

PRICE OF CORPORATE  
TAKEOVER. EVIDENCE FROM  
FIRMS THAT MAKE MANY  
ACQUISITIONS.

by

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Abstract

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EVIDENCE FROM FIRMS THAT MAKE MANY ACQUISITIONS.

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The study of 1,345 domestic U.S. M&A deals announced for exchange-listed (NYSE, AMEX, NASDAQ) targets over the period 1980 – 2002 provides evidence on terms of M&A deals for firms that make many acquisitions. Heteroscedasticity robust OLS was used to predict premia, probit was employed to model success rates. Possibility of sample selection bias was corrected with Heckman correction procedure. Results suggest that on the available sample there are no reliable differences in terms of success and premium paid by multiple acquirers. Comprehensive list of control variables includes deal-specific characteristics of takeover and firm-specific characteristics of both target and acquiring company.

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## GLOSSARY

**M&A.** Mergers and acquisitions

**Merger .** Transaction that combines two firms into one new firm

**Acquisition.** Purchase of one firm by another firm

**Premium.** Difference between amount offered to target shareholders by acquiring firm and stock price of target firm prior to the offer.

**Runup.** Rise in a stock price of target firm observed before the announcement of the M&A deal. Usually observed for trading days  $(-63;0)$  relative the day of announcement

**Markup.** Rise in a stock price of target firm observed after the announcement of the M&A deal. Usually observed for trading days  $(0;+126)$  relative the day of announcement

## *Chapter 1*

### INTRODUCTION

In ever changing business environment, innovations and development are crucial for success. What should a firm seeking innovative growth do in the lack of own potential? A possible decision could be to acquire somebody with great opportunities, underestimated market value or inadequate management. Although, value creation in mergers and acquisitions (M&A) is subject to discussion. From one hand, there are evidence that on average M&A are value creating from the point of view of combined stock price reactions of bidding and target firm around the date of announcement of the deal (Bradley, Desai, Kim,1988). From the other hand, Andrade, Mitchell and Stafford (2001) argue that long-term negative drift in acquiring firm stock price overwhelms the positive combined stock price reaction at announcement, leading to overall negative wealth effect. Evidence for performance improvements as a result of M&A is also ambiguous. Ravenscraft and Scherer (1987) found decline in post-merger profitability of target firm comparing to similar companies operating in the same industry. While evidence proposed by Healy, Palepy and Ruback (1992) suggests that profitability of sales of combined firm are higher comparing to the control group operating in the same line of business.

Market for M&A is usually treated as market for corporate control (Jarrell, Brickley, Netter, 1988). In case of poor or improper managing, M&A appears to be a useful tool to change entrenched management of target firm and to improve performance (Mitchell and Lehn, 1990). While outcomes of M&A are widely studied, incentives behind announcement of M&A were given less attention.

Jensen (1986) free cash flow hypothesis states that in the presence of substantial cash accumulated by the company, managers are more likely to spend these funds on even unprofitable acquisition than to distribute them in form of dividends. Accompanying with hubris hypothesis of Roll (1986), argument leads to conclusion that managers conducting acquisitions could pursue their personal “empire-building” goals rather than value-maximization for shareholders.

In this study we rise the issue of influence of managerial incentives on outcome of M&A deal. Being sizable investment, M&A is on average rare event for managers to be well experienced in it. Thus, conducting her first M&A manager could make random mistakes. While conducting several M&A, there is a possibility for managers to negotiate better terms of the next deal. Also, in several acquisitions made by one managerial team incentives behind subsequent announcement is easier to recognize. Thus, we concentrate our attention on firms that make many acquisitions. Action repeated several times as litmus paper should reveal either capability to learn or indicate pursuing other than value-maximization goals.

Firms that make many acquisitions are studied from the point of view of abnormal returns to bidding firm (Fuller, Netter and Stegemoller, 2002). Evidence suggests that bidding firm shareholders gain when bidding for private target and lose in terms of negative stock price reaction when bidding for public target firms. No attention was dedicated to studying distinctions in terms of M&A deals for multiple acquirers<sup>1</sup>. On the sample of domestic U.S. M&A deals announced for exchange-listed targets for the period from 1980 to 2002, we analyse differences in premium paid in M&A deal along with distinctions in chances to complete M&A deal announced by multiple acquires. We use

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<sup>1</sup> - firms that make many acquisitions



comprehensive list of firm-specific and deal-specific controls, incorporating findings of Schwert (1996, 2000), Gondhalekar et al. (working paper), Moeller et al. (2004).

Managerial deviations from value-maximizing goals becomes more and more costly for shareholders at the recent times, as starting from 1990s unprecedented growth in the yearly dollar volume of M&A is being observed. Only for 10 years, starting from 1991, total dollar value of all corporate mergers and acquisitions grew from \$100 billions to \$1.5 trillions (Grinblatt and Titman, 2002).

The rest of the paper is organized as following. In Chapter 2 I provide a general literature background and state testable hypotheses. Chapter 3 describes methodology to test the differences in terms of M&A deals. Chapter 4 analyses available data. Chapter 5 discusses the results obtained. Chapter 6 concludes.

## *Chapter 2*

### BACKGROUND

#### *1. Value Creation in M&A*

Value creation in M&A could be studied from three different angles:

- Stock price reaction of both bidding and target firms around the deal announcement;
- Tracking change in accounting performance of target and/or acquiring firm before and after the acquisition;
- Comparing similar in terms of size and industry of operation firms that uses inner investment opportunities versus companies, which grow through M&A.

Place of this study among the existing literature is in investigating reaction of target firm stock price around the M&A deal announcement by multiple acquirer.

Rise of stock price create value to owners of this stock. Target stock price usually rises as the result of M&A announcement, so target firm shareholders are usually winners in this transaction. Market expectations as for future premium received by target firm shareholders reflect in rise of target firm stock. Bradley, Desai, Kim (1988) evidence shows that on average M&A are value creating. Combined stock price reactions in market valuation of shares of the target and bidding firm around the deal announcement on average are positive. Jensen and Ruback (1983), Jarrell, Brickley and Netter (1988) and the latter work of Andrade,

Mitchell and Stafford (2001) argue that announcement period gain are mostly due to target firm stock price rise. For stock price of bidding firm evidence is not so clear. Investigating 4,300 completed U.S. M&A deals with both parties being publicly-listed for the period from 1973 till 1999, in the latter paper there was found 1.8...2.6% statistically significant combined abnormal return for acquirer and the target within the three-day event window. How the deal and firm specific characteristics influence target firm stock price reaction reflected in premium paid in M&A are described in Chapter 3 with application to results of this work.

Comprehensive view on value creation in M&A based on changes in accounting performance of the target and/or acquiring firm before and after the acquisition is done by Ravenscraft and Scherer (1987) dealing with nearly 500 mergers from 1950 to 1976. Ravenscraft and Scherer (1987) compared performance of target firms after acquisition with performance of similar firms operating in the same industry. Significant decline in post-merger profitability comparing to non-acquired control group was found. So, announcement positive stock price reaction contradicts observed results as for profitability. Evidence by Ravenscraft and Scherer (1987) were heavily criticized, e.g. by employing Asquith (1983) argument that future targets are on average characterized by lower returns than similar firms in the same industry. Also, while characterizing the takeover targets, Hasbrouck (1985) found future targets having lower Tobin's  $q^2$  value. Thus, main criticism of Ravenscraft and Scherer (1987) is in argument that future targets are on average worse managed. Hence, they could show lower future performance comparing to similar firms even in case of not being acquired. Moreover, M&A market is usually perceived as a market for corporate control. M&A gives a possibility to displaced entrenched management thus improving performance of the company. Healy, Palepy and Ruback (1992), while analysing post-merger

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<sup>2</sup> - Tobin's  $q$  is the ratio of market value of firm assets to replacement value of assets. Higher Tobin's  $q$  characterizes well managed firms.

performance of 50 largest mergers from 1979 to 1984, state that profitability of sales of combined by merger firms is higher than of similar companies operating in the same industry. Recent evidence by Andrade, Mitchell and Stafford (2001) also shows improve in profitability of combined firms relative to industry benchmarks.

Another possibility to study value creation in M&A lies in comparison of diversified versus non diversified firms: whether it's better to use own potential and to grow within your line of business or to enlarge sphere of your business operating to different industries. Mork, Shleifer and Vishny (1990), Lang and Stulz (1994) found negative reaction to the bidding firm stock price after announcement of diversifying acquisition. Argument provided by Denis, Denis and Sarin (1997), while analysing sample of 933 firms selected in 1984, state that level of diversification is negatively related to managerial ownership in the company. Diversification can be mostly conducted for non-value maximizing reasons by managers, who wish to insure quality of their future employment.

## *2. Incentives Driving Acquisitions*

Evidence above presents results of managerial actions, but explain nothing as for motivation or incentives behind them. Not only firm- and deal-specific characteristic of M&A transaction may fully predict the outcome of the deal, but also influence of combination of various objective or independent characteristics on managerial incentives is important. In 1986 there was published paper by Roll, doubting on rationality behind managerial actions to initiate M&A. Classical economic theory relies on the fact of average rationality of agents populated the economy. Within this individual actions of agents could be irrational, but mutually exclusive in total. Thus, on average, only rational component remains. M&A is a case where individual actions matter, not the average approximations.

Thus, even if managerial incentives are consistent with “honourable stewardship of corporate assets”, actions are not always turns to be value maximizing. Argument presented by Jensen (1986) with introduction of free cash flow hypothesis even worsens prospects for bidding firm shareholders, as in the presence of free cash it could be a rational managerial decision to pursue acquisition rather than paying out dividends or investing into inner projects. Growth of resources under control of top management increases their power. Tendency to reward middle managers through promotion also provokes growth through M&A as it creates supply of new positions. Thus, analysing future gain or loss from acquisition not only deal- and firm-specific characteristics of planned takeover should be taken into account, but also human factor or incentives of managers conducting this announcement.

In order not to exaggerate the dark role of merger intentions, let us balance the negative arguments with positive evidence. Vermeulen and Barkema (2001), using survival analysis applied to sample of 25 largest non-financial publicly-listed Dutch companies along with their subsidiaries, showed that acquisitions comparing to greenfields as a tool of growth increases the survival rate of a company. To put it differently, addition of “fresh blood”, overcoming a “shock” of acquisition of new experience and way of doing business fights rigidities accumulated by the firm and stimulates long-run survival.

### *3. Firms That Make Many Acquisitions*

Related literature in terms of object of investigation is paper by Fuller, Netter and Stegemoller (2002) analysing 539 multiple acquirers making 3,135 bids for public and private targets within period from 1990 to 2000. Multiple acquirers here are firms that make five or more successful bids within three years. Cumulative abnormal return to bidding firm stock is being investigated for 5 days event-

window. Evidence suggests that bidding firm shareholders gain when bidding for private target and lose (in terms of negative stock price reaction) when bidding for public target firms. Size of the target firm and financing with stock works as magnifier intensifying the observed effect.

#### 4. *Premium Paid in M&A*

For M&A deal to be completed target firm shareholders should be proposed a substantial premium over the pre-bid market price of the target. Size of premium varies along different deal- and firm-specific characteristics of announced takeover. Schwert (1996) focusing on 1,814 successful and unsuccessful takeovers for U.S. publicly-listed targets for the period 1975-1991 found average premium at the rate of 30%. Jarrell and Poulsen (1987), analysing 663 successful tender offers for period 1962 – 1985 found for 1980s average premium at the level of 30%. Gondhalekar, Sant, Ferris (working paper), focusing on the sample of 703 cash-only deals announced by publicly-listed U.S. bidders for the period from 1973 to 1999, found decline in mean premia with passage of time: 74% for 1970s contrasting 47% for 1990s. Bodnaruk, Massa and Simonov (working paper), while analysing sample of 1,641 U.S. M&A deals with both target and bidder being publicly-listed for period from 1984 to 2003 found average premium paid at the level of 30%.

#### 5. *Testable Hypotheses*

Taking into account ambiguity of value creation in M&A on average, especially taking into account possible deviations in managerial incentives from the value maximizing direction, we focus our attention on terms of M&A deal for firms that make many acquisitions. Following time horizon chosen by Fuller et al. (2002), we will name a firm being multiple acquire if it announces more than one acquisitions within three years. Assuming, on average, its the same managers who

conduct all the announcements of bidding firm within three years, we may state two hypotheses as for terms of subsequent M&A deal conducted under their supervision:

*H1: "learning by doing" - premium paid in M&A deal negatively depends on previous acquisition experience. Success in announced bid positively depend on previous acquisition experience.*

Obtaining experience in conducting M&A, managers improve their skills. Hence, subsequent acquisition is going to be hold at lower cost for bidding firm shareholder and with higher probability to succeed.

*H2: "hubris" - premium paid in M&A deal positively depends on previous acquisition experience. Success in announced bid positively depend on previous acquisition experience.*

Managers who conduct several acquisitions pursue personal goals and do not act in profit maximizing way. Thus, they are willing to complete a deal at whatever price. As managers are willing to obtain control over target firm at whatever price, success of announced deal is also supposed to be higher.

Both hypotheses are accompanied with null of no distinctions in terms of M&A deal (premium paid and chances to succeed) for multiple acquirers.

### *Chapter 3*

#### METHODOLOGY

Multiple acquirer is a firm that announces more than one acquisition within three years. Time horizon of three years is chosen based on the assumption that on average managerial team does not change dramatically within three years, thus it's the same top managers, who conduct several acquisitions of multiple acquiring firm. Three years is period of time, during which previous acquisition experience may contribute to the company expertise in the M&A market as well as M&A market conditions could remain relatively stable. The same time horizon is chosen by Fuller et al. (2002) while identifying firms that make many acquisitions. Additionally, it is shown by Bodnaruk, Massa and Simonov (working paper) that exact choice of evaluation window in the medium run, i.e. whether it is 3 or 6 years, does not qualitatively affect the findings. To identify multiple acquirers not only by time horizon, but for number of previously made deal, i.e. qualitative measure of accumulated M&A experience, we will distinguish between firms that have announced one or more, two or more, three or more and five or more M&A deals over the three years. For simplicity of notation we will call them respectively M1, M2, M3 and M5.

In order to identify difference in terms of M&A deals announced by multiple acquirers in the sense of premium paid and average success, we will employ methodology of predicting premia and success in M&A deal developed by Schwert (1996, 2000). Schwert (1996) employs deal-specific characteristic of announced takeover to predict premium. Variables having the most explicative power found to be all-cash deals, presence of competing bidders, tender offers



along with yearly dummies. In later work, Schwert (2000) along with deal-specific characteristics employ firm-specific characteristics of target firm. Weakly significant explanatory power found liquidity, price to earnings and size of target firm. Later works, e.g. Gondhalekar, Sant, Ferris (working paper) found firm-specific characteristics of bidding firm adding to explanation of premium paid in M&A deal. In particular, bidding firm book to market ratio, liquidity as a measure of free cash flow and size of the firm found to have the most explanatory power among firm-specific characteristics of acquirer. Success of announced M&A deal was modelled by Schwert (2000) controlling only for target firm-specific characteristics along with one deal-specific characteristics being measure of hostility. Later works, e.g. Bodnaruk, Massa and Simonov (working paper), while modelling success rates, control for full set of characteristics: deal-specific along with firm-specific of acquiring and target firms. This latter approach seems to explain such outcomes of announced M&A deal as premium and success to greater extent. Thus, in this work we control for deal- along with firm-specific characteristics of both target and bidder.

Following Schwert (1996), for explaining premia paid in M&A we will use multivariate regression model of the form:

$$premium = \beta_1 \cdot M^* + \gamma_i \cdot \bar{X} + \varepsilon_i, \text{ where} \tag{1}$$

*Premium* – sum of pre-bid runup and post-bid markup in target stock price for days (-63;+128) around the deal announcement.

*M\** - dummy for multiple acquirer identification, either M1, or M2, or M3 or M5. Dummy takes value one if acquiring firm announcing M&A deal has already announced one or more (two or more, three or more, five or more) M&A deals over the previous three years, zero otherwise.

$\bar{X}_i$  - vector of control variables, including deal-specific characteristics and firm-specific characteristics of both target and bidder

Following Schwert (2000), for explaining success of announced M&A deal we will use probit model of the form:

$$success = \alpha_1 \cdot M^* + \kappa_i \cdot \bar{X}_i + \varepsilon_i, \text{ where} \quad (2)$$

*Success* – is a dummy variable that takes one if announced deal was completed, zero otherwise.

$M^*$  - dummy for multiple acquirer identification, either M1, or M2, or M3 or M5. Dummy takes value one if acquiring firm announcing M&A deal has already announced one or more (two or more, three or more, five or more) M&A deals over the previous three years, zero otherwise.

$\bar{X}_i$  - vector of control variables, including deal-specific characteristics and firm-specific characteristics of both target and bidder

Control variables in both models are:

Bidder and target firm-specific characteristics:

- Market Capitalization
- Book to market ratio
- Debt to equity ratio
- Price to earnings ratio
- Growth of sales for year preceding the announcement
- Return on equity

Deal-specific characteristics:

- Financing the deal: cash vs. equity
- Structure of deal: merger vs. tender offer
- Character of the deal: hostile vs. friendly
- Poison pill as defensive technique employed by the target
- Presence of competing bids around the deal announcement
- Whether a control stake of 5% of target shares was accumulated by the bidder before the announcement

- Whether target operates in the same line of business with acquirer
- Whether there is a share of institutional investors in the ownership of target firm before the deal announcement
- Whether investment banks advising acquirer or target had any share in the ownership of target firm before the announcement of the deal

Ceteris paribus effect of each control variable on premium and success is hard to define, as M&A is the sphere, where ceteris paribus principle does not work well. Citing Grinblatt and Titman (2002): “there are probably almost as many types of mergers and acquisitions as there are bidders and targets”. Nevertheless, we will outline the main trends found in existing literature.<sup>3</sup>

**Financing of acquisition: cash versus equity.** Ceteris paribus, cash payments received by target firm shareholders are subject to tax on capital gains, while stock payments are not. Thus, other things being equal, target firm shareholders would prefer stock payments rather than one in cash. Hence, premium paid in all-cash deals should be higher than in case of stock payments. Also, at the time of the announcement market do reassess bidder and target firm business. If bidding company offers cash its stock price tend to rise, as cash offer may signal about past profitable projects that let to accumulate needed amount of cash. If present cash for the M&A offer is a result of debt accumulating, that signals positively to the market too. Unlike cash offers, M&A deal is likely to be financed with equity if acquiring company management see its stock being overvalued. Thus, decline in stock price of bidding firm in case of all equity deals are usually seen (e.g. Andrade, Mitchell and Stafford (2001) evidence). Closer to subject of our interest,

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<sup>3</sup> - note that it's usually hard to separate effects fully. So, there could be directions of influence of combination of control variables on success and premium, rather than separate influence being described.

stock price reaction to target firm differs with way of financing of M&A deal. If target company shareholders was offered cash than it could signal about substantial previous undervaluation of the target company. Hence, rise in target stock price is higher in case of cash offers than in case of equity offers. This dual justification leads to ceteris paribus higher premia in all cash deals comparing to equity deals. Franks, Harris and Mayer (NBER working paper), while analysing means of payment in over 2,500 acquisitions in the UK and US over the period from 1955 to 1985 found that return to target firm shareholders in the announcement month (one month premium) is 25.4% in case of cash offers contrasting 11.1% in case of stock offers. Nevertheless, despite of higher premium required, before 1986 cash offers allowed acquiring firms to write up the tax basis of the acquired firm assets. After Tax Act of 1986 write-up basis is still a possibility, but capital gains liability were increased substantially in a way making it overall unprofitable to pay with cash. Andrade et al. (2001) note changes in way of financing acquisitions with passage of time: in 1970s-1980s less than 50% of all U.S. M&A bidding companies used any stock in their payment to target shareholders. Unlike previous periods, in 1990s 70% of U.S. bidders used some stock in their payments, while 58% choose full-stock financing. Argument summarized by Grinblatt and Titman (2002) in the favour of stock financing, originally suggested by Eckbo, Giammarino, Heinkel (1990), is in close connection of stock price and gains of acquisition: if it will appear to be that it was a “bad deal”, then market will punish the bidder with decrease in its stock price. Hence, paying with stock provides a kind of insurance: in case of “bad deal” one would automatically pay less with the same amount of stock, as the price of this stock decreases.

**Size of acquiring firm.** Moeller, Schlingemann, Stulz (2004), while analysing 12,023 acquisitions announced by public firms in period from 1980 to 2001, found higher announcement abnormal return to bidding firm stock price the

smaller is the size of acquirer. Thus, market puts higher value on acquisitions made by relatively smaller firms. That could be due to managers of bigger in terms of size firms valuing resources less, thus completing announced deal at higher premium. Moeller et al. (2004) incorporate hubris hypothesis to explain the phenomena, stating that hubris is more a problem of larger firms. In the same paper there was found trend for premium and success rates to increase with acquiring firm size. Higher success rates observed could be an outcome of higher premium proposed.

**Size of target firm.** Evidence for target firm size influence on premium and success is mixed. Schwert (2000) found weakly significant negative influence of target firm size on premium and no supportive effect on success. Contrasting this finding, Gondhalekar et al. found that acquirers pay higher premia for smaller firms, explaining this phenomena by common undervaluation of small firms.

**Book to market ratio of acquiring firm.** Lang, Stulz, Walkling (1991) argue that those firms that initiate acquisitions for non-value maximizing reasons are on average characterized by higher book to market ratio. Backwards looking causality was employed: if after announcement of a deal stock price of bidding firm drops substantially, that signals about general market doubt as for necessity of the acquisition for acquiring firm. Bidding firms, whose stock price decrease after announcement of M&A deal could be those, named by Mitchell and Lehn (1991) as “bad bidders”, who conduct non-value maximizing acquisitions. Lang et al. (1991) state that “bad bidders” are on average characterized by higher book to market ratio: these are companies that are profitable now, but are not expected to do particularly well in future. Lack of inner perspective investment opportunities, which could be characterized by high book to market ratio, does not state by itself that subsequent acquisition will be conducted for non-value maximizing reasons. But reversed logic found by Lang et al. (1991) to be supportive: bad

bidders usually do described with higher book to market ratio. Non-value maximizing nature of acquisitions first of all reveals in overpaying. Thus, higher book to market ratio is expected to increase the premium. As there is no supportive evidence as for influence on success, we may theorize that higher premium paid would induce higher success rates of announced deal.

**Performance characteristics of acquiring firm, other than book to market ratio.** Gondhalekar et al. (working paper) found that over-invested firms tend to pay higher premia. Following authors, over-invested firms are those with high book to market ratio and high level of free cash flow. Underlying logic suggests that currently over-invested firm was profitable in the past as had a possibility to accumulate substantial cash, but now is lacking inner profitable investment opportunities. Thus over-invested firm tend to pursue acquisitions more aggressively, paying higher premium and ensuring with this higher success of their deals.

**Book to market ratio<sup>4</sup> and other accounting performance characteristics of target.** This is exact case when it's hard to define separate effect of each characteristic, as they altogether describes the target and it's their combination that may influence the overall premium and success of announced deal, it's their combination that determines overall "attractiveness" of a target to acquiring firm. Schwert (2000) found weakly significant negative influence of liquidity and price to earnings ratio on premium, but concluded overall that performance variables are not reliably related to takeover premium. As for influence of performance characteristics on success, Schwert (2000) found that firms with lower debt to equity and lower book to market ratio and higher liquidity are more likely to be

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<sup>4</sup> -note, that we calculate premium as abnormal return to target stock price around the deal announcement. In general, testing CAPM, Fama and French (1992) found that size of the company and it's book to market ratio along with return on market portfolio add to explaining return to firm's stock. Even following this logic, book to market of target firm is a candidate for inclusion into control list.

successfully taken over. Weakly significant negative effect of growth of sales on success were also recorded.

**Structure of a deal: merger versus tender offer.** Technically, merger is a combination of two “equals”. It’s usual to describe deal as “merger” in situation of both firms being interested in outcome of the deal because of negotiated combining of two firms. Thus, evidence suggests that premium paid in negotiated mergers are lower *ceteris paribus* than that in tender offers. Jensen and Ruback (1983), summarizing near 140 empirical papers, found that average premium paid in negotiated mergers is 10%, while in tender offers - 16-30%. Later studying by Jarrell, Brickley and Netter (1988) found 53% average increase in target stock price around the date of announcement of tender offer.

**Presence of defensive techniques from the part of target firm: poison pill.** Poison pill is a right or security issued to target firm shareholders that is exercised in the event of external acquiring of significant number of shares and gives owners of these rights valuable benefits. As a defensive technique used by target firm management, poison pill complicates the acquisition, thus having negative influence on success of announced deal. Empirical evidence by Schwert and Comment (1995) suggests that presence of poison pills has deterred some acquisitions in late 1980s – early 1990s. But overall slow down in number of takeovers made in this period authors explain by the demise of junk bond market. If defensive technique is designed to lower the probability of being taken over or the probability of success of announced by bidding firm acquisition, effect on premium paid in case of presence of poison pill is ambiguous. From one hand, it seems to be logical to assume that overcoming defensive actions should be costly, thus ending up in higher premium paid. From the other hand, Jarrell and Poulsen (1987) state that antitakeover amendments lead to negative changes in target stock price. Although, presence of institutional investors among owners of the

target firm will ensure control over stock price performance, thus complicate usage of stock price hurting defensive amendments. Its one more illustration that in case of M&A *ceteris paribus* principle is not quite relevant and each certain case should be seen separately.

**Presence of competitive bids.** Bradley, Desai and Kim (1983), while analysing 697 interfirm tender offers for period from 1958 to 1980, found that only 26 out of 371 target firms under their attention (7%) were not bought in 5 years from unsuccessful acquisition attempt. Thus, at most it's five years needed for target firm stock price to return to pre-bid level. Before that time, market expectations for subsequent successful deal for this target are reflected in increased valuation of target shares. Following this logic, further rise in stock price of target firm as a result of subsequent acquisition should be lower. Thus, in case of previous unsuccessful bid, target firm could be bought for lower premium. Grinblatt and Titman (2002) develops an argument by giving evidence from the work of Safieddine and Titman (1999), who found that with passage of time from 1980s to 1990s number of targets successfully taken over in future diminishes from 93% to less than 50% of all the unsuccessful deals. Argument presented was that even unsuccessful tender offers create value: management of target unsuccessful target firms improves the way they conduct business, e.g. cut wasteful investments, implement by themselves all the restructuring strategy planned by unsuccessful bidder. Thus, we may argue that for later sample appearance of unsuccessful bid before the announcement lowers the probability of success. If to consider shorter time horizon, one may treat not the influence of past bids, but rather present competition among acquirers. Influence of auctions on the premia and success were studied by Schwert (1996). Significantly negative effect of auctions on success and significantly positive effect on premia paid in M&A was found.



**Character of the offer: friendly versus hostile.** In the paper dedicated to studying distinguishing features of hostile offers, Schwert (2000), while analyzing 2,346 U.S. M&A deals announced for public targets during 1975 – 1996, found that most deals described as hostile in the press are not distinguishable from friendly deals in economic terms. The most reliable distinction, if any, has deals characterized as hostile by SDC. For such a deals significantly lower success rates were found. While effect on premia is ambiguous.

**Toehold.** One way to lower cost at which planned target will be acquired is to start buying target shares on an open market before making any bid. These purchases could be kept anonymous till accumulating 5% of all the shares outstanding. After 5% boundary owner should disclose herself by filling 13D form. Thus, initial bidder toehold found to have a negative influence on overall premium (Bodnaruk, Massa and Simonov, working paper). Evidence as for influence of initial bidder toehold on success is ambiguous.

**Ownership of the target by institutional investors and advisors to target/acquirer.** Bodnaruk, Massa and Simonov in their working paper dedicated to role of advisory ownership of target firm in outcome of the takeover deal, found that institutions that can both advise and invest tend to extract gains from this position. M&A deals are completed with higher success rates and for higher premia, if advisors possess a stake in target firm. Significantly influencing outcome of the deal found to be ownership in target firm by advisors to acquirer. Ownership by advisors to target have not shown reliable influence. Summarizing results of Stulz, Walkling and Song (1990), Bodnaruk et al. emphasizes that institutional ownership of the target is negatively related to premia.

**Industry of operating of target and acquirer: similar versus different.** Andrade, Mitchell and Stafford (2001) while investigating differences in character

of M&A deals during 1980s and 1990s note among other evidence that in this period continue its growth a trend for mergers to be intra-industry, i.e. percentage of mergers there both parties are from the same industry defined at 2-digit SIC code level constitute near 50% all the deals, comparing to 20% in 1970s. While general trend in M&A being in increasing importance of intra-industry combinations, evidence as for influence on premia is not clear. Gondhalekar et al.(working paper) found that acquirers will not pay higher premium to acquire firms operating in different industries.

To estimate model for premium we will use heteroscedasticity robust OLS. To estimate model for success rates we will employ probit. As we will look at samples consisting of both successful and unsuccessful bids, abnormal return to target stock could differ across successful and unsuccessful deals. Evidence, provided by Schwert (1996) suggests that average CAR to target stock price at the day of the announcement of the deal is 25% for successful deals and 19% for unsuccessful deals, meaning that market could separate to the some extent between successful and unsuccessful bids in future. In case, there will be suspicion for the sample under analysis to have selection bias caused by average success rate of announced deal, we will employ Heckman sample selection correction procedure<sup>5</sup>. Technically, two-step selection procedure is employed as following: the first step is to model success rates with probit model (2). From this model Heckman's lambda is calculated:

$$\lambda_i = \frac{\varphi(\bar{x}_2' \mathcal{P})}{\Phi(\bar{x}_2' \mathcal{P})}, \text{ where } \bar{x}_2 - \text{vector of explanatory variables in (2), } \mathcal{P} - \text{vector of coefficients in (2).}$$

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<sup>5</sup> - following description of Verbeek (2000)

At the second step of Heckman selection procedure, model for premium is estimated incorporating Heckman's lambda:

$premium = \beta_1 \cdot M^* + \gamma_i \cdot \bar{X} + \sigma_{ps} \cdot \lambda_i + \varepsilon_i$ , where  $\sigma_{ps}$  - is a covariance between errors in (1) and (2), e.g. positive covariance indicates that there is some unobserved heterogeneity that positively affects both premium and probability of success. Coefficients in premium equation obtained in this way are estimated using sample selection correction.

## *Chapter 4*

### DATA AND EMPIRICAL TESTS

To study difference in premium paid by multiple acquirers and differences in chances to succeed in the announced M&A deal, I use a database containing information about all takeover transactions, registered with Securities Data Corporation M&A Database, involving U.S. publicly-listed acquirers bidding for U.S. exchange-listed targets for the period between March 1980 and December 2002. For the deal to be included in the sample, target company involved should be listed on NYSE, AMEX or NASDAQ stock exchanges and it should be possible to identify the target firm in CRSP database, which is our source of stock returns. Full sample obtained in this manner consists of 7,456 deals. Summary statistic for the full sample is presented in Table I, Panel A.. However, for premium and success modelling we need not only stock price movements and deal-specific information. Controls for a wide range of company-specific accounting characteristics should be used. The data on those is obtained from COMPUSTAT.. Deals, for parties involved into which all necessary accounting information is available, count for 1,345. Deals with complete CRSP and COMPUSTAT data available forms the main sample. Summary statistic for the main sample is presented in Table I, Panel B.

Among bidders there are companies that conducted M&A deals more frequently in comparison with other acquiring firms. To identify how terms M&A deals for these frequent bidders or multiple acquirers<sup>6</sup> are different from deals conducted by non-frequent or single acquirers, we employ three years period of time as a

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<sup>6</sup> - Note, not to mix up with auctions that are usually for simplification are called “multiple acquirers”

reference measurement. Three years are taken as a period of time, during which previous acquisition experience may contribute to the company expertise in the M&A market as well as M&A market conditions could remain relatively stable. For example, Fuller et al. (2002) also employ three years period to identify multiple acquirers, while investigating returns to bidding firm.

We employ four competing definitions of being multiple acquirer, as a company which was engaged into one or more, two or more, three or more, five or more M&A transactions within three years. We name those respectively M1, M2, M3 and M5.<sup>7</sup> There are 2,123 deals in the full sample, which multiple acquirers M1 have announced. For M2, M3 and M5 multiple acquirers this number reaches 1,145, 771 and 514 deals respectively. In percentage of the full sample, M1 took for 28.5%, M2 - for 15.4%, M3 – for 10.3% and M5 – for 6.8%.

We use accounting variables definition following Schwert (2000). Market Capitalization is measured as a natural logarithm of equity capitalization at the end of the year preceding the bid (price x shares outstanding, COMPUSTAT items 24x25). B/M is a natural logarithm of book to market ratio, measured as the ratio of book value of equity for the prior fiscal year to year-end market value of common stock (COMPUSTAT items 60/(24x25)). D/E is a ratio of debt to equity for the prior fiscal year (COMPUSTAT items 9/60). P/E is a natural logarithm of the ratio of year-end stock price to earnings per share for the prior fiscal year (COMPUSTAT items 24/58). Sales Growth is measured as proportional change in sales over the previous fiscal year ( $\ln(\text{COMPUSTAT items } 12/12(t-1))$ ). Accounting Liquidity is measured as the ratio of net liquid assets to total assets for the prior fiscal year (COMPUSTAT items (4-5)/6).

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<sup>7</sup> - Note, it has nothing in common with monetary aggregates.

ROE (return on equity) is measured as earnings to average equity for the prior fiscal year (COMPUSTAT items 20/(60+60(t-1))).

Deal-specific characteristics of announced bid include: Cash is a dummy variable that takes value 1 if bid is purely cash-financed, zero otherwise. Merger is a dummy variable that takes 1 if bid is structured as merger, zero otherwise. Hostile Approach is dummy variable that takes 1 if the bid is recorded by SDC as “hostile” or “unsolicited”, zero otherwise. Poison Pill is a dummy variable that takes 1 if a poison pill from the part of a target affects bidder’s acquisition attempt, zero otherwise. Precomp(Postcomp) is a dummy variable that equals one if another bid by a different bidder is recorded by SDC in the six months before (after) the current bid, zero otherwise. Toehold is a dummy variable that equals one if a bidder has accumulated more than 5% of target’s stock before the bid announcement, zero otherwise. Same Industry is a dummy variable that equals 1 if bidder is from the same industry as the target (industry is defined by 2-digit SIC code), zero otherwise. Institutional Investors is measured as share of target company held by institutional investors. Advisor to Acquirer (Target) is a dummy variable that equals 1 if fraction of equity of acquiring (target) firm owned by investment bank advising acquirer (target) is greater than 0, zero otherwise. Success is dummy that equals 1 if bid leads to acquisition of a target, zero otherwise. Runup is the cumulative abnormal return to the target firm’s stock price three months before the announcement of planned acquisition (for trading days -63, -1). Markup is the cumulative abnormal return to the target stock price six months after the bid announcement, for trading days (0,+126). Premium, following Schwert (1996), is a sum of pre-bid runup and post-bid markup to the target stock price.

If to compare firms that make many acquisitions (multiple acquirers) and those that made it only once (single acquirers), from the evidence from Table I, Panel A

**Table I**  
**Summary Statistics for Takeover Characteristics, 1980 – 2002**

Average values of accounting and stock market performance along with bid-specific characteristics for successful and unsuccessful M&A deals announced from 1980 to 2002. Column (1) presents averages for the full sample. Columns (2-6) presents averages for subsets of the full sample. Subsets are distinguished by characteristic of acquiring firm corresponding to being “multiple acquirer”. Column 3 (4, 5, 6) presents averages of accounting and stock market performance along with bid-specific characteristics for deals, in which acquirer has announced 1 or more (respectively: 2 or more; 3 or more; 5 or more) bids for U.S. exchange-listed targets over the three years preceding current bid. Column (2) presents firm- and deal-specific characteristics for subset of the full deals sample, involving acquiring companies not satisfying definition of “multiple acquirer” above. Columns (3, 4, 5, 6) gives averages in terms of difference from means of “single acquirers” subsample along with t-statistics on reliability of the difference (whether it is reliably different from zero).

*Market Capitalization* is measured as a natural logarithm of equity capitalization at the end of the year preceding the bid (price x shares outstanding, COMPUSTAT items 24x25). *B/M* is a natural logarithm of book to market ratio, measured as the ratio of book value of equity for the prior fiscal year to year-end market value of common stock (COMPUSTAT items 60/(24x25)). *D/E* is a ratio of debt to equity for the prior fiscal year (COMPUSTAT items 9/60). *P/E* is a natural logarithm of the ratio of year-end stock price to earnings per share for the prior fiscal year (COMPUSTAT items 24/58). *Sales Growth* is measured as proportional change in sales over the previous fiscal year ( $\ln(\text{COMPUSTAT items } 12/12(t-1))$ ). *Accounting Liquidity* is measured as the ratio of net liquid assets to total assets for the prior fiscal year (COMPUSTAT items (4-5)/6). *ROE* (return on equity) is measured as earnings to average equity for the prior fiscal year (COMPUSTAT items 20/(60+60(t-1))). *Success* is dummy that equals 1 if bid leads to acquisition of a target, zero otherwise. *Runup* is the cumulative abnormal return to the target firm’s stock price three months before the announcement of planned acquisition (for trading days -63, -1). *Markup, 2 months (6 months)*, is the cumulative abnormal return to the target stock price two months (six months) after the bid announcement, for trading days (0,+42) (respectively, for trading days (0,+126)). *Premium, 2 months (6 months)*, following Schwert (1996) is a sum of pre-bid runup and post-bid two months (six months) markup to the target stock price. *Cash* is a dummy variable that takes value 1 if bid is purely cash-financed, zero otherwise. *Merger* is a dummy variable that takes 1 if bid is structured as merger, zero otherwise. *Hostile Approach* is dummy variable that takes 1 if the bid is recorded by SDC as “hostile” or “unsolicited”, zero otherwise. *Poison Pill* is a dummy variable that takes 1 if a poison pill from the part of a target affects bidder’s acquisition attempt, zero otherwise. *Precomp(Postcomp)* is a dummy variable that equals one if another bid by a different bidder is recorded by SDC in the six months before (after) the current bid, zero otherwise. *Toehold* is a dummy variable that equals one if a bidder has accumulated more than 5% of target’s stock before the bid announcement, zero otherwise. Same *Industry* is a dummy variable that equals 1 if bidder is from the same industry as the target (industry is defined by 2-digit SIC code), zero otherwise. *Institutional Investors* is measured as share of target company held by institutional investors. *Advisor to Acquirer (Target)* is a dummy variable that equals 1 if fraction of equity of acquiring (target) firm owned by investment bank advising acquirer (target) is greater than 0, zero otherwise. *N* is a number of deals.

Panel A presents comparison for deals from the full sample (7,456 deals in total). Panel B presents comparison for deals, for which both CRSP and COMPUSTAT information is available (1,345 deals in total). The latter subsample will be used for regression analysis.

Panel A: Full Sample

	(1)		(2)		(3)		(4)		(5)		(6)	
	All (N=7,456)		Single Acquirers (N=5,333)		M1 (N=2,123)		M2 (N=1,145)		M3 (N=771)		M5 (N=514)	
	Mean	Std	Mean	Std	Diff.	t-stat.	Diff.	t-stat.	Diff.	t-stat.	Diff.	t-stat.
<b>Bidder Firm Characteristics</b>												
Market Capitalization	7.137	2.102	6.654	1.966	1.512	22.82	2.129	20.92	2.491	17.57	3.060	12.14
B/M	-0.901	0.826	-0.854	0.806	-0.147	-5.18	-0.211	-4.63	-0.250	-4.14	-0.450	-4.33
D/E	0.747	8.573	0.818	4.608	-0.223	-0.49	0.850	1.22	0.019	0.22	-0.023	-0.24
P/E	2.949	0.816	2.925	0.826	0.073	2.60	0.112	2.70	0.169	3.18	0.186	2.17
Sales Growth	0.232	0.659	0.225	0.683	0.021	1.06	0.027	1.15	0.071	1.71	0.019	0.62
Accounting Liquidity	0.231	0.235	0.237	0.247	-0.023	-2.66	-0.014	-1.04	0.004	0.23	0.007	0.27
ROE	0.052	1.016	0.054	1.200	-0.008	-0.54	0.008	0.77	0.030	3.80	0.029	1.40
<b>Target Firm Characteristics</b>												
Market Capitalization	5.081	1.728	4.861	1.658	0.758	17.74	0.821	13.81	0.853	11.30	0.781	8.33
B/M	-0.565	0.861	-0.521	0.864	-0.152	-7.26	-0.138	-4.73	-0.113	-3.10	-0.082	-1.81
D/E	0.830	12.406	0.872	13.906	-0.142	-0.78	-0.298	-0.95	-0.359	-0.76	0.158	0.32
P/E	2.853	0.845	2.838	0.856	0.051	2.16	0.037	1.15	0.022	0.58	-0.026	-0.54
Sales Growth	0.137	0.522	0.130	0.521	0.024	1.77	0.038	1.85	0.037	1.46	0.002	0.08
Accounting Liquidity	0.237	0.266	0.240	0.257	-0.013	-1.59	-0.014	-1.18	-0.026	-1.78	-0.035	-1.91
ROE	-0.066	5.920	-0.005	1.791	-0.211	-0.79	-0.429	-0.84	0.006	0.10	-0.049	-0.78
<b>Deal Characteristics</b>												
Success	0.697	0.460	0.689	0.463	0.026	2.69	-0.014	-1.01	-0.074	-4.24	-0.170	-7.69
Runup	0.087	0.328	0.091	0.330	-0.009	-1.27	-0.007	-0.73	-0.022	-2.02	-0.042	-3.02
Markup	0.113	0.499	0.117	0.494	-0.015	-1.23	-0.035	-1.99	-0.060	-2.62	-0.095	-3.12
Premium	0.202	0.634	0.208	0.634	-0.024	-1.60	-0.042	-1.98	-0.083	-3.00	-0.137	-3.81
Cash	0.413	0.492	0.430	0.495	-0.061	-5.78	-0.058	-4.08	-0.061	-3.49	-0.078	-3.71
Merger	0.138	0.345	0.155	0.362	-0.059	-9.13	-0.097	-13.91	-0.116	-16.67	-0.134	-20.92
Hostile Approach	0.063	0.242	0.067	0.250	-0.016	-3.41	-0.034	-6.41	-0.040	-6.80	-0.052	-9.44
Poison Pill	0.025	0.156	0.026	0.158	-0.002	-0.65	-0.007	-1.85	-0.014	-3.62	-0.018	-4.62
Precomp	0.142	0.349	0.141	0.348	0.005	0.70	0.017	1.54	0.032	2.34	0.056	3.18
Postcomp	0.163	0.370	0.169	0.374	-0.018	-2.36	-0.021	-2.00	-0.017	-1.30	0.007	0.39
Toehold	0.130	0.336	0.136	0.342	-0.019	-2.76	-0.037	-4.18	-0.051	-5.12	-0.079	-7.77
Same Industry	0.440	0.496	0.458	0.498	-0.062	-5.80	-0.146	-10.66	-0.231	-15.29	-0.323	-21.49
Institutional Ownership	0.284	0.211	0.270	0.207	0.051	10.71	0.047	7.26	0.050	6.41	0.047	4.90
Advisor to Acquirer	0.132	0.339	0.122	0.327	0.037	4.67	0.013	1.27	-0.023	-2.15	-0.069	-7.02
Advisor to Target	0.200	0.400	0.179	0.384	0.073	7.76	0.073	5.70	0.058	3.79	0.043	2.32



Panel B: Main Sample

	(1)		(2)		(3)		(4)		(5)		(6)	
	All (N=1,345)		Single Acquirers (N=953)		M1 (N=392)		M2 (N=157)		M3 (N=87)		M5 (N=28)	
	Mean	Std	Mean	Std	Diff.	t-stat.	Diff.	t-stat.	Diff.	t-stat.	Diff.	t-stat.
<b>Bidder Firm Characteristics</b>												
Market Capitalization	7.227	2.070	6.778	1.884	1.538	14.52	2.358	14.27	2.655	11.54	3.368	7.82
B/M	-0.999	0.784	-0.930	0.753	-0.233	-5.53	-0.386	-5.85	-0.381	-3.92	-0.592	-3.50
D/E	0.407	7.245	0.559	3.904	-0.519	-0.86	0.051	0.57	-0.045	-0.47	-0.265	-4.00
P/E	3.052	0.842	2.983	0.849	0.238	5.35	0.356	5.53	0.340	4.20	0.443	4.26
Sales Growth	0.209	0.517	0.186	0.493	0.080	2.78	0.118	2.68	0.147	2.03	0.042	0.75
Accounting Liquidity	0.228	0.210	0.232	0.218	-0.016	-1.69	-0.008	-0.53	0.010	0.58	0.021	0.69
ROE	0.018	0.773	0.016	0.886	0.007	0.37	0.043	2.50	0.063	4.03	0.042	0.96
<b>Target Firm Characteristics</b>												
Market Capitalization	5.199	1.737	4.983	1.709	0.742	8.67	0.756	5.79	1.023	5.76	1.473	5.67
B/M	-0.699	0.833	-0.635	0.833	-0.219	-5.22	-0.215	-3.43	-0.250	-3.03	-0.448	-3.24
D/E	0.513	5.077	0.563	2.896	-0.171	-0.41	-1.093	-1.34	-1.665	-1.13	-0.247	-2.57
P/E	3.002	0.866	2.964	0.904	0.128	2.74	0.278	3.26	0.216	2.29	0.497	2.55
Sales Growth	0.118	0.430	0.119	0.430	-0.005	-0.23	0.001	0.04	0.019	0.41	0.053	0.50
Accounting Liquidity	0.264	0.243	0.263	0.244	0.004	0.31	0.045	2.37	0.051	2.13	0.106	2.63
ROE	-0.355	11.439	-0.064	1.715	-0.999	-0.94	-2.582	-0.97	0.047	1.71	0.092	4.06
<b>Deal Characteristics</b>												
Success	0.762	0.426	0.740	0.439	0.077	3.91	0.146	5.71	0.145	4.22	0.117	1.74
Runup	0.119	0.338	0.119	0.351	0.002	0.10	0.008	0.31	-0.009	-0.30	-0.070	-1.26
Markup	0.197	0.457	0.195	0.452	0.006	0.25	-0.003	-0.07	0.021	0.47	0.153	1.70
Premium	0.316	0.615	0.314	0.630	0.007	0.25	0.005	0.13	0.012	0.23	0.082	0.77
Cash	0.332	0.471	0.317	0.466	0.053	2.17	0.078	1.99	0.120	2.24	0.112	1.17
Merger	0.199	0.400	0.198	0.399	0.003	0.16	-0.045	-1.58	-0.049	-1.27	0.016	0.20
Hostile Approach	0.080	0.271	0.076	0.264	0.014	0.95	-0.031	-1.87	-0.041	-2.09	-0.040	-1.12
Poison Pill	0.028	0.166	0.023	0.150	0.018	1.77	-0.023	0.00	-0.023	0.00	-0.023	0.00
Precomp	0.124	0.330	0.126	0.332	-0.006	-0.37	-0.037	-1.61	-0.057	-2.08	-0.090	-2.53
Postcomp	0.134	0.341	0.146	0.353	-0.041	-2.67	-0.069	-3.26	-0.088	-3.52	-0.110	-3.08
Toehold	0.106	0.308	0.093	0.291	0.044	2.55	0.047	1.68	0.079	1.94	0.049	0.73
Same Industry	0.535	0.499	0.555	0.497	-0.070	-2.79	-0.071	-1.77	-0.095	-1.77	-0.127	-1.33
Institutional Ownership	0.338	0.230	0.319	0.230	0.066	5.88	0.078	4.27	0.084	3.43	0.164	4.18
Advisor to Acquirer	0.218	0.413	0.192	0.394	0.089	3.90	0.075	2.13	0.049	1.07	0.094	1.08
Advisor to Target	0.278	0.448	0.248	0.432	0.104	4.32	0.122	3.15	0.143	2.72	0.217	2.26

we may conclude that on average multiple acquirers are larger, more growth oriented (lower book to market ratio) and more perspective from the market point of view (higher price to earnings ratio). At the same time the evidence on free cash reserves (accounting liquidity) is inconclusive. Multiple acquirers bid for on average larger targets, also more growth oriented (having lower book to market ratio). As for M&A deal peculiarities, multiple acquirers announce, less frequent is cash payments and less frequent multiple acquirers are involved into deals structured as mergers. Multiple acquirers less frequently exploit the possibilities of toehold accumulation before the announcement of a deal. Also, multiple acquirers on average more frequently bid for targets from different industry and for firms, among owners of which institutional investors are present. Multiple acquirers on average pay less premium for their targets. Average premium paid by all the bidders in the main sample are 20.2%. Single acquirers on average pay 20.8% for their targets. Multiple acquirers pay lower premia: M1 - 18.4%, M2 - 16.6%, M3 - 12.5% and M5 - less than 10% on average. Evidence as for success is mixed: M1 multiple acquirers complete higher percentage of announced deals. But M4 - lower.

To complete the description of “portrait” of average multiple acquirer, we may look at industry of operating of those firms. There are 2,803 acquiring firms in the full sample operating in financial sphere of business (37,6% of all the deals announced). And 75% of those financial acquirers are multiple one. Thus, direction of logic “if the firm is financial company then it will make many acquisitions” seems to be true. But reversed logic: “if a firm is a multiple acquirer then it will be operating in financial sphere of business”, - is not necessarily true. There are 42.5% among M1, 48.3% among M2, 50.5% among M3 and 52.3% among M5 firms that operates in financial sphere of business. We dedicate special attention to financials, as they differ substantially in the attitude to M&A. If for production company (non financial) M&A is a tool of growth, for financial

company M&A is not only a tool of growth, but a financial product too. As financial companies are usually “selling trust”, negative or undesirable outcomes in M&A announced by them may hurt their business to greater extent, than the similar occasion with production firms. Average characteristics of M&A deal for financial companies are described in Table VI in Appendix A. Noting difference in almost all characteristics of M&A deals announced by financials, inclusion of financial companies into the main sample could alter the result. But this problem has been resolved automatically by constructing the main sample. As in the main sample there are only 0.9% of all the deals announced by financial companies or 0.8 % of deals announced by multiple acquirers in the main sample.

Main sample is constructed independently of author subjective wish as the main sample consists of firms for which stock price characteristics from CRSP along with accounting characteristics from COMPUSTAT are available simultaneously. These are 1,345 deals out of the full sample. Among these deals there are ones announced by multiple acquirers: 29.1% of all the deals in the main sample were announced by multiple acquirers M1, 11.7% - by M2, 6.5% by M3 and 2% by M5. The general proportion of multiple acquirers in the sample hadn't changed substantially. In Table I, Panel B there is a descriptive statistics of average M&A deal characteristics in the main sample. With samples shrink the main trends remain the same: multiple acquirers are larger and more growth oriented, bidding for large and more growth oriented targets. But also some trends have changed: multiple acquirers now are involved in on average more cash deals. Success of announced by multiple acquires deals in the main sample are on average higher (81...88.6% for multiple acquirers versus 74% for single ones). Evidence for distinctions in premia paid by multiple acquirers in the deal of the main sample is inconclusive.

**Table II**  
**Full and Main Sample Means Comparison**

Columns (1,4) presents the means for different firm-specific and deal specific characteristics (as described in Table I) for deals involving US publicly-listed acquirers bidding for US publicly-listed targets from 1980 to 2002. Columns (2,5) presents means of the same bid describing characteristics as in Columns (1,4), but for deals, for which both CRSP and COMPUSTAT information is available. Main sample will be used for regression analysis. Columns (3,6) shows a *t*-statistic testing whether the difference is reliably different from zero.

Variable	(1) Full Sample (N=7,456) Mean	(2) Main Sample (N=1,345) Mean	(3) <i>t</i> -statistic for Difference	Variable	(4) Full Sample (N=7,456) Mean	(5) Main Sample (N=1,345) Mean	(6) <i>t</i> -statistic for Difference
<b>Bidder Firm Characteristics</b>				<b>Deal Characteristics</b>			
Market Capitalization	7.137	7.227	-1.30	Success	0.697	0.762	-5.12
B/M	-0.901	-0.999	3.66	Runup	0.087	0.119	-3.06
D/E	0.747	0.407	1.34	Markup	0.113	0.197	-6.02
P/E	2.949	3.052	-3.42	Premium	0.202	0.316	-6.18
Sales Growth	0.232	0.209	1.19	Cash	0.413	0.332	5.75
Accounting Liquidity	0.231	0.228	0.41	Merger	0.138	0.199	-5.24
ROE	0.052	0.018	1.17	Hostile Approach	0.063	0.080	-2.16
<b>Target Firm Characteristics</b>				Poison Pill	0.025	0.028	-0.65
Market Capitalization	5.081	5.199	-2.25	Precomp	0.142	0.124	1.83
B/M	-0.565	-0.699	5.19	Postcomp	0.163	0.134	2.90
D/E	0.830	0.513	1.49	Toehold	0.130	0.106	2.57
P/E	2.853	3.002	-4.69	Same Industry	0.440	0.535	-6.38
Sales Growth	0.137	0.118	1.38	Institutional Ownership	0.284	0.338	-8.04
Accounting Liquidity	0.237	0.264	-3.55	Advisor to Acquirer	0.132	0.218	-7.18
ROE	-0.066	-0.355	0.90	Advisor to Target	0.200	0.278	-5.96

Distinctions in average characteristics of M&A deals announced in the full and in the main sample along with ambiguous directions of differences of multiple acquirers from single ones could be explained by bias, occurred due to sample construction. In order to find the existence and direction of bias we compare means of takeover characteristics in the full and in the main sample (see Table II). Evidence from Table II shows that deals included into main sample differ from those in the full sample in terms of bidding and target firm characteristics involved: on average larger and less growth oriented (higher book to market ratio) firms are involved. What is more important, samples differ in the magnitude of characteristics of our primary interest: success and premium. On average, in main sample appeared to be more successful deals (76.2% of average success rate versus 69.7% in the full sample) along with higher average premia paid in them (31.6% versus 20.2% in the full sample). Almost all other deal specific characteristics appeared to be distorted in their means from the ones in the full sample: less cash financed, more structured as mergers, less toehold benefits exploiting, heavily advising deals constitutes the main sample. We will take this features of the main sample into account while interpreting results of the regression analysis.

To test “learning by doing” and “hubris” hypotheses as for distinctions in terms of M&A deals announced by multiple acquirer, we employ multivariate regression analysis for premium paid and probit model for predicting success in announced deal following Schwert (2000).

**Probit model for success rates.** Table III gives estimates of probit model for success rates on the main sample. Time fixed effects and industry fixed effects (measured by 2-digit SIC code) were employed for the specifications along with bidder and target firm-specific and deal specific characteristics. Along with M1, M2, M3 and M5 dummies, one more measure of multiple acquirers’ previous

**Table III**  
**Probability of Success of Announced Deal.**  
**Multiple Acquirers Identification M1, M2, M3, M5 and Logarithm of Total Number of Announced Deals**

A probit model predicts whether a bid announced by US publicly-listed acquiring firm for US publicly-listed target firm from 1980 to 2002 will be successful. Dependent variable is dummy that equals 1 if bid leads to acquisition of a target, zero otherwise. Methodology of estimating probability of success of announced bid is employed following Schwert (2002). Identification of firms that make many acquisitions (“multiple acquirers”) is presented with four dummy variables: M1, M2, M3 and M5. M1 (M2; M3; M5) is a dummy variable that takes value 1 if a firm has announced 1 or more (2 or more; 3 or more; 5 or more) bids for US publicly-listed targets over the three years preceding current bid, zero otherwise. As additional identification of multiple acquirers natural logarithm of number of announced deals is used ( $\ln(\text{count}+1)$ ). In the main sample, maximal value of “count” is 9. “Count+1” is used to capture current deal, as count is the number of deals announced during previous three years, without taking into consideration current deal.

Following Schwert (2000), we include accounting performance measures of target firm. Following Bodnaruk, Massa, Simonov (working paper) we include accounting performance characteristics of bidder. Following Schwert (1996) we include deal-specific characteristic of announced bid. *Market Capitalization* is measured as a natural logarithm of equity capitalization at the end of the year preceding the bid (price x shares outstanding, COMPUSTAT items 24x25). *B/M* is a natural logarithm of book to market ratio, measured as the ratio of book value of equity for the prior fiscal year to year-end market value of common stock (COMPUSTAT items 60/(24x25)). *D/E* is a ratio of debt to equity for the prior fiscal year (COMPUSTAT items 9/60). *P/E* is a natural logarithm of the ratio of year-end stock price to earnings per share for the prior fiscal year (COMPUSTAT items 24/58). *Sales Growth* is measured as proportional change in sales over the previous fiscal year ( $\ln(\text{COMPUSTAT items } 12/12(t-1))$ ). *Accounting Liquidity* is measured as the ratio of net liquid assets to total assets for the prior fiscal year (COMPUSTAT items (4-5)/6). *ROE* (return on equity) is measured as earnings to average equity for the prior fiscal year (COMPUSTAT items 20/(60+60(t-1))). *Cash* is a dummy variable that takes value 1 if bid is purely cash-financed, zero otherwise. *Merger* is a dummy variable that takes 1 if bid is structured as merger, zero otherwise. *Hostile Approach* is dummy variable that takes 1 if the bid is recorded by SDC as “hostile” or “unsolicited”, zero otherwise. *Poison Pill* is a dummy variable that takes 1 if a poison pill from the part of a target affects bidder’s acquisition attempt, zero otherwise. *Precomp (Postcomp)* is a dummy variable that equals one if another bid by a different bidder is recorded by SDC in the six months before (after) the current bid, zero otherwise. *Toehold* is a dummy variable that equals one if a bidder has accumulated more than 5% of target’s stock before the bid announcement, zero otherwise. Same *Industry* is a dummy variable that equals 1 if bidder is from the same industry as the target (industry is defined by 2-digit SIC code), zero otherwise. *Institutional Investors* is measured as share of target company held by institutional investors. *Advisor to Acquirer (Target)* is a dummy variable that equals 1 if fraction of equity of acquiring (target) firm owned by investment bank advising acquirer (target) is greater than 0, zero otherwise.

Estimated coefficient and t-statistics and marginal effects are reported. Marginal effects are calculated at the variables’ means. Number of observations is 784. Dummies for industries (corresponding to 2-digit SIC code) to capture industry fixed effects and yearly dummies to capture time fixed effects are employed.

	Coef.	t-stat.	dF/dX	Coef.	t-stat.	dF/dX	Coef.	t-stat.	dF/dX	Coef.	t-stat.	dF/dX	Coef.	t-stat.	dF/dX
<u>Multiple Acquirer Identification</u>															
M1	-0.247	-1.33	-0.054												
M2				-0.351	-1.21	-0.084									
M3							-0.311	-0.88	-0.074						
M5										-0.799	-1.31	-0.235			
Ln(count+1)													-0.293	-1.53	-0.061
<u>Bidder Firm Characteristics</u>															
Market Capitalization	0.340	4.68	0.071	0.339	4.64	0.070	0.328	4.57	0.068	0.331	4.64	0.069	0.350	4.73	0.072
B/M	-0.293	-1.65	-0.061	-0.306	-1.72	-0.063	-0.306	-1.72	-0.063	-0.317	-1.77	-0.066	-0.294	-1.66	-0.061
D/E	-0.083	-1.37	-0.017	-0.093	-1.50	-0.019	-0.094	-1.52	-0.019	-0.096	-1.53	-0.020	-0.083	-1.38	-0.017
P/E	0.086	0.65	0.018	0.084	0.63	0.017	0.082	0.61	0.017	0.083	0.62	0.017	0.089	0.67	0.018
Sales Growth	-0.124	-0.89	-0.026	-0.126	-0.91	-0.026	-0.125	-0.90	-0.026	-0.143	-1.03	-0.030	-0.121	-0.87	-0.025
Accounting Liquidity	0.269	0.48	0.056	0.237	0.42	0.049	0.234	0.42	0.048	0.206	0.37	0.043	0.264	0.47	0.055
ROE	-1.117	-1.30	-0.232	-1.103	-1.24	-0.227	-1.122	-1.23	-0.232	-1.140	-1.24	-0.236	-1.103	-1.30	-0.228
<u>Target Firm Characteristics</u>															
Market Capitalization	-0.297	-3.67	-0.062	-0.306	-3.76	-0.063	-0.300	-3.70	-0.062	-0.303	-3.72	-0.063	-0.304	-3.73	-0.063
B/M	0.459	2.30	0.095	0.447	2.26	0.092	0.446	2.24	0.092	0.453	2.27	0.094	0.453	2.27	0.094
D/E	-0.003	-0.04	-0.001	0.000	0.00	0.000	-0.002	-0.03	0.000	-0.001	-0.01	0.000	-0.004	-0.05	-0.001
P/E	0.094	0.73	0.020	0.095	0.75	0.020	0.093	0.73	0.019	0.102	0.80	0.021	0.095	0.74	0.020
Sales Growth	0.238	0.96	0.049	0.238	0.99	0.049	0.232	0.96	0.048	0.261	1.07	0.054	0.238	0.97	0.049
Accounting Liquidity	-0.988	-1.79	-0.205	-0.986	-1.78	-0.203	-0.978	-1.78	-0.203	-0.948	-1.73	-0.196	-1.002	-1.81	-0.207
ROE	1.823	1.54	0.379	1.737	1.49	0.357	1.769	1.51	0.366	1.829	1.55	0.379	1.761	1.49	0.364
<u>Deal Characteristics</u>															
Cash	0.099	0.52	0.020	0.087	0.46	0.018	0.095	0.50	0.019	0.080	0.42	0.016	0.100	0.52	0.020
Merger	1.208	4.73	0.178	1.231	4.78	0.178	1.200	4.72	0.176	1.220	4.80	0.179	1.217	4.76	0.178
Hostile Approach	-1.387	-4.88	-0.440	-1.374	-4.87	-0.433	-1.351	-4.83	-0.426	-1.337	-4.80	-0.421	-1.398	-4.91	-0.443
Poison Pill	-0.139	-0.33	-0.031	-0.212	-0.50	-0.049	-0.203	-0.48	-0.047	-0.200	-0.47	-0.046	-0.152	-0.36	-0.034
Precomp	-0.989	-4.29	-0.286	-0.986	-4.29	-0.283	-0.973	-4.24	-0.280	-0.967	-4.21	-0.277	-1.000	-4.33	-0.289
Postcomp	-0.975	-4.99	-0.280	-0.972	-4.98	-0.277	-0.976	-4.99	-0.279	-0.976	-4.97	-0.279	-0.982	-5.01	-0.281
Toehold	-0.078	-0.28	-0.017	-0.066	-0.24	-0.014	-0.063	-0.23	-0.014	-0.076	-0.27	-0.016	-0.069	-0.25	-0.015
Same Industry	-0.187	-0.97	-0.039	-0.193	-1.00	-0.039	-0.191	-1.00	-0.039	-0.205	-1.06	-0.042	-0.192	-0.99	-0.039
Institutional Ownership	-0.081	-0.17	-0.017	-0.053	-0.11	-0.011	-0.065	-0.14	-0.014	-0.069	-0.15	-0.014	-0.067	-0.14	-0.014
Advisor to Acquirer	0.372	1.75	0.070	0.362	1.70	0.067	0.351	1.65	0.066	0.360	1.70	0.067	0.365	1.71	0.068
Advisor to Target	-0.163	-0.79	-0.035	-0.169	-0.83	-0.036	-0.175	-0.85	-0.038	-0.168	-0.82	-0.036	-0.166	-0.81	-0.036
Time Fixed Effects	Y			Y			Y			Y			Y		
Industry Fixed Effects	Y			Y			Y			Y			Y		
Pseudo R <sup>2</sup>	0.414			0.414			0.413			0.414			0.415		

acquisition experience is involved: logarithm of total number of previous acquisitions made within three years plus one.<sup>8</sup> Note that maximum number of previous acquisitions made within three years by multiple acquirers reaches 9.

Neither of employed dummies for multiple acquire identification (M1, M2, M3, M5) showed reliable influence on success rates. Significant at 15% level found to be negative influence of total number of previous acquisition made. Formal interpretation could be as following: 1 percent increase in number of previous deals made within three years from the average value decreases the probability of success in next announced deal by 6.1%.

Reliable (5% significance) positive effect on success rates found to have size of the acquiring firm, book to market ratio of target firm, merger structuring deals. With 10% significance positive effect found to have dummy for ownership in target firm be advisor to acquirer. Positive influence of size of acquiring firm on success rates is in line with Moeller et al (2003) and Schwert (2000). There are higher chances to succeed in merger and if advisor to acquiring firm can gain in rise of stock price owning a share in a target company, which is in line with Bodnaruk et al. (working paper). The evidence as for positive influence of higher book to market ratio of target firms on success in takeover is opposite to one found in Schwert (2000). Schwert (2000) found negative effect with *t*-statistics varying from 1.68 to 2.40. Explanation for our positive effect could lie it two dimensions. From one hand, if higher book to market ratio corresponds in our case to companies who have lost much of their value do to inadequate management. It should be easier to buy companies suffering from managerial mistakes than “healthy” ones. From the other hand, if for such companies a

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<sup>8</sup> - “count” gives number of previous acquisitions, not taking into account current deal. We use (count+1) to capture acquisition number in the track of all deals for the last three years. We take log as distribution of this variable is heavily skewed.



higher premium is proposed, this higher premium should be a guarantee for higher success. In later regression results from Table IV reliably (5% significance) positive influence of higher target book to market on premium is observed. Reliable (5% significance) negative effect on success rates found to have market capitalization of target firm, hostile character of announced deal along with presence of competing bids 6 months before and 6 months after the announcement. As for size of target firms there was no reliable evidence in literature. Negative influence on success of hostile approach is in line with Schwert (2000). Negative influence on success of presence of competing bids is in line with Schwert (1996).

**Heteroscedasticity robust OLS for premium.** Shapiro-Wilk test for premia paid in M&A deals in the main sample showed reliably normal distribution with t-statistic 10.33. Thus, we employ heteroscedasticity robust OLS with yearly time and industry fixed effects (measured by 2-digit SIC code). Table IV summarizes estimation results.

Taking into consideration the fact that by construction our main sample consists of deals with average higher success rate (from Table II: 76.2% versus 69.7%), there could be selection bias by success be present. For correction this bias we employ ML estimation with Heckman procedure. Selection equation is one for determining success rates (see Table III). Independent variable that influences success rates, but has no influence on premium is dummy for Hostile Approach. Reliable negative effect of hostility measures in explaining success in M&A transactions has been shown by Schwert (2000) in paper dedicated to hostility investigation. Hostile Approach dummy has also shown reliable (5% significance) negative influence on success rates in our model either. In the same paper author reported ambiguous effect of hostility measures on premia paid in M&A deal. Applying heteroscedasticity robust OLS to our main sample

**Table IV**  
**Takeover Premium.**  
**Multiple Acquirers Identification M1, M2, M3, M5 and Logarithm of Total Number of Announced Deals**

An Ordinary Least Squares regression model is used to explain the takeover premium. Takeover premium is measured as cumulative abnormal return to target firm's stock price in the three months before and six months after the bid announcement (for trading days -63, +126) for successful and unsuccessful takeover bids by publicly-listed US companies for publicly-listed US target firms, 1980 to 2002. Methodology of estimating takeover premium as a sum of pre-bid runup and post-bid markup in target stock price is employed following Schwert (2002). Identification of firms that make many acquisitions ("multiple acquirers") is presented with four dummy variables: M1, M2, M3 and M5. M1 (M2; M3; M5) is a dummy variable that takes value 1 if a firm has announced 1 or more (2 or more; 3 or more; 5 or more) bids for US publicly-listed targets over the three years preceding current bid, zero otherwise. As additional identification of multiple acquirers natural logarithm of number of announced deals is used ( $\ln(\text{count}+1)$ ). In the main sample, maximal value of "count" is 9. "Count+1" is used to capture current deal, as count is the number of deals announced during previous three years, without taking into consideration current deal.

Following Schwert (2000), we include accounting performance measures of target firm. Following Bodnaruk, Massa, Simonov (working paper) and Gondhalekar, Sant, Ferris (working paper) we include accounting performance characteristics of bidder. Following Schwert (1996) we include deal-specific characteristic of announced bid. *Market Capitalization* is measured as a natural logarithm of equity capitalization at the end of the year preceding the bid (price x shares outstanding, COMPUSTAT items 24x25). *B/M* is a natural logarithm of book to market ratio, measured as the ratio of book value of equity for the prior fiscal year to year-end market value of common stock (COMPUSTAT items 60/(24x25)). *D/E* is a ratio of debt to equity for the prior fiscal year (COMPUSTAT items 9/60). *P/E* is a natural logarithm of the ratio of year-end stock price to earnings per share for the prior fiscal year (COMPUSTAT items 24/58). *Sales Growth* is measured as proportional change in sales over the previous fiscal year ( $\ln(\text{COMPUSTAT items } 12/12(t-1))$ ). *Accounting Liquidity* is measured as the ratio of net liquid assets to total assets for the prior fiscal year (COMPUSTAT items (4-5)/6). *ROE* (return on equity) is measured as earnings to average equity for the prior fiscal year (COMPUSTAT items 20/(60+60(t-1))). *Cash* is a dummy variable that takes value 1 if bid is purely cash-financed, zero otherwise. *Merger* is a dummy variable that takes 1 if bid is structured as merger, zero otherwise. *Hostile Approach* is dummy variable that takes 1 if the bid is recorded by SDC as "hostile" or "unsolicited", zero otherwise. *Poison Pill* is a dummy variable that takes 1 if a poison pill from the part of a target affects bidder's acquisition attempt, zero otherwise. *Precomp (Postcomp)* is a dummy variable that equals one if another bid by a different bidder is recorded by SDC in the six months before (after) the current bid, zero otherwise. *Toehold* is a dummy variable that equals one if a bidder has accumulated more than 5% of target's stock before the bid announcement, zero otherwise. *Same Industry* is a dummy variable that equals 1 if bidder is from the same industry as the target (industry is defined by 2-digit SIC code), zero otherwise. *Institutional Investors* is measured as share of target company held by institutional investors. *Advisor to Acquirer (Target)* is a dummy variable that equals 1 if fraction of equity of acquiring (target) firm owned by investment bank advising acquirer (target) is greater than 0, zero otherwise.

Estimated coefficient and t-statistics are reported. Dummies for industries (corresponding to 2-digit SIC code) to capture industry fixed effects and yearly dummies to capture time fixed effects are employed. Number of observations is 784. Second, fourth, sixth and eighth specifications are corrected for selectivity bias using Heckman correction procedure. Probability of success from table IV is used as selection equation. Variable that affect probability of success, but does not affect premium paid is dummy for Hostile Approach. Specifications 1, 3, 5, 7 and 9 present heteroscedasticity robust estimates.

	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.
Multiple Acquirer Id.																				
M1	-0.025	-0.54	-0.002	-0.06																
M2					0.021	0.35	0.009	0.16												
M3									0.020	0.29	-0.030	-0.44								
M5													0.054	0.52	-0.004	-0.03				
Ln(count+1)																	0.001	-0.01	0.001	0.04
Bidder																				
Market Capitalization	0.012	0.70	-0.004	-0.20	0.007	0.43	-0.004	-0.19	0.008	0.48	-0.003	-0.13	0.007	0.46	-0.004	-0.21	0.009	0.53	-0.005	-0.23
B/M	-0.040	-0.85	-0.052	-1.30	-0.043	-0.91	-0.053	-1.32	-0.043	-0.91	-0.051	-1.26	-0.042	-0.89	-0.052	-1.30	-0.042	-0.89	-0.052	-1.30
D/E	-0.005	-0.53	-0.015	-0.49	-0.006	-0.69	-0.017	-0.55	-0.006	-0.68	-0.015	-0.48	-0.006	-0.67	-0.016	-0.51	-0.006	-0.66	-0.016	-0.51
P/E	-0.065	-1.91	-0.049	-1.58	-0.066	-1.96	-0.049	-1.60	-0.066	-1.95	-0.048	-1.57	-0.066	-1.95	-0.049	-1.59	-0.066	-1.94	-0.049	-1.58
Sales Growth	-0.015	-0.44	-0.017	-0.45	-0.017	-0.49	-0.017	-0.46	-0.017	-0.49	-0.016	-0.43	-0.016	-0.46	-0.017	-0.45	-0.016	-0.47	-0.017	-0.45
Accounting Liquidity	-0.132	-0.87	-0.132	-1.09	-0.134	-0.89	-0.135	-1.11	-0.134	-0.89	-0.131	-1.08	-0.133	-0.88	-0.132	-1.09	-0.133	-0.88	-0.133	-1.10
ROE	0.067	0.56	0.169	0.91	0.070	0.60	0.164	0.87	0.071	0.61	0.167	0.91	0.071	0.61	0.170	0.92	0.071	0.60	0.170	0.92
Target																				
Market Capitalization	-0.029	-1.41	-0.028	-1.22	-0.029	-1.41	-0.029	-1.19	-0.029	-1.42	-0.029	-1.22	-0.029	-1.41	-0.028	-1.21	-0.029	-1.42	-0.028	-1.21
B/M	0.159	3.86	0.099	2.48	0.157	3.83	0.099	2.47	0.158	3.85	0.099	2.47	0.158	3.85	0.099	2.48	0.158	3.85	0.099	2.48
D/E	0.006	0.29	-0.006	-0.36	0.006	0.29	-0.005	-0.34	0.006	0.31	-0.006	-0.37	0.006	0.31	-0.006	-0.36	0.006	0.30	-0.006	-0.36
P/E	0.032	1.15	0.039	1.52	0.032	1.15	0.039	1.52	0.033	1.16	0.039	1.51	0.032	1.15	0.039	1.52	0.032	1.16	0.039	1.52
Sales Growth	-0.068	-1.27	-0.037	-0.73	-0.069	-1.29	-0.037	-0.71	-0.068	-1.27	-0.036	-0.71	-0.069	-1.30	-0.037	-0.72	-0.068	-1.27	-0.037	-0.73
Accounting Liquidity	0.011	0.08	0.031	0.28	0.010	0.07	0.028	0.25	0.011	0.07	0.033	0.30	0.007	0.05	0.031	0.28	0.012	0.08	0.031	0.28
ROE	0.014	0.98	-0.076	-0.47	0.014	0.98	-0.072	-0.44	0.014	0.98	-0.078	-0.48	0.014	0.98	-0.075	-0.46	0.014	0.98	-0.075	-0.46
Deal Characteristics																				
Cash	-0.071	-1.56	-0.075	-1.63	-0.073	-1.61	-0.076	-1.65	-0.074	-1.61	-0.073	-1.58	-0.072	-1.59	-0.075	-1.64	-0.072	-1.58	-0.075	-1.64
Merger	0.144	3.13	0.155	2.62	0.145	3.18	0.158	2.55	0.145	3.18	0.154	2.58	0.144	3.14	0.155	2.60	0.145	3.16	0.155	2.61
Hostile Approach	0.018	0.31			0.019	0.33			0.019	0.33			0.019	0.33			0.019	0.33		
Poison Pill	0.260	3.00	0.332	2.09	0.257	2.93	0.327	2.02	0.256	2.93	0.330	2.07	0.254	2.91	0.332	2.08	0.255	2.93	0.331	2.09
Precomp	-0.011	-0.21	0.025	0.34	-0.009	-0.18	0.022	0.29	-0.010	-0.19	0.024	0.33	-0.010	-0.19	0.025	0.34	-0.010	-0.20	0.025	0.34
Postcomp	0.070	1.37	0.059	0.57	0.072	1.40	0.053	0.48	0.072	1.40	0.058	0.55	0.072	1.40	0.060	0.57	0.072	1.39	0.060	0.58
Toehold	-0.174	-2.76	-0.141	-2.22	-0.174	-2.75	-0.141	-2.22	-0.174	-2.75	-0.140	-2.20	-0.174	-2.75	-0.141	-2.22	-0.173	-2.74	-0.141	-2.23
Same Industry	-0.020	-0.45	0.003	0.08	-0.018	-0.41	0.003	0.08	-0.018	-0.42	0.003	0.09	-0.018	-0.42	0.003	0.09	-0.019	-0.42	0.003	0.09
Inst. Ownership	-0.031	-0.26	0.005	0.05	-0.032	-0.27	0.004	0.03	-0.032	-0.27	0.006	0.05	-0.032	-0.27	0.005	0.04	-0.031	-0.26	0.005	0.04
Advisor to Acquirer	0.033	0.63	0.000	0.01	0.035	0.66	0.003	0.05	0.035	0.66	0.000	-0.01	0.035	0.66	0.000	0.01	0.033	0.64	0.001	0.01
Advisor to Target	0.026	0.53	0.037	0.79	0.025	0.52	0.036	0.77	0.026	0.53	0.037	0.79	0.025	0.51	0.037	0.79	0.025	0.53	0.037	0.79
Heckman's Lambda			-0.038	-0.21			-0.024	-0.12			-0.035	-0.19			-0.038	-0.21			-0.039	-0.22
Time FE	Y		Y		Y		Y		Y		Y		Y		Y		Y		Y	
Industry FE	SIC2		N		SIC2		N		SIC2		N		SIC2		N		SIC2		N	
R <sup>2</sup>	0.274				0.274				0.274				0.274				0.274			

coefficient behind Hostile Approach appeared to be insignificant prediction (see columns 1, 3, 5, 7, 9 in Table IV). Also, likelihood ratio test for restricting coefficient behind Hostile Approach dummy for 0 showed we can not reject the null of restricted model being nested in full (chi squared 0.13 with p-value 0.720). Hence, dummy for Hostile Approach could be excluded from specification for premium without hurting explanatory power much. Results for specifications with Heckman correction for selection bias see in columns 2, 4, 6, 8 and 10 in Table IV. Note, that Heckman's Lambda appeared to be insignificant in all the specifications, emphasizing absence of selection bias by success.

Also note, there are several approaches which time horizon to employ while measuring takeover premia. E.g. Bodnaruk et al. (working paper) uses time period of trading days (-63;+42) to measure the premium, while Schwert (2000) uses time horizon of trading days(-63;+126). In our main sample there are only 10% of all the announced deals that are completed within 2 months from the announcement. While in six months 51.2% of all announced deals are completed. Thus in our measure of premium we use time horizon of (-63;+126) trading days.

From the evidence presented in Table IV, neither of identifications of multiple acquirers appeared to significantly explain premia paid in M&A deals. Reliable (5% significance) positive effect on premium appeared to have book to market ratio of target firm, merger dummy, dummy for poison pill from the part of the target, price to equity ratio of acquiring firm. Obtained results are not contradictory to the literature. There are no clear evidence for direction of influence of accounting performance characteristics on premium paid in M&A. Thus positive effect of book to market ratio of target firm and price to earnings of acquiring firm does not contradict insignificant estimates obtained by Schwert (2000). Note, that positive influence of book to market ratio of target firm on premium paid may explain higher success rates in deals announced for these

firms. Like in Schwert (1996) presence of defensive techniques such as poison pill from the part of the target increases premium paid in M&A deal for such a target. Unlike in *ceteris paribus* textbook examples, we found reliably positive influence on premium by mergers and reliably negative influence on premiums of cash deal. While contradicting findings of Frank, Harris and Mayer (NBER working paper), who found higher premium being paid in cash deals for the sample of 1955-1985, our findings are in line with Andrade et al. (2001) describing recent trends in financing M&A. Following evidence of Andrade, Mitchell and Lehn (2001) in late 1980s - 1990s there is a trend for increasing importance of stock financing is observed. From one hand, shareholders of target firms receiving cash are subject to tax on capital gains, thus may ask for higher premium comparing to stock offers (argument of Franks et al.). But it is true only if cash and stock presents equivalent measure of financial value. In case stock of acquiring firm is overvalued, target firm shareholders are expected to ask higher premium in stock financed offers. As its usual for acquiring firm to pay with stock when this stock seems to be overvalued, noting recent trend in increasing use of stock as a mean of financing the acquisition, we may conclude that in stock offers acquiring firm may agree to pay even higher premium comparing to one it would agree to pay in cash. Knowing, that it's merger deals that are usually financed with equity, reliably positive coefficient behind merger dummy becomes understandable. Our findings as for positive influence of mergers and negative impact of cash on overall premium are in line with Bodnaruk et al. (working paper), analyzing the M&A deals of the same period as we do. Also reliable negative impact on premium found to have toehold dummy, that is in line with Bodnaruk et al., as accumulating targets stock before the announcement allows target to buy less shares after announcement to obtain control over target.

As M&A is an example when *ceteris paribus* principle does not work well and the overall effect depends on combination of different characteristics, we may expect

our regression to suffer from multicollinearity problem. Matrix of correlation of coefficients are in Appendix. Note, that significant correlation was found between debt to equity ratio and returns on equity of target firms. To cure this problem we may drop e.g. debt to equity from the regression, as long as  $\chi^2$  of LR test for coefficient behind debt to equity being zero is 0.13 with p-value being 0.721. But we can not drop both ( $\chi^2$  of LR test for joint insignificance is 11.89 with p-value being 0.000). Exclusion of debt to equity variable does not qualitatively affect the finding. Thus, in Table IV all the characteristics are included. Correlation matrix could be seen in the Appendix C.

**Alternative identifications of multiple acquirers.** As we have not found supportive evidence for either “learning by doing” or “hubris” hypotheses explaining differences in terms of M&A deals announced by multiple acquirers, we may closely look at our definitions of identification of multiple acquirer. We tried to explain impact of previous acquisition experience on outcome of the next deal. Thus, to capture influence of accumulated by managers experience, we constructed dummies differentiating between order number of subsequent acquisition. E.g. in M3 we concentrated at the acquisitions that are at least fourth for the bidder<sup>9</sup>. In this case more likely “learning by doing” be true, as we are trying to capture differences in each next deal announced. Alternatively to this, is “hubris” hypothesis is a better explanation of real world situation, then there is something in common for all the deals conducted by multiple acquirer. Thus, not only fifth or sixth deal of affected by hubris acquirer will differ from average, but the first and second in this three years either. For the purpose of capturing this possible effect, we construct an alternative measures of multiple acquire identification, calling them MM1, MM2, MM3 and MM5. MM1 (MM2, MM3, MM5) is a dummy that labels with one all the deal in which M1 (M2, M3, M5)

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<sup>9</sup> - M3 stands for announcing 3 or more acquisitions within 3 years. Hence, current deal by this bidder is at least fourth.

where involved. To make it clear how these dummies relates to each other see example below:

There are 7 deals in our full sample, bidder in which was company with CUSIP “1957”. This company has announced deals in October, 1995; January, 1998; June, 1998; April, 1999; November, 1999; March, 2000 and March, 2001. In 36 months before March 2001 there was 4 announcement made. Hence, M&A deal announced on March 2001 besides other criteria, is also characterized by number 4 – reflecting previous acquisition experience of acquirer. Note, January 1998 announcement is in 38 months far from March 2001 announcement, so it’s not counted as “3-year previous announcement” with respect to March 2001 (see Table V)

**Table V**  
**Relations Between Different Multiple Acquirers’ Identifications**

Date of announcement	Count	M1	M2	M3	M5	MM1	MM2	MM3	MM5
30-Oct-95	0	0	0	0	0	1	1	0	0
8-Jan-98	1	1	0	0	0	1	1	1	0
24-Jun-98	2	1	1	0	0	1	1	1	0
22-Apr-99	2	1	1	0	0	1	1	1	0
1-Nov-99	3	1	1	1	0	1	1	1	0
31-Mar-00	4	1	1	1	0	1	1	1	0
22-Mar-01	4	1	1	1	0	1	1	1	0

Multiple acquirers identified with these new measures constitute in percentage of the main deal: MM1 – 38.7%, MM2 – 19.2%, MM3 – 11.8% and MM5 – 5.4%. We conduct the same regression analysis as described above using these alternative identifications of multiple acquirers. Results of probit model for success is presented in Table VII in Appendix B. Heteroscedasticity robust OLS results are in Table VIII in Appendix B. From the obtained results only MM1 identification showed weak negative influence on success rates with t-statistic -

1.21 (nearly 20% significance). All other identifications found to be insignificant explaining success rates and premia. Coefficients behind control variables remain robust.



## *Chapter 5*

### DISCUSSION OF THE RESULTS

We have posed two hypotheses as for differences in terms of M&A deals for firms that announce many acquisitions. “Learning by doing” hypothesis imply experience accumulated by the acquirer increases chances to succeed in the next deal along with decreasing of premium the next deal is completed with. Alternatively, “hubris” hypothesis predicts that deals announced by multiple acquirers are characterized by on average higher success rate along with higher average premia paid. Neither of stated hypotheses appeared to be a good explanation of data from the sample of 1,345 domestic U.S. M&A deals announced for exchange-listed target firms with complete stock performance and accounting information for both parties available. There are two possibilities to explain this: either underlying assumptions do not satisfactory reflects real world situation, or data available for analysis can not provide satisfactory evidence of effect under interest.

Assumption underlying both hypotheses implies that in three years top management of the company stays is relatively constant in the sense that experience obtained from acquisition deals made within three years could be employed in each next deal. In the sample under analysis near 30% of all the deals were announced by companies that have already announced at least one deal over the three years before current deal. Thus, there are substantial amount of firms which could incorporate previous acquisition experience to improve terms of the next announced deal. It could be not the case, if it’s different managers, who conduct each next acquisition. But not exploiting the available experience seems to be contradictory to rational profit maximizing decision. Another possibility

could be that it's not terms of a deal (i.e. premium and success) that are in focus of accumulated experience. As a direction for further research could be investigating differences in profitability of acquisitions made by multiple acquirer. Multiple acquirers could complete the deal as any other bidders, but use experience of previous bids to buy better or more perspective targets. Exact conclusion as for this statement needs separate investigation, although preliminary we would state that it's not necessarily the case. Previous acquisition experience we are dealing with counts for three years, while substantial increase in profitability may be observed in a longer-run. From Table I, Panels A and B one can see that on average multiple acquirers do announce their deals for bigger and more growth oriented targets. Also, from the same Table, there is evidence that on average there are less competing bids made within six months for the same target after the announcement by multiple acquirer. These two observations may be a signal of multiple acquirers bidding for more attractive targets, which majority of the companies can not afford themselves to set as targets. If this logic is true, then multiple acquirers negotiate themselves the same on average conditions of the deal, but for more attractive targets. Formally, test on profitability should be conducted, as unwillingness of the rest of acquirers to follow direction showed by multiple acquirer (i.e. to bid for the same target later) may also be a signal of non-attractiveness of targets of multiple acquirers either. If in test for comparative profitability acquisitions of multiple acquirers will show not to differ much, then it will be a support for hubris hypothesis.

Another possibility for us not to observe differences in terms of M&A deals announced by multiple acquirers could lie in main sample construction bias. From Table II one can see that be the very construction based on availability of complete stock and accounting performance data the main sample does differ from the full sample in terms of average success and premium in the deals. It appeared to be that in the main sample there are deals that on average are

completed more often with higher premia paid in them. This selection has deterred subsample of multiple acquirers too: evidence from the Table I, Panel A and B suggests that in the full sample multiple acquirers on average pay lower premium for their targets and do not differ substantially in average success of their deals<sup>10</sup>. Alternatively to this, multiple acquirers from the main sample on average appeared to be more successful in their bids with no reliable difference in premium paid. Such a dramatic change from less average success rate in the full sample to higher average success in the main sample, when average over all deals in the main sample have also risen, seems to signal about distorted representative power of subsample of multiple acquirers from the main sample.

Results obtained are mostly inconclusive. We have not found reliable evidence for hubris affecting managers of multiple acquiring firms. Neither have we found supportive evidence for managers of multiple acquiring firms deriving benefits from previous acquisition experience to lower premium paid in subsequent deal. This ambiguity in results is not satisfactory base for decision making by shareholders, who are proposed by managers of their firm to agree on next acquisition. One message is clear from the data analysis in this work: managerial incentives matter and may alter the terms and the outcome of M&A deal. Hence, an advise for shareholders of multiple acquiring firm could be to pay additional attention not only to potential benefits of the next proposed acquisition, but to incentives of managers suggesting it. Picture of potential gains from new acquisition described by managers could change substantially if to include additional stimuli to the managerial motivation scheme. These new stimuli, guaranteeing partial ownership of a company, thus equalizing goals of managers and shareholders, could be different (phantom) stock options.

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<sup>10</sup> - that could be a signal of “learning by doing” hypothesis

## *Chapter 6*

### CONCLUSIONS

We study the difference in terms of M&A deals announced by firm that make many acquisitions. Two hypotheses, one inferring to influence of accumulated experience, another predicting non-value maximizing incentives were employed to explain distinctions in M&A deals conducted by multiple acquirers. Neither of hypotheses found to have supportive evidence. Our findings does not reject stated hypotheses, as sample available for regression analysis is biased with respect to full sample of U.S. M&A deals announced for exchange-listed targets for the period 1980-2002. Results suggest that on the available sample there are no reliable differences in terms of success and premium paid by multiple acquirers.

## BIBLIOGRAPHY

- Andrade, G., M. Mitchell and E. Stafford. (2001) *New Evidence and Perspectives on Merger*. The Journal of Economic Perspectives, vol. 15, pp. 103-120.
- Bodnaruk, A., M. Massa and A. Simonov (2007) *The Dark Role of Investment Banks in the Market for Corporate Control*. Working Paper Series.
- Bradley, M., A. Desai and E. Kim (1983) *The Rationale Behind Interfirm Tender Offers*. Journal of Financial Economics, vol. 11, pp. 183-206.
- Bradley, M., A. Desai and E. Kim (1988) *Synergistic Gains From Corporate Acquisitions and Their Division Between the Stockholders of Target and Acquiring Firms*. Journal of Financial Economics, vol. 21, pp. 3-40.
- Denis, D., D. Denis and A. Sarin (1997) *Agency Problems, Equity Ownership and Corporate Diversification*. Journal of Finance, vol. 52, pp.135-160.
- Fama, E. and K. French (1992) *The cross-section of expected stock returns*. The Journal of Finance, vol. 47, pp. 427-465.
- Franks, J., R. Harris and C. Mayer (1988) *Means of Payment in Takeovers: Results for the U.K. and U.S.* NBER Working Paper Series.
- Fuller, K., J. Netter and M. Stegemoller (2002) *What Do Returns to Acquiring Firm Tell Us? Evidence from Firms That Make Many Acquisitions*. The Journal of Finance, vol. 57, pp. 1763-1793.
- Gondhalekar, V., R. Sant and S. Ferris (2002) *The Price of Corporate Acquisition: Determinants of Takeover Premia*. Working Paper Series
- Grinblatt, M. and S. Titman (2002) *Financial Markets and Corporate Strategy*. 2 edit., McGraw-Hill
- Healy, P., K. Palepu and R. Ruback (1992) *Does Corporate Performance Improve After Merger?* Journal of Financial Economics, vol. 31, pp. 135-176.
- Jarrell, G., J. Brickley and J. Netter (1988) *The Market for Corporate Control: The Empirical Evidence Since 1980*. The Journal of Economic Perspectives, vol. 2, pp. 49-68.
- Jarrell, G. and A. Poulsen (1987) *Shark Repellents and Stock Prices: The Effect of Antitakeover Amendments Since 1980*. Journal of Financial Economics, vol. 19, pp. 127-168.

- Jensen, M. and R. Ruback (1983) *The Market for Corporate Control: The Scientific Evidence*. Journal of Financial Economics, vol. 11, pp. 5-50.
- Jensen, M. (1986) *Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers*. The American Economic Review, vol. 76, pp. 323-329.
- Lang, L. and R. Stulz (1994) *Tobin's q, Corporate Diversification and Firm Performance*. Journal of Political Economy, vol. 102, pp. 1248-1280.
- Lang, L., R. Stulz and R. Walking (1991) *A Test of Free Cash Flow Hypothesis. The Case of Bidder Returns*. Journal of Financial Economics, vol. 29, pp. 315-335.
- Mitchell, M. and K. Lehn (1990) *Do Bad Bidders Become Good Targets?* The Journal of Political Economy, vol. 98, pp. 372-398.
- Moeller, S., F. Schlingemann and R. Stulz (2004) *Firm Size and the Gains from Acquisitions*. Journal of Financial Economics, vol. 73, pp. 201-228.
- Morck, R., A. Shleifer and R. Vishny (1990) *Do managerial objectives drive bad acquisitions?* Journal of Finance, vol. 45, pp. 31-48.
- Ravenscraft, D. and F. Sherer (1987) *Life after takeover*. Journal of Industrial Economics, vol. 36, pp. 147-156.
- Roll, R. (1986) *The Hubris Hypothesis of Corporate Takeover*. Journal of Business, vol. 59, pp.197-216.
- Schwert, W. (1996) *Markup Pricing in Mergers and Acquisitions*. Journal of Financial Economics, vol. 41, pp. 153-162.
- Schwert, W. (2000) *Hostility in Takeovers: In the Eyes of the Beholder?* The Journal of Finance, vol. 55, pp. 2599-2640.
- Schwert, W. and R. Comment (1995) *Poison or Placebo? Evidence on the Deterrence and Wealth Effects of Modern Antitakeover Measures*. Journal of Financial Economics, vol. 39, pp. 3-44
- Shleifer A. and R. Vishny (1988) *Value Maximization and the Acquisition Process*. The Journal of Economic Perspectives, vol. 2, pp. 7-20.
- Verbeek M. (2000) *A guide to modern econometrics*. Wiley.
- Vermeulen, F. and H. Barkema (2001) *Learning Through Acquisitions*. Academy of Management Journal, vol. 44, pp. 457-476.

APPENDIX A: MEAN COMPARISON OF FINANCIAL VERSUS NON FINANCIAL COMPANIES IN THE MAIN SAMPLE

**Table VI**  
**Financials vs. Non financials in the Full Sample**

Columns (1,4) presents the means for different firm-specific and deal specific characteristics (as described in Table I) for deals involving US publicly-listed acquirers operating in the financial industry bidding for US publicly-listed targets from 1980 to 2002. Columns (2,5) presents means of the same bid describing characteristics as in Columns (1,4), but for deals involving publicly-listed US acquirers operating in the non financial industry bidding for US publicly-listed targets from 1980 to 2002. Sample under analysis is a full one, consisting of 7,456 announced deals from 1980 to 2002.

Variable	(1) Financials (N=2,803) Mean	(2) Non fin. (N=4,653) Mean	(3) <i>t</i> -statistic for Difference	Variable	(4) Financials (N=2,803) Mean	(5) Non fin. (N=4,653) Mean	(6) <i>t</i> -statistic for Difference
<b>Bidder Firm Characteristics</b>				<b>Deal Characteristics</b>			
Market Capitalization	6.876	7.235	-4.38	Success	0.706	0.691	1.43
B/M	-0.525	-1.044	19.00	Runup	0.071	0.099	-3.51
D/E	1.087	0.623	2.07	Markup	0.085	0.131	-3.68
P/E	2.648	3.081	-14.33	Premium	0.156	0.230	-4.67
Sales Growth	0.196	0.245	-2.02	Cash	0.458	0.386	6.08
Accounting Liquidity	0.324	0.229	2.13	Merger	0.080	0.174	-12.41
ROE	0.069	0.045	0.90	Hostile Approach	0.049	0.070	-3.83
<b>Target Firm Characteristics</b>				Poison Pill	0.021	0.028	-1.95
Market Capitalization	5.025	5.111	-1.85	Precomp	0.141	0.143	-0.17
B/M	-0.333	-0.684	15.73	Postcomp	0.161	0.165	-0.54
D/E	1.000	0.745	0.91	Toehold	0.139	0.125	1.78
P/E	2.692	2.949	-9.77	Same Industry	0.375	0.480	-8.99
Sales Growth	0.120	0.145	-1.71	Institutional Ownership	0.272	0.292	-3.95
Accounting Liquidity	0.200	0.246	-4.69	Advisor to Acquirer	0.098	0.153	-7.10
ROE	0.020	-0.110	1.05	Advisor to Target	0.167	0.220	-5.77

## APPENDIX B: PROBIT MODEL FOR SUCCESS AND HETEROSCEDASTICITY ROBUST OLS MODEL FOR PREMIUM PAID IN M&A WITH ALTERNATIVE IDENTIFICATIONS OF MULTIPLE ACQUIRERS

**Table VII**  
**Probability of Success.**  
**Multiple Acquirers Identification MM1, MM2, MM3, MM5**

A probit model predicts whether a bid announced by US publicly-listed acquiring firm for US publicly-listed target firm from 1980 to 2002 will be successful. Dependent variable is dummy that equals 1 if bid leads to acquisition of a target, zero otherwise. Methodology of estimating probability of success of announced bid is employed following Schwert (2002). Identification of firms that make many acquisitions (“multiple acquirers”) is presented with four dummy variables: MM1, MM2, MM3 and MM5. MM1 (MM2; MM3; MM5) is a dummy variable that takes value 1 if a deal was initiated by bidding firm that within three years around announcement of this current deal has also announced 1 or more (2 or more, 3 or more, 5 or more) deals, zero otherwise.

Following Schwert (2000), we include accounting performance measures of target firm. Following Bodnaruk, Massa, Simonov (working paper) we include accounting performance characteristics of bidder. Following Schwert (1996) we include deal-specific characteristic of announced bid. *Market Capitalization* is measured as a natural logarithm of equity capitalization at the end of the year preceding the bid (price x shares outstanding, COMPUSTAT items 24x25). *B/M* is a natural logarithm of book to market ratio, measured as the ratio of book value of equity for the prior fiscal year to year-end market value of common stock (COMPUSTAT items 60/(24x25)). *D/E* is a ratio of debt to equity for the prior fiscal year (COMPUSTAT items 9/60). *P/E* is a natural logarithm of the ratio of year-end stock price to earnings per share for the prior fiscal year (COMPUSTAT items 24/58). *Sales Growth* is measured as proportional change in sales over the previous fiscal year ( $\ln(\text{COMPUSTAT items } 12/12(t-1))$ ). *Accounting Liquidity* is measured as the ratio of net liquid assets to total assets for the prior fiscal year (COMPUSTAT items (4-5)/6). *ROE* (return on equity) is measured as earnings to average equity for the prior fiscal year (COMPUSTAT items 20/(60+60(t-1))). *Cash* is a dummy variable that takes value 1 if bid is purely cash-financed, zero otherwise. *Merger* is a dummy variable that takes 1 if bid is structured as merger, zero otherwise. *Hostile Approach* is dummy variable that takes 1 if the bid is recorded by SDC as “hostile” or “unsolicited”, zero otherwise. *Poison Pill* is a dummy variable that takes 1 if a poison pill from the part of a target affects bidder’s acquisition attempt, zero otherwise. *Precomp (Postcomp)* is a dummy variable that equals one if another bid by a different bidder is recorded by SDC in the six months before (after) the current bid, zero otherwise. *Toehold* is a dummy variable that equals one if a bidder has accumulated more than 5% of target’s stock before the bid announcement, zero otherwise. Same *Industry* is a dummy variable that equals 1 if bidder is from the same industry as the target (industry is defined by 2-digit SIC code), zero otherwise. *Institutional Investors* is measured as share of target company held by institutional investors. *Advisor to Acquirer (Target)* is a dummy variable that equals 1 if fraction of equity of acquiring (target) firm owned by investment bank advising acquirer (target) is greater than 0, zero otherwise.

Estimated coefficient and t-statistics and marginal effects are reported. Marginal effects are calculated at the variables’ means. Number of observations is 784. Dummies for industries (corresponding to 2-digit SIC code) to capture industry fixed effects and yearly dummies to capture time fixed effects are employed. Pseudo R<sup>2</sup> statistic is reported.



	Coef.	t-stat.	dF/dX	Coef.	t-stat.	dF/dX	Coef.	t-stat.	dF/dX	Coef.	t-stat.	dF/dX
<b>Multiple Acquirer Identification</b>												
MM1	-0.201	-1.21	-0.042									
MM2				0.047	0.20	0.010						
MM3							0.313	1.11	0.056			
MM5										0.220	0.47	0.040
<b>Bidder Firm Characteristics</b>												
Market Capitalization	0.336	4.62	0.069	0.312	4.34	0.064	0.303	4.27	0.062	0.311	4.39	0.064
B/M	-0.303	-1.69	-0.062	-0.330	-1.85	-0.068	-0.343	-1.92	-0.071	-0.335	-1.88	-0.069
D/E	-0.072	-1.18	-0.015	-0.078	-1.29	-0.016	-0.077	-1.28	-0.016	-0.079	-1.30	-0.016
P/E	0.071	0.54	0.015	0.065	0.49	0.013	0.065	0.49	0.013	0.062	0.47	0.013
Sales Growth	-0.128	-0.92	-0.026	-0.130	-0.93	-0.027	-0.145	-1.03	-0.030	-0.136	-0.98	-0.028
Accounting Liquidity	0.208	0.37	0.043	0.204	0.37	0.042	0.170	0.30	0.035	0.195	0.35	0.040
ROE	-0.973	-1.11	-0.200	-1.076	-1.21	-0.222	-1.119	-1.26	-0.231	-1.109	-1.24	-0.228
<b>Target Firm Characteristics</b>												
Market Capitalization	-0.305	-3.76	-0.063	-0.300	-3.68	-0.062	-0.295	-3.64	-0.061	-0.301	-3.72	-0.062
B/M	0.429	2.15	0.088	0.436	2.19	0.090	0.443	2.23	0.091	0.435	2.19	0.090
D/E	0.008	0.10	0.002	0.002	0.03	0.000	0.007	0.08	0.001	0.004	0.04	0.001
P/E	0.092	0.72	0.019	0.095	0.75	0.020	0.096	0.75	0.020	0.095	0.75	0.020
Sales Growth	0.265	1.08	0.054	0.244	1.01	0.050	0.235	0.97	0.048	0.248	1.02	0.051
Accounting Liquidity	-0.928	-1.68	-0.191	-0.926	-1.68	-0.191	-0.916	-1.66	-0.189	-0.924	-1.68	-0.190
ROE	1.713	1.46	0.352	1.798	1.53	0.371	1.900	1.61	0.392	1.788	1.53	0.368
<b>Deal Characteristics</b>												
Cash	0.101	0.53	0.020	0.076	0.40	0.015	0.058	0.30	0.012	0.072	0.38	0.015
Merger	1.207	4.72	0.176	1.217	4.78	0.178	1.243	4.85	0.180	1.222	4.79	0.178
Hostile Approach	-1.338	-4.77	-0.419	-1.326	-4.76	-0.416	-1.348	-4.83	-0.424	-1.324	-4.75	-0.414
Poison Pill	-0.182	-0.43	-0.041	-0.195	-0.46	-0.044	-0.171	-0.41	-0.039	-0.194	-0.46	-0.044
Precomp	-0.969	-4.19	-0.277	-0.941	-4.10	-0.268	-0.944	-4.11	-0.269	-0.941	-4.10	-0.268
Postcomp	-0.958	-4.91	-0.272	-0.965	-4.95	-0.275	-0.943	-4.82	-0.267	-0.967	-4.97	-0.275
Toehold	-0.106	-0.38	-0.023	-0.099	-0.36	-0.021	-0.105	-0.38	-0.023	-0.097	-0.35	-0.021
Same Industry	-0.174	-0.91	-0.036	-0.183	-0.95	-0.037	-0.185	-0.96	-0.038	-0.173	-0.90	-0.035
Institutional Ownership	-0.065	-0.14	-0.013	-0.063	-0.13	-0.013	-0.066	-0.14	-0.014	-0.050	-0.11	-0.010
Advisor to Acquirer	0.359	1.68	0.067	0.369	1.74	0.069	0.366	1.72	0.068	0.370	1.74	0.069
Advisor to Target	-0.171	-0.83	-0.037	-0.159	-0.78	-0.034	-0.144	-0.70	-0.031	-0.164	-0.80	-0.035
Time Fixed Effects	Y			Y			Y			Y		
Industry Fixed Effects	Y			Y			Y			Y		
Pseudo R <sup>2</sup>	0.411			0.409			0.411			0.409		

**Table VIII**  
**Takeover Premium.**  
**Multiple Acquirers Identification MM1, MM2, MM3, MM5**

An Ordinary Least Squares regression model is used to explain the takeover premium. Takeover premium is measured as cumulative abnormal return to target firm's stock price in the three months before and six months after the bid announcement (for trading days -63, +126) for successful and unsuccessful takeover bids by publicly-listed US companies for publicly-listed US target firms, 1980 to 2002. Methodology of estimating takeover premium as a sum of pre-bid runup and post-bid markup in target stock price is employed following Schwert (2002). Identification of firms that make many acquisitions ("multiple acquirers") is presented with four dummy variables: MM1, MM2, MM3 and MM5. MM1 (MM2; MM3; MM5) is a dummy variable that takes value 1 if a deal was initiated by bidding firm that within three years around announcement of this current deal has also announced 1 or more (2 or more, 3 or more, 5 or more) deals, zero otherwise.

Following Schwert (2000), we include accounting performance measures of target firm. Following Bodnaruk, Massa, Simonov (working paper) and Gondhalekar, Sant, Ferris (working paper) we include accounting performance characteristics of bidder. Following Schwert (1996) we include deal-specific characteristic of announced bid. *Market Capitalization* is measured as a natural logarithm of equity capitalization at the end of the year preceding the bid (price x shares outstanding, COMPUSTAT items 24x25). *B/M* is a natural logarithm of book to market ratio, measured as the ratio of book value of equity for the prior fiscal year to year-end market value of common stock (COMPUSTAT items 60/(24x25)). *D/E* is a ratio of debt to equity for the prior fiscal year (COMPUSTAT items 9/60). *P/E* is a natural logarithm of the ratio of year-end stock price to earnings per share for the prior fiscal year (COMPUSTAT items 24/58). *Sales Growth* is measured as proportional change in sales over the previous fiscal year ( $\ln(\text{COMPUSTAT items } 12/12(t-1))$ ). *Accounting Liquidity* is measured as the ratio of net liquid assets to total assets for the prior fiscal year (COMPUSTAT items (4-5)/6). *ROE* (return on equity) is measured as earnings to average equity for the prior fiscal year (COMPUSTAT items 20/(60+60(t-1))). *Cash* is a dummy variable that takes value 1 if bid is purely cash-financed, zero otherwise. *Merger* is a dummy variable that takes 1 if bid is structured as merger, zero otherwise. *Hostile Approach* is dummy variable that takes 1 if the bid is recorded by SDC as "hostile" or "unsolicited", zero otherwise. *Poison Pill* is a dummy variable that takes 1 if a poison pill from the part of a target affects bidder's acquisition attempt, zero otherwise. *Precomp (Postcomp)* is a dummy variable that equals one if another bid by a different bidder is recorded by SDC in the six months before (after) the current bid, zero otherwise. *Toehold* is a dummy variable that equals one if a bidder has accumulated more than 5% of target's stock before the bid announcement, zero otherwise. Same *Industry* is a dummy variable that equals 1 if bidder is from the same industry as the target (industry is defined by 2-digit SIC code), zero otherwise. *Institutional Investors* is measured as share of target company held by institutional investors. *Advisor to Acquirer (Target)* is a dummy variable that equals 1 if fraction of equity of acquiring (target) firm owned by investment bank advising acquirer (target) is greater than 0, zero otherwise.

Estimated coefficient and t-statistics are reported. Dummies for industries (corresponding to 2-digit SIC code) to capture industry fixed effects and yearly dummies to capture time fixed effects are employed. Number of observations is 784. Second, fourth, sixth and eighth specifications are corrected for selectivity bias using Heckman correction procedure. Probability of success from table VI is used as selection equation. Variable that affect probability of success, but does not affect premium paid is dummy for Hostile Approach. Specifications 1, 3, 5 and 7 present heteroscedasticity robust estimates.

	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.
<b>Multiple Acquirer Identification</b>																
MM1	-0.040	-0.99	-0.015	-0.38												
MM2					0.019	0.38	0.022	0.47								
MM3									0.047	0.83	0.036	0.66				
MM5													0.088	1.07	0.087	1.18
<b>Bidder</b>																
Market Capitalization	0.013	0.79	-0.005	-0.27	0.007	0.44	-0.006	-0.31	0.006	0.39	-0.007	-0.38	0.006	0.36	-0.010	-0.55
B/M	-0.038	-0.78	-0.051	-1.27	-0.044	-0.92	-0.055	-1.36	-0.044	-0.93	-0.054	-1.35	-0.043	-0.91	-0.054	-1.35
D/E	-0.005	-0.54	-0.014	-0.46	-0.006	-0.68	-0.015	-0.48	-0.006	-0.67	-0.014	-0.47	-0.007	-0.73	-0.015	-0.50
P/E	-0.065	-1.89	-0.049	-1.57	-0.066	-1.93	-0.049	-1.60	-0.066	-1.95	-0.050	-1.61	-0.067	-1.96	-0.052	-1.66
Sales Growth	-0.018	-0.52	-0.016	-0.43	-0.018	-0.52	-0.017	-0.45	-0.019	-0.54	-0.018	-0.48	-0.020	-0.57	-0.018	-0.46
Accounting Liquidity	-0.127	-0.84	-0.127	-1.05	-0.129	-0.85	-0.133	-1.09	-0.134	-0.89	-0.134	-1.10	-0.139	-0.91	-0.140	-1.15
ROE	0.077	0.65	0.178	0.99	0.070	0.60	0.171	0.94	0.070	0.60	0.174	0.96	0.062	0.54	0.175	0.98
<b>Target</b>																
Market Capitalization	-0.030	-1.45	-0.028	-1.24	-0.030	-1.42	-0.029	-1.27	-0.030	-1.43	-0.029	-1.28	-0.030	-1.46	-0.027	-1.23
B/M	0.157	3.84	0.097	2.44	0.156	3.76	0.097	2.42	0.156	3.73	0.096	2.41	0.154	3.76	0.093	2.34
D/E	0.007	0.33	-0.006	-0.36	0.006	0.31	-0.005	-0.34	0.006	0.32	-0.005	-0.35	0.006	0.32	-0.005	-0.33
P/E	0.032	1.13	0.038	1.49	0.033	1.18	0.039	1.54	0.033	1.18	0.039	1.54	0.034	1.20	0.039	1.53
Sales Growth	-0.065	-1.23	-0.038	-0.74	-0.070	-1.31	-0.039	-0.77	-0.071	-1.32	-0.039	-0.78	-0.070	-1.31	-0.042	-0.84
Accounting Liquidity	0.011	0.07	0.032	0.29	0.007	0.05	0.029	0.26	0.006	0.04	0.030	0.27	0.006	0.04	0.031	0.28
ROE	0.014	0.99	-0.082	-0.51	0.014	0.99	-0.075	-0.46	0.015	0.99	-0.074	-0.46	0.014	0.98	-0.080	-0.50
<b>Deal Characteristics</b>																
Cash	-0.067	-1.47	-0.073	-1.58	-0.071	-1.56	-0.075	-1.64	-0.073	-1.59	-0.076	-1.65	-0.073	-1.59	-0.074	-1.62
Merger	0.142	3.04	0.151	2.66	0.146	3.16	0.159	2.69	0.148	3.19	0.157	2.74	0.147	3.18	0.156	2.76
Hostile Approach	0.019	0.33			0.017	0.29			0.014	0.24			0.018	0.30		
Poison Pill	0.260	2.98	0.339	2.18	0.259	2.96	0.336	2.12	0.263	3.01	0.340	2.17	0.261	2.99	0.343	2.21
Precomp	-0.009	-0.18	0.030	0.42	-0.009	-0.17	0.023	0.32	-0.008	-0.17	0.026	0.36	-0.007	-0.14	0.029	0.41
Postcomp	0.074	1.45	0.072	0.75	0.074	1.43	0.058	0.56	0.076	1.46	0.062	0.64	0.072	1.40	0.066	0.70
Toehold	-0.180	-2.86	-0.145	-2.28	-0.179	-2.82	-0.146	-2.29	-0.180	-2.82	-0.147	-2.31	-0.178	-2.80	-0.148	-2.32
Same Industry	-0.022	-0.48	0.002	0.06	-0.019	-0.44	0.004	0.11	-0.018	-0.41	0.004	0.10	-0.016	-0.35	0.006	0.16
Inst. Ownership	-0.026	-0.22	0.013	0.11	-0.026	-0.22	0.009	0.08	-0.024	-0.20	0.012	0.11	-0.020	-0.16	0.015	0.14
Advisor to Acquirer	0.033	0.62	-0.001	-0.03	0.033	0.63	0.001	0.01	0.032	0.61	-0.002	-0.04	0.034	0.65	-0.003	-0.06
Advisor to Target	0.027	0.56	0.039	0.85	0.026	0.53	0.037	0.79	0.026	0.54	0.037	0.80	0.024	0.49	0.035	0.75
Heckman's Lambda			-0.064	-0.43			-0.035	-0.21			-0.045	-0.29			-0.059	-0.40
Time FE	Y		Y		Y		Y		Y		Y		Y		Y	
Industry FE	SIC2		N		SIC2		N		SIC2		N		SIC2		N	
R <sup>2</sup>	0.276				0.275				0.275				0.276			

APPENDIX C: CORRELATION MATRIX OF VARIABLES USED FOR HETEROSCEDASTICITY ROBUST OLS ESTIMATIONS

e(V)	ml_main	ln_siz..	ln_b_m..	d_e_a~n	ln_p_e..	s~a_main	liquid..	roe_a~n	ln_siz..
ml_main	1.0000								
ln_size_a~n	-0.2456	1.0000							
ln_b_m_a_m~n	-0.0418	0.3609	1.0000						
d_e_a_main	-0.2067	0.3537	0.4430	1.0000					
ln_p_e_a_m~n	-0.0765	-0.0621	0.3249	0.0147	1.0000				
sales~a_main	-0.1712	0.1048	-0.0593	0.0175	-0.2332	1.0000			
liqui~a_main	-0.0857	0.3805	-0.0450	0.1975	-0.0749	0.1052	1.0000		
roe_a_main	0.0350	-0.0335	0.1635	0.1096	0.1481	0.0452	-0.0905	1.0000	
ln_size_t~n	-0.0221	-0.4720	-0.0660	-0.1799	0.0794	0.0745	-0.1976	0.0969	1.0000
ln_b_m_t_m~n	-0.0140	-0.1430	-0.3565	-0.2347	0.0398	-0.0010	-0.1229	-0.0073	0.3607
d_e_t_main	-0.0096	-0.0955	-0.2559	-0.1608	-0.0368	0.0405	-0.0749	-0.0765	0.1026
ln_p_e_t_m~n	-0.0413	-0.0219	0.1523	0.0763	-0.1768	0.0996	-0.1370	0.1020	0.0012
sales~t_main	0.0153	0.0459	0.0455	0.0818	-0.0712	-0.0541	-0.0627	-0.1438	0.0325
liqui~t_main	0.0447	-0.2273	0.1017	-0.0970	-0.0123	-0.0812	-0.6143	-0.0162	0.3277
roe_t_main	-0.0110	-0.1064	-0.2516	-0.1456	-0.0666	0.1031	-0.0580	-0.0709	0.0347
trans_cash~n	-0.1595	0.0611	0.1116	0.0539	0.0829	0.0750	-0.0366	0.0014	0.0286
merger_main	0.1119	-0.1129	-0.1554	-0.0010	-0.0393	0.0609	0.0499	-0.0335	-0.1200
appr_hosti~n	-0.0008	0.1354	0.0274	0.0057	0.0212	-0.0694	-0.0064	-0.0396	-0.1582
poison_pil~n	-0.0966	0.0265	0.0939	0.0725	0.1151	-0.1374	-0.0554	0.2395	0.0559
precomp_main	0.0124	0.1741	0.1415	0.0229	0.0584	-0.0303	0.0256	-0.0808	-0.1920
postcomp_m~n	0.0071	0.0023	-0.0068	-0.0821	0.0397	0.0884	0.0155	0.0063	0.1442
dummy_toeh~n	-0.0694	-0.0600	-0.1835	-0.0728	0.0042	-0.0554	0.0770	-0.1288	-0.1802
dummy_same~n	0.1297	0.1531	0.0204	0.0535	-0.0279	-0.0257	0.0417	0.0125	-0.2718
inst_sh_main	-0.0073	-0.0415	-0.0429	-0.0463	-0.0784	-0.0788	-0.0695	-0.1605	-0.3596
ins_a_main	0.0508	-0.0759	-0.1052	-0.0384	-0.0811	-0.0033	0.0182	-0.0592	-0.0972
ins_t_main	-0.0537	0.0512	0.0674	-0.0023	-0.0264	0.0510	0.1262	-0.0288	-0.0031
_cons	0.2121	-0.3903	-0.3720	-0.1823	-0.4353	-0.0977	-0.1316	-0.1391	-0.2597

  

e(V)	ln_b_m..	d_e_t~n	ln_p_e..	s~t_main	liquid..	roe_t~n	trans~n	merger~n	appr_h~n
ln_b_m_t_m~n	1.0000								
d_e_t_main	0.3998	1.0000							
ln_p_e_t_m~n	0.0390	0.1095	1.0000						
sales~t_main	0.0489	0.0495	0.0338	1.0000					
liqui~t_main	0.1890	0.2777	0.0397	0.0428	1.0000				
roe_t_main	0.2756	0.9856	0.1037	0.0174	0.2284	1.0000			
trans_cash~n	-0.1076	-0.0279	-0.0766	0.0458	-0.0167	-0.0310	1.0000		

merger_main		-0.0814	0.0360	-0.0891	-0.0778	-0.0536	0.0598	-0.3711	1.0000	
appr_hosti~n		-0.1205	0.0218	-0.0395	0.0350	0.0131	0.0322	0.0114	-0.2194	1.0000
poison_pil~n		0.0452	-0.0458	0.0742	-0.0454	0.0315	-0.0651	-0.0425	-0.0436	-0.4551
precomp_main		-0.1103	-0.0914	0.0240	0.0990	-0.0519	-0.0949	0.1221	-0.1015	-0.1746
postcomp_m~n		0.0938	0.0492	0.0703	0.1017	-0.0026	0.0220	-0.0726	0.0044	-0.2091
dummy_toeh~n		-0.0555	0.0548	-0.0963	-0.0109	-0.0012	0.0685	-0.1893	0.2610	0.0480
dummy_same~n		-0.1562	-0.0784	-0.0891	-0.0234	0.0304	-0.0343	-0.0740	0.0059	0.0435
inst_sh_main		-0.1205	0.0054	-0.2047	-0.1822	0.0241	0.0425	0.1507	0.2124	-0.0589
ins_a_main		0.1111	0.0632	-0.0434	0.0704	-0.0022	0.0516	-0.0412	0.0529	-0.0828
ins_t_main		0.0886	-0.0461	0.1195	0.0274	0.0049	-0.0826	0.0958	-0.0797	-0.0387
_cons		-0.0945	-0.1690	-0.3211	-0.0351	-0.1548	-0.1083	-0.1825	0.0844	0.0157
e(V)		poison~n	precom~n	postco~n	~ld_main	~nd_main	inst_s~n	ins_a~n	ins_t~n	_cons
poison_pil~n		1.0000								
precomp_main		0.1475	1.0000							
postcomp_m~n		-0.1274	-0.0208	1.0000						
dummy_toeh~n		-0.1021	0.0163	-0.0164	1.0000					
dummy_same~n		-0.0333	0.1110	-0.1184	0.1240	1.0000				
inst_sh_main		-0.0481	0.1354	-0.1305	0.2538	0.0617	1.0000			
ins_a_main		-0.0603	-0.1157	0.1145	0.0038	-0.0354	-0.1403	1.0000		
ins_t_main		0.0082	0.1634	0.0684	-0.0104	-0.1317	-0.1656	-0.2808	1.0000	
_cons		-0.1104	-0.1387	-0.1819	0.0366	-0.0357	0.1627	0.1987	-0.1115	1.0000