x Industry Dummies	No	No	Yes	No	No	Yes
Observations	701	660	608	701	660	608
R-squared	0.007	0.132	0.198	0.014	0.138	0.202

All regressions are conducted under robust and cluster(acquirer) options to correct for heteroscedasticity and autocorrelation. Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Table 8: Fixed Effect: Regression of Bidder's Share of Synergy

This table shows fixed effect regression of bidder's share of synergy on acquisition experience. First two columns use first-order of experience, while column (3) and (4) introduce quadratic term of experience to study rate of learning.

VARIABLES	(1)	(2)	(3)	(4)
Bidder's share of synergy				
<i><u>Key explanatory variables</u></i>				
Acq experience public	0.512* (0.312)		2.053** (0.881)	
Acq experience general		0.371*** (0.116)		0.612** (0.239)
(Acq experience public) ²			-0.0876** (0.0437)	
(Acq experience general) ²				-0.00478* (0.00262)
<i><u>Controls for alternative explanation</u></i>				
synergy1	-0.00619 (0.173)	0.0136 (0.174)	0.00405 (0.173)	0.0287 (0.175)
Transaction value (log)	-4.690*** (0.861)	-4.626*** (0.860)	-4.699*** (0.861)	-4.660*** (0.860)
Relative size of target	-0.391*** (0.0678)	-0.390*** (0.0671)	-0.388*** (0.0668)	-0.391*** (0.0664)
Acq. experience in industry	-0.784 (2.846)	-1.552 (2.835)	-2.188 (2.966)	-2.270 (2.911)
<i><u>Deal and company characteristic</u></i>				
Diversifying	5.458** (2.601)	5.034* (2.593)	5.150** (2.585)	4.817* (2.592)
Defensive	-3.573 (2.946)	-3.173 (2.972)	-3.871 (2.922)	-3.168 (2.979)
Hostile	-24.20*** (6.343)	-24.38*** (6.341)	-23.76*** (6.243)	-24.24*** (6.383)
All stock	2.167 (2.881)	1.877 (2.872)	2.225 (2.869)	1.717 (2.885)
All cash	4.382 (2.782)	4.214 (2.791)	3.884 (2.795)	4.120 (2.804)
Target run-up	1.022 (3.184)	0.890 (3.138)	0.837 (3.216)	0.896 (3.152)
Target Herfindahl index	11.15 (6.803)	11.41* (6.781)	10.39 (6.807)	11.56* (6.742)
Target institutional ownership	3.767 (5.181)	2.852 (5.217)	2.898 (5.157)	2.806 (5.231)
Acquirer fixed effect	Yes	Yes	Yes	Yes
Time x Industry Dummies	Yes	Yes	Yes	Yes
Observations	660	660	660	660
Number of acquirers	260	260	260	260

All regressions are conducted under robust and cluster(acquirer) options to correct for hetercedasticity and autocorrelation. Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Table 9: Fixed effect: Regression of Premium

This table shows fixed effect regression of premium payment on acquisition experience. Column (1)&(2) display univariate regressions of 4 week premium, Column (3) and (4) conduct regression of 4 week premium with all controls. Column (5) and (6) conduct regression of 1 week premium with all controls.

VARIABLES	(1) 4 weeks premium	(2) 4 weeks premium	(3) 4 weeks premium	(4) 4 weeks premium	(5) 1 week premium	(6) 1 week premium
<i><u>Key explanatory variables</u></i>						
Acq experience public	-1.484** (0.620)		-1.196 (0.760)		-1.272* (0.690)	
Acq experience general		-0.724*** (0.247)		-0.521* (0.294)		-0.498** (0.252)
<i><u>Controls for alternative explanation</u></i>						
Transaction value (log)			2.728 (2.634)	2.692 (2.632)	0.181 (1.758)	0.126 (1.764)
Relative size of target			-0.306 (0.209)	-0.305 (0.211)	-0.0983 (0.163)	-0.0950 (0.166)
Acq. experience in industry			-0.732 (5.186)	-0.834 (5.224)	1.360 (3.077)	1.135 (3.064)
<i><u>Deal and company characteristic</u></i>						
Diversifying			-4.090 (3.165)	-4.198 (3.147)	-1.704 (2.726)	-1.851 (2.695)
Defensive			8.157** (3.254)	8.358** (3.258)	6.820*** (2.171)	7.252*** (2.151)
Hostile			-2.821 (14.81)	-2.416 (14.78)	4.734 (10.59)	5.175 (10.56)
All stock			0.632 (3.558)	0.628 (3.571)	3.122 (4.355)	3.193 (4.388)
All cash			12.84** (5.860)	12.85** (5.847)	8.452** (4.071)	8.435** (4.068)
Target run-up			-7.929 (7.715)	-7.975 (7.722)	-10.38*** (3.591)	-10.44*** (3.635)
Target Herfindahl index			14.58 (12.80)	15.13 (12.76)	-0.00949 (9.992)	0.784 (9.861)
Target institutional ownership			-27.58** (12.06)	-27.65** (12.01)	-13.11 (8.219)	-13.40 (8.171)
Recession			13.01* (7.886)	12.73 (7.834)	10.66** (4.933)	10.37** (4.902)
Financials of Acq. And Target	No	No	Yes	Yes	Yes	Yes
Time x Industry Dummies	No	No	Yes	Yes	Yes	Yes
Observations	3,214	3,214	2,915	2,915	2,634	2,634
R-squared	0.003	0.003	0.027	0.027	0.031	0.030
Number of acquirers	1,028	1,028	981	981	940	940

All regressions are conducted under robust and cluster(acquirer) options to correct for heteroscedasticity and autocorrelation. Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Table 10: Low, Middle, High Frequency Acquirers

This table presents regression of relative gain on experience and other controls in three subsamples grouped by frequency. Column (1) is for low frequency acquirers who complete less or equal 3 M&A transactions of public targets. In column (2) and (3) repeat the same process for mid frequency acquirers, who complete 4 to 9 M&A transactions of public targets, and for high frequency acquirers who complete 10 or over 10 deals with public targets. All coefficients of controls are not shown in table for simplicity reason. And all coefficients for my main explanatory variables are significantly positive.

	(1)	(2)	(3)
	low	mid	high
VARIABLES	Relative gain to bidder		
<i><u>Key explanatory variables</u></i>			
Acq experience public	0.809*** (0.310)	0.258** (0.101)	0.101** (0.0458)
<i><u>Controls for alternative explanation</u></i>			
synergy1	0.281*** (0.0591)	0.379*** (0.0974)	0.568*** (0.102)
Transaction value (log)	-2.099*** (0.292)	-1.665*** (0.252)	-1.017*** (0.301)
Relative size of target	0.0471*** (0.0114)	-0.275*** (0.0200)	-1.733 (2.332)
Acq. experience in industry	0.909 (1.074)	0.506 (0.725)	1.145 (0.694)
Deal and company characteristic	Yes	Yes	Yes
Time x Industry Dummies	Yes	Yes	Yes
Observations	1,311	1,017	564
R-squared	0.212	0.326	0.424
Number of acquirers	696	248	50

All regressions are conducted under robust and cluster(acquirer) options to correct for heteroscedasticity and autocorrelation. Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Table11: Rate of Learning: Regression with Quadratic Term

To test rate of learning, quadratic term is introduced in regressions. Column (1) and (2) display results of regression of relative gain to bidder on first order acquisition experiences of public targets and its quadratic term, with other deal, company characteristics and financials controlled. Column (3) and (4) display results of regression of relative gain to bidder on first order acquisition experiences of targets in any status and its quadratic term and other controls.

VARIABLES	(1) Relative gain to bidder	(2) Relative gain to bidder	(3) Relative gain to bidder	(4) Relative gain to bidder
<i><u>Key explanatory variables</u></i>				
Acq experience public	0.226** (0.0900)	0.291** (0.115)		
(Acq experience public) ²	-0.00288 (0.00416)	-0.00409 (0.00502)		
Acq experience general			0.129*** (0.0332)	0.158*** (0.0419)
(Acq experience general) ²			-0.000919*** (0.000334)	-0.00109*** (0.000400)
<i><u>Controls</u></i>				
Synergy created	0.337*** (0.0502)	0.344*** (0.0526)	0.338*** (0.0504)	0.344*** (0.0528)
Transaction value (log)	-1.569*** (0.156)	-1.614*** (0.167)	-1.572*** (0.155)	-1.622*** (0.167)
Relative size Target	-0.155 (0.0946)	-0.155 (0.0988)	-0.155 (0.0945)	-0.155 (0.0982)
Company and deal controls	Yes	Yes	Yes	Yes
Financials of Acq. And Target	No	Yes	No	Yes
Time x Industry Dummies	No	Yes	No	Yes
Acquirer fixed effect	Yes	Yes	Yes	Yes
Observations	2,892	2,632	2,891	2,632
R-squared	0.253	0.278	0.253	0.278
Number of acquirers	994	952	994	952

All regressions are conducted under robust and cluster(acquirer) options to correct for heteroscedasticity and autocorrelation. Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Table 12: Rate of Learning: Regression of First Difference

To test whether rate of learning is slowing down in later acquisitions, first-difference term is introduced in regressions. First difference terms measure the changes of variables in current time (t) with in time (t-1). Only dependent variables and three numeric controls (*synergy value*, *transaction value* and *relative size of target*) are replaced with their first-difference term. Key explanatory variable, experience and other dummy control are kept using ordinary value in current time (t). Column (1) and (3) display results of regression of relative gain to bidder on acquisition experiences of public targets with other deal, company characteristics and financials controlled. Column (2) and (4) display results of regression of relative gain to bidder on acquisition experiences of targets in any status and other controls.

VARIABLES	(1) Dif_Relative gain to bidder	(2) Dif_Relative gain to bidder	(3) Dif_Relative gain to bidder	(4) Dif_Relative gain to bidder
<u>Key explanatory variables</u>				
Acq experience public	-0.0976** (0.0442)		-0.0848* (0.0567)	
Acq experience general		-0.0457** (0.0226)		-0.0393* (0.0290)
<u>Controls</u>				
Dif_synergy created	0.464*** (0.0989)	0.465*** (0.0993)	0.458*** (0.104)	0.458*** (0.104)
Dif_transaction value	-1.417*** (0.155)	-1.412*** (0.155)	-1.445*** (0.155)	-1.440*** (0.155)
Dif_relative size Target	-0.299*** (0.0193)	-0.300*** (0.0192)	-0.297*** (0.0200)	-0.297*** (0.0200)
Company and deal controls	Yes	Yes	Yes	Yes
Financials of Acq. And Target	No	No	Yes	Yes
Time x Industry Dummies	No	No	Yes	Yes
Acquirer fixed effect	Yes	Yes	Yes	Yes
Observations	1,789	1,788	1,656	1,656
R-squared	0.370	0.371	0.374	0.374
Number of acquirers	793	793	761	761

All regressions are conducted under robust and cluster(acquirer) options to correct for heteroscedasticity and autocorrelation. Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Table 13: Survival Bias Tests

Panel A: performance comparison between overlapping deals in pairs of groups

One alternative explanation which can bias results of regression in previous analysis is survival bias, which means that good performing acquirers are inclined to acquire again thus to remain in panel sample. To exclude possibility that it is good performance that leads to acquisition, I compare the first N deals performance between group 1 of acquirers who complete N+1 in total and group 2 of acquirers who complete N in total. I take N for 2, 3 and 4 to test three pairs of groups. Three pairs are A, B and C. To take pair A for example, A1 are acquirers who complete 3 deals in total and A2 are acquirers who complete 2 deals in total. I want to test is A1 outperform A2 in first 2 deals, which leads A1 to choose to take additional 1 deal. Column (1) and (2) performs regression for A1 and A2 respectively. Coefficient of experience in A1 is significantly positive while coefficient in A2 is not. It seems that A1 performed better in first 2 deals than A2. The test for pair A ends here. Repeat the same procedure for pair B and pair C. B1 and C1 are acquirers who choose to take 1 additional deal than B2 and C2 respectively. However, results show that B1 does not outperform B2, neither does C1. To conclude, it is not early good performance that drives acquirers to repeat early success by take one more deal. So there is not survival bias.

	(1)	(2)	(3)	(4)	(5)	(6)
	A1	A2	B1	B2	C1	C2
VARIABLES	Relative gain to bidder	Relative gain to bidder	Relative gain to bidder	Relative gain to bidder	Relative gain to bidder	Relative gain to bidder
<i>Key explanatory variables</i>						
Acq experience public	2.018*** (0.570)	0.712 (0.555)	0.505 (0.500)	0.750** (0.352)	0.236 (0.313)	0.373 (0.351)
<i>Controls</i>						
synergy1	0.566*** (0.0878)	0.201** (0.0780)	0.561*** (0.124)	0.445*** (0.0765)	0.451*** (0.155)	0.473*** (0.0971)
Transaction value (log)	-2.220*** (0.671)	-2.382*** (0.397)	-1.661*** (0.493)	-1.378*** (0.401)	-0.742* (0.416)	-1.653*** (0.379)
Relative size of target	0.0453*** (0.0138)	-0.107 (0.217)	0.609 (0.385)	0.0546*** (0.0105)	-8.143*** (1.057)	0.0471 (0.499)
Acq. experience in industry	0.193 (1.296)	1.667 (1.648)	-2.150 (1.568)	0.0647 (1.055)	1.850 (1.493)	0.0385 (1.478)
Company and deal controls	Yes	Yes	Yes	Yes	Yes	Yes
Financials of Acq. And Target	Yes	Yes	Yes	Yes	Yes	Yes
Time x Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	303	857	224	454	228	306
R-squared	0.599	0.169	0.487	0.373	0.480	0.413
Number of acquirers	184	508	95	188	74	99

All regressions are conducted under robust and cluster(acquirer) options to correct for heteroscedasticity and autocorrelation. Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Panel B: T-tests for mean for first 3 deals in different subsamples

It displays the means for first deals for different acquirers groups by acquisition frequency, namely 3, 4, 5, 6, 10. Mean T-statistics are listed in parentheses below. All means are significant except in subsample of frequency of 10.

	(1)	(2)	(3)	(4)	(5)
	Sub(freq=3)	Sub(freq=4)	Sub(freq=5)	Sub(freq=6)	Sub(freq=10)
MeanFirst3	-3.285*** (-11.16)	-3.030*** (-7.52)	-2.775*** (-5.43)	-3.159*** (-4.17)	-1.341 (-1.73)
Observations	483	240	183	79	33

t statistics in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Panel C: T-tests for mean difference for first 3 deals in different subsamples

It reports the t-test result for mean differences between subsamples of different acquisition frequency. For example, column (1) lists the difference of bidders who have 3 deals and bidder who have 4 deals.

T-test Ho: diff= 0 Ha: diff<0				
	(1)	(2)	(3)	(4)
	MeanSub3- MeanSub4	MeanSub3- MeanSub5	MeanSub3- MeanSub6	MeanSub3- MeanSub10
Diff-MeanFirst3	-.2557 (-0.5123)	-.5103 (-0.8655)	-.1267 (-0.1560)	-1.9442** (-2.3389)

t statistics in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Panel D: Regression of First 3 deals performance in balanced subsamples

The table shows regression results under fixed effect estimation only for first 3 deals in different subsample grouped by different acquisition frequency. It aims to test if bidders of higher acquisition frequency outperform bidder of lower acquisition frequency. To make their performance comparable and meaningful, I only focus their first 3 deals.

	(1)	(2)	(3)	(4)	(5)
	Sub(freq=3)	Sub(freq=4)	Sub(freq=5)	Sub(freq=6)	Sub(freq=10)
VARIABLES	Relative gain	Relative gain	Relative gain	Relative gain	Relative gain
<u>Key explanatory variables</u>					
Acq experience public	0.578 (0.390)	0.258 (0.500)	0.469 (0.505)	1.317** (0.635)	-0.0626 (0.577)
<u>Controls for alternative explanation</u>					
synergy1	0.445*** (0.0768)	0.578*** (0.118)	0.423** (0.188)	0.685*** (0.214)	1.062*** (0.297)
Transaction value (log)	-1.369*** (0.396)	-1.552*** (0.452)	-0.750 (0.564)	-1.270** (0.528)	-0.804 (0.563)
Relative size of target	0.0558*** (0.0105)	0.432 (0.351)	-8.517*** (1.232)	-0.344*** (0.0426)	12.72** (5.761)
Acq. experience in industry	0.723 (0.802)	1.327 (1.095)	0.340 (1.333)	2.013 (1.608)	-1.982 (1.692)
Company and deal controls	Yes	Yes	Yes	Yes	Yes
Financials of Acq. And Target	No	No	No	No	No
Time x Industry Dummies	Yes	Yes	Yes	Yes	Yes
Acquirer fixed effect	Yes	Yes	Yes	Yes	Yes
Observations	454	224	168	76	33
R-squared	0.375	0.487	0.495	0.827	0.905
Number of acquirers	188	95	69	29	14

All regressions are conducted under robust and cluster(acquirer) options to correct for hetercedasticity and autocorrelation. Robust standard errors in parentheses (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)

Table 14: Verify Declining Performance Trend for Top Performers along Deal Series

Panel A presents the mean relative gain received by top performing bidders (judged by first 5 deals performance in value capturing) along deal sequence 1st, 3rd, 5th and 10th with respective t-statistics in parentheses below means. It shows that only mean for 1st deal are significantly different from zero at 99.9% confidence level, while others are not significant or merely significant at 95% confidence level.

Panel B reports the mean difference of performance between early deals and later deals. It aims to whether their differences, for example between 1st deal and 3rd deal, 1st and 5th, 1st and 10th and 5th and 10th, are significantly small than zero. Also t-statistics are reported under mean difference within parentheses. It shows a significant fall found at very early sequence (from 1st to 3rd) and at later sequence (after 5th deal).

Panel A: Mean for deal performance along deal sequence				
	(1)	(2)	(3)	(4)
	Deal_1st	Deal_3rd	Deal_5th	Deal_10th
Mean	2.152*** (5.78)	1.025* (2.54)	1.225 (1.20)	-2.251 (-1.59)
Observations	209	92	37	14
<i>t</i> statistics in parentheses				
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$				

Panel B: Mean difference of two deal performances along deal series					
T-test Ho: diff= 0 Ha:diff>0					
	(1)	(2)	(3)	(4)	(5)
	Mean(Deal_1st)- Mean(Deal_3rd)	Mean(Deal_1st)- Mean(Deal_5th)	Mean(Deal_3rd)- Mean(Deal_5th)	Mean(Deal_1st)- Mean(Deal_10th)	Mean(Deal_5th)- Mean(Deal_10th)
Diff-Mean	1.1264** (2.0504)	.9267 (0.8503)	-.1996 (-0.1814)	4.4021*** (3.0008)	3.4753** (1.9860)
<i>t</i> statistics in parentheses					
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$					

Table 15: Alternative Event Window: OLS regression of relative gain

This table shows Ordinary Least Squares (OLS) regression of relative gain on acquisition experience, which is basically the same as table2. The only difference is alternative event windows are used in control variable synergy and dependent variable relative gain to bidder to compute their CARs. Column (1) uses 5days (-2, 2) window symmetric to announcement date. Column (2) uses 11days (-5, 5) window symmetric to announcement date. Longer event window is used to prevent early information release.

	(1)	(2)
	5days window	11days window
VARIABLES	Relative gain to bidder	
<u>Key explanatory variables</u>		
Acq experience public	0.219*** (0.0531)	0.232*** (0.0643)
<u>Controls</u>		
Synergy (5days)	0.421*** (0.0509)	
Synergy (11days)		0.505*** (0.0408)
Transaction value (log)	-1.661*** (0.185)	-1.701*** (0.194)
Relative size of target	-0.158 (0.103)	-0.139 (0.112)
Company and deal controls	Yes	Yes
Financials of Acq. And Target	Yes	Yes
Time x Industry Dummies	Yes	Yes
Acquirer fixed effect	Yes	Yes
Observations	1,789	1,789
R-squared	0.430	0.546
Number of acquirers	793	793

All regressions are conducted under robust and cluster(acquirer) options to correct for heteroscedasticity and autocorrelation. Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Table 16: Alternative Event Window: Fixed effect regression of bidder's share of synergy

This table shows fixed effect regression of bidder's share of gain on acquisition experience, which is basically the same as table2. The only difference is alternative event windows are used in control variable synergy and dependent variable bidder's share of synergy to compute their CARs. Column (1) uses 5days (-2, 2) window symmetric to announcement date. Column (2) uses 11days (-5, 5) window symmetric to announcement date. Longer event window is used to prevent early information release.

	(1)	(2)
	5days event window	11days event window
VARIABLES	Bidder's share of synergy	
<u>Key explanatory variables</u>		
Acq experience public	0.763** (0.311)	0.678** (0.284)
<u>Controls</u>		
Synergy(5days)	0.356** (0.150)	
Synergy (11days)		0.743*** (0.137)
Transaction value (log)	-2.649*** (0.967)	-4.011*** (0.916)
Relative size of target	-13.82*** (2.898)	-21.77*** (5.436)
Company and deal controls	Yes	Yes
Financials of Acq. And Target	Yes	Yes
Time x Industry Dummies	Yes	Yes
Acquirer fixed effect	Yes	Yes
Observations	633	715
R-squared	0.256	0.337

All regressions are conducted under robust and cluster(acquirer) options to correct for hetercedasticity and autocorrelation. Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Table 17: OLS Estimation for Learning in Executive Level

This table presents Ordinary Least Squares (OLS) regressions of relative gain to bidder on acquisition experience using executive-acquiring company panel data, which matches all transactions with CEOs' information. It allows us to know acquisition history of individual CEO. Column (1) and (2) show regressions of performance variable relative gain on experience, deal, company data without adding CEO age, age², tenure and tenure², which are proxy for CEO's general experience in company and in life, other than experience from previous M&A transaction. In column (3) and (4) CEOs' general experience is controlled by including CEO age, age², tenure and tenure².

	(1)	(2)	(3)	(4)
	w/o age		with age	
VARIABLES	Relative gain to bidder		Relative gain to bidder	
<i>Key explanatory variables</i>				
Acq experience public	0.190*** (0.0317)		0.132*** (0.0309)	
Acq experience general		0.0733*** (0.0188)		0.0438*** (0.0148)
<i>Controls</i>				
Synergy	0.373*** (0.0757)	0.371*** (0.0757)	0.374*** (0.0763)	0.374*** (0.0762)
Transaction value (log)	-0.788*** (0.163)	-0.772*** (0.163)	-1.139*** (0.178)	-1.133*** (0.177)
Relative size of target	-0.00756 (0.0361)	-0.00902 (0.0365)	0.00214 (0.0331)	0.000928 (0.0334)
Company and deal controls	Yes	Yes	Yes	Yes
Financials of Acq. And Target	No	No	Yes	Yes
Time x Industry Dummies	Yes	Yes	Yes	Yes
Age and tenure dummies	No	No	Yes	Yes
Observations	1,470	1,470	1,393	1,393
R-squared	0.232	0.228	0.290	0.288

All regressions are conducted under robust and cluster(acquirer) options to correct for heteroscedasticity and autocorrelation. Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Table 18: Fixed effect Regression for Executive Learning

This table presents fixed effect regression of relative gain to bidder on acquisition experience using CEO-Company panel data, which matches all transactions with CEOs' information. It allows us to know acquisition history of individual CEO. Column (1) and (2) show regressions of performance variable relative gain on experience, deal, company data without adding CEO age, age², tenure and tenure², which are proxy for CEO's general experience in company and in life, other than experience from previous M&A transaction. In column (3) and (4) CEOs' general experience is controlled by including CEO age, age², tenure and tenure².

VARIABLES	(1)	(2)
	w/o age	with age
Relative gain to bidder		
<u>Key explanatory variables</u>		
Acq experience public	0.169*** (0.0503)	0.0491 (0.0696)
<u>Controls</u>		
Synergy	0.444*** (0.0879)	0.437*** (0.0921)
Transaction value (log)	-1.446*** (0.199)	-1.712*** (0.206)
Relative size of target	0.00299 (0.0368)	0.0129 (0.0358)
Company and deal controls	Yes	Yes
Financials of Acq. And Target	No	Yes
Time x Industry Dummies	Yes	Yes
Acquirer fixed effect	Yes	Yes
Age and tenure dummies	No	yes
Observations	1,470	1,393
R-squared	0.309	0.334
Number of ceo	494	484

All regressions are conducted under robust and cluster(acquirer) options to correct for hetercedasticity and autocorrelation. Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Table19: General Negotiation Skills across Industry

To test whether the negotiation “know how” can be generalized into later transactions or can only be valuable in industry in which an acquirer has done transactions before, regression is conducted in a newly formed sample. The sample is formed by pairs of successive deals, within which the first one is familiar industry and the second one is novel to acquirers. This table presents Ordinary Least Squares (OLS) regressions of relative gain to bidder on acquisition experience

	(1)	(2)
VARIABLES	Relative gain to bidder	
<i><u>Key explanatory variables</u></i>		
Acq experience public	0.457*	1.087**
	(0.231)	(0.488)
<i><u>Controls</u></i>		
Synergy	0.593***	0.600***
	(0.101)	(0.102)
Transaction value (log)	-0.578	-1.385***
	(0.429)	(0.485)
Relative size of target	-8.951***	-8.685***
	(1.125)	(0.995)
Company and deal controls	Yes	Yes
Financials of Acq. And Target	No	Yes
Time x Industry Dummies	Yes	Yes
Acquirer fixed effect	Yes	Yes
Age and tenure dummies	No	Yes
Observations	235	232
R-squared	0.576	0.682
Number of ceo	117	114

All regressions are conducted under robust and cluster(acquirer) options to correct for hetercedasticity and autocorrelation. Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

Table20: Learning in Negotiation vs. in Auction

Two different panel samples are formed to explore different learning patterns in negotiation and in auction. Negotiation is a selling process between one bidder and one target, while auction is a process involving multiple bidders and a target. Negotiation experience stands for the number of historical acquisitions that an acquirer conducts negotiation with target and completes the deal. Auction experience stands for the number of historical acquisitions that an acquirer joins auction among many bidders and wins a bid. Column (1) and (2) conduct regression in negotiation sample. Column (3) and (4) are for auction sample.

VARIABLES	(1)	(2)	(3)	(4)
	Negotiation process		Auction process	
	w/o age	with age	w/o age	with age
	Relative gain to bidder		Relative gain to bidder	
Negotiation experience	0.303*	0.208		
	(0.169)	(0.159)		
Auction experience			0.176	-0.231
			(0.179)	(0.194)
<i><u>Controls</u></i>				
Synergy	0.600***	0.597***	0.548***	0.544***
	(0.117)	(0.121)	(0.0867)	(0.0843)
Transaction value (log)	-0.249	-0.308	-1.626***	-1.688***
	(0.332)	(0.321)	(0.436)	(0.427)
Relative size of target	-7.802***	-7.493***	-0.114	0.510
	(2.016)	(2.022)	(3.482)	(3.379)
Deal and firm controls	Yes	Yes	Yes	Yes
Age, tenure and squares	No	Yes	No	Yes
Observations	275	275	373	373
R-squared	0.571	0.514	0.423	0.449
Number of ceo	110	110	146	146

All regressions are conducted under robust and cluster(acquirer) options to correct for heteroscedasticity and autocorrelation. Robust standard errors in parentheses (***) $p < 0.01$, (**) $p < 0.05$, (*) $p < 0.1$

8. Appendix: Definition of variables

variables	definitions
<i>Performance measures</i>	
Relative gain	The difference between bidder's gain and target's gain from a M&A transaction normalized by their combined market capitalization of 4 weeks prior announcement date
Bidder's share of synergy	Fraction of bidder's gain of total synergy. A ratio of bidder's dollar gain to total synergy created, only applicable for transactions in which both target's gain and bidder's gain are positive.
premium	Excess (in percentage) of offer price or final settled price per share in a transaction to target's stock price 4 weeks or 1 weeks before announcement (only for public target)
<i>Key explanatory variables</i>	
Acq exp public	Count of historical acquisition with a public target performed by an acquirer up to current transaction
Acq exp general	Count of historical acquisition with a target in any status performed by an acquirer up to current transaction
<i>Alternative Explanatory Controls</i>	
synergy	Combination of dollar gain of target and bidder, normalized by combined market capitalization, which is computed as number of common shares timing 4-week prior stock price.
Transaction value (log)	Transaction value of acquisition reported in Thomson One Banker, excluding fees and expenses.
Relative size of target	Ratio of target 4-week prior market value to that of bidder
Acq. experience in industry	A dummy that is 1 if an acquirer has an prior acquisition experience in target's industry
<i>Deal and company characteristics</i>	
Diversifying	A dummy that is 1 if target and bidder differ in industry which is classified using Fama French 48 industry classifications codes
defensive	A dummy that is 1 if target has any of defensive tactics including poison pill,, knight, ect
hostile	A dummy that is 1 if it is reported as hostile in Thomson One Banker
All stock	A dummy that is 1 if an acquisition is fully settle in stock
All cash	A dummy that is 1 if an acquisition is fully settle in cash
Target run-up	The percentage changes of target stock price during last 6 months
Target Herfindahl index	A measure of target ownership concentration with a value between 0 and 1, the higher this index, the more concentrated ones ownership
Target institutional ownership	A measure of total institutional ownership percentage in target
recession	A dummy that is 1 if S&P500 index incurs a continuous decline

<i>Financial controls for target and bidder</i>	
Free Cash Flow	Operating income before depreciation (item13) – interest expense (item15) – income taxes (item16) – capital expenditures (item 128), scaled by the book value of total assets (item 6).
Tobin's Q	Market value of assets over book value of assets: (item6 – item60 + item25 * item199) / item6.
Market to Book	Market value of equity (item 24*item 25) divided by the book value of total common equity (item 60).
ROA	Operating income before depreciation (item13) divided by total assets (item6)
Liquidity	Current assets (item 4)-current liabilities (item 5), scaled by the book value of total assets (item6).
Leverage	Book value of debt (item 34+item 9) over market value of total assets (item 6-item 60+ (item 25*Item 199)).