Merger Target Selection and Financial Structure

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July 15, 2002

Abstract

Merger can be an instrument to change the capital structure of a firm. Our results show that the change in the debt-equity ratio that follows a merger is not onedirectional, random, or unintended. Acquiring firms use their acquision activity, particularly their choices of targets, as a means of adjusting their debt-equity ratio. The reason for this can be signal jamming. Financially motivated mergers are pooled with mergers that take place for reasons of market power or production synergies.

Keywords: financial structure, acquisition, target selection, signal jamming

JEL classification numbers: D82, G32, G34

1   Introduction

Merger or acquisition of other firms can serve several purposes. It has been pointed out that merger and acquisition can change the market structure and increase market power, generate economies of scale and other synergies, have tax advantages, or serve managerial ambitions.[1]

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[1]See, for instance, Scherer (2001) for a critical survey and discussion of these motivations.

A potentially very important aspect of merger is its impact on the financial structure of the firms involved in the merger. Acquisition of firms is an instrument for changing the capital structure of the acquiring firm. The acquiring firm absorbs the equity and debt of the acquired firm. We will argue here that the appropriate selection of acquisition targets is an important means of financial restructuring. We will explain why the selection of acquisition targets is superior to more obvious means of financial restructuring, because the change of the financial structure which results from the merger is an effect that cannot be identified unambiguously as the outcome of intentional financial engineering.[2] It may be difficult for outsiders to identify whether an acquisition is made for financial restructuring purposes, or for reasons of synergy or market power etc. This may pollute or jam the financial signal which an acquisition could otherwise provide, and so be advantageous for the decision maker who wants to readjust the financial structure of the firm.

We briefly develop and test this idea using four hypotheses that result from this idea if we adopt two basic assumptions. First, we will adopt the view that there is a mix of financial instruments that makes up an "optimal" financial structure of a corporate firm, a theory sometimes called "trade-off theory" (Fama and French 2000). This theory suggests that different types of financing instruments have different costs that are based on tax considerations, asymmetric information and agency problems, considerations of strategic commitment etc. If these costs increase disproportionately in the share by which of one financial instrument is more predominantly used, then the optimal financial structure uses a mixture of all financial instruments. Second, because profits are uncertain, firms may randomly drift away from their financial optimum. They would like to readjust, and, for various reasons, it may be expensive to use straightforward instruments for readjusting

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[2] A financial instrument other than target selection associated with firm acquisitions is the method of payment. However, as we argue below, with this the direction of financial restructuring is observable, and not much different from financial restructuring in the absence of an acquisition. Hence, we would expect target selection to be the superior (and preferred) instrument used by acquiring firms.

the financial structure.[3]

Our main empirical results are as follows. When firms merge and become a new entity, the acquirer absorbs the financial structure of the target. On average, targets are more highly leveraged than acquiring firms, suggesting a general increase in debt-equity ratios. However, this is not what we measure. We divide the set of acquiring firms in two groups of equal size according to their debt-equity ratios and estimate the effect of merger and acquisition on the change in firms' debt equity ratio for the two groups. We find that firms with a low (high) debt-equity ratio increase (decrease) their debt-equity ratio during, and in the year after the acquisition. We then show that this effect is brought about by a systematic selection of acquisition targets with respect to the target's debt-equity ratio. Firms with a below average debt-equity ratio systematically acquire targets that have particularly high debt-equity ratios, and firms with high debt-equity ratios systematically choose targets that have a much lower debt-equity ratio. Hence, the fact that acquisition moderates the acquiring firms' debt-equity ratios and moves it closer to the mean is driven by target selection.

Moreover, this effect is not brought about through the choice of the method of payment. It might be that acquiring firms' choice of equity shares or cash for paying the owners of the acquired firms bring about the moderation of debt-equity ratios that we measure. However, the pattern we found for the method of payment was that acquiring firms with high debt-equity ratios are more likely to choose cash than firms with low debt-equity ratios. This selection effect on the method of payment suggests that rather than moderating firms' debt-equity ratios it should stratify them. We will give an explanation for this result, too.

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[3]For instance, issuing new shares to achieve a desired decrease in the debt-equity ratio may be costly due to the signaling cost it involves. Travlos (1987), Franks, Harris and Mayer (1988), and Asquith, Bruner and Mullins (1987), among others, report significantly higher returns for cash offers compared to stock offers. Moreover, Agrawal, Jaffe and Mandelker (1992) find lower post-acquisition returns for stock-financed acquisitions than for cash-financed acquisitions. A desired increase in the debt-equity ratio could be brought about by dividend payments or share repurchases, but this may be costly as well.

Although target selection according to the target's financial structure has not received much attention, a considerable amount has been given to the relationship between acquisitions and the method of payment. Bowers, Moore and Tse (2000) point out that acquisitions of other firms can be considered as both a financial decision and an investment decision. They emphasize that the choice of payment for the acquired firm has implications for the change in the acquiring firm's financial structure. Cash purchases increase the debt-equity ratio of the acquiring firm, while payment with shares can be expected to lower its debt-equity ratio (Murphy and Nathan 1989, p. 552). It has been argued that, the choice of the method of payment allows acquiring firms to change their financial structure, and, because the change in the financial structure is combined with an investment decision, the adverse and costly effects of the adjustment of the financial structure may be less pronounced. Such arguments have been made, e.g., by Asquith and Mullins (1986) who suggest that firms may prefer to issue and use stock in order to finance an acquisition rather than simply issue new stock without an acquisition. Similarly, Barclay and Smith (1988) consider acquisitions as a less expensive substitute for payouts to shareholders, and Murphy and Nathan (1989) suggest that firms use the method of payment in acquisitions for adjusting the financial structure of the firm more closely to an interior optimum.

Our empirical results also contribute to this discussion. Measuring the effect of the use of instruments, we first confirm that acquisitions using cash as the medium of exchange increase the acquiring firm's leverage by more than do acquisitions that are paid with stock. Then we show that the acquiring firms that have a particularly low debt-equity ratio use shares more frequently than acquiring firms whose debt-equity ratio is higher than that of the average non-acquiring firm in the respective industry. This suggests that, although the method of payment is used systematically, it is not used as a means to adjust the financial structure of the firm towards its optimum.

The method of financing an acquisition is determined by a number of trade-offs that are related to tax considerations, considerations of future corporate control, and the signaling value of the payment method chosen, for

instance, for the adequacy of the current stock market valuation of the acquiring firm or the target (see, e.g., Franks, Harris and Mayer 1988). For short reviews and further contributions see, e.g., Amihud, Lev and Travlos (1990) and Blackburn, Dark and Hanson (1997). Further, the method of payment may matter if there is potential competition for a takeover target (Fishman 1989). Put differently, the method of payment is a matter of choice, and observable to outsiders. Hence, it is an observable change in the financial structure, and should carry an agency cost like that of straightforward financial restructuring, such as issuing new shares, or share repurchases when there is no acquisition.

Summarizing, we provide an additional reason for merger that also yields a theory of why firms use target selection as an instrument for financial restructuring. Further, we show empirically that the method of payment is not the instrument for financial restructuring in acquisition. The financial instrument is the appropriate selection of takeover targets with suitable financial structures.[4]

In section 2 we state the basic idea that can explain why target selection is used, rather than the method of payment and summarize the main hypotheses that follow from this idea. Section 3 describes the data and empirical results. Section 4 concludes.

2   The basic idea

We develop a theory according to which target selection in firm acquisitions is a means of financial restructuring that is superior to more obvious financial

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[4]It is also interesting to relate our results to previous results on the change of financial leverage associated with corporate mergers. Ghosh and Jain (2000) discuss the idea that merger may generate additional debt capacity. For instance, a more diversified firm makes bondholders' claims less risky and allows for more debt. They find that mean (median) financial leverage of the combined firm one year after the merger increases by 17 percent (19 percent) compared to the year before to the merger. While this analysis suggests that firms control the optimal financial structure before and after merger, we take into consideration the fact that it may be difficult and costly to move towards the optimal financial structure. Merger and acquisition may be a simple way to achieve this goal.

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instruments. Consider the optimal financial structure of firms. As is commonly assumed, there are several trade-offs which result from information asymmetries, tax advantages, limited liability arguments, commitment value is generated by a given financial structure, and other considerations that suggest that the optimal financial structure of a corporation is not a corner solution in which one financial instrument dominates.[5] A mix of different methods of finance is optimal, so that the firm uses both equity finance and debt.[6] Taking this as a starting point, good or bad economic performance may drive firms away from their optimal financial structure. An imbalance need not be immediately observable to outsiders, because the optimal financial structure of a particular firm may deviate from the industry mean by some idiosyncratic amount, the size and the sign of which is not known to the outsider, or may be observable only with some delay. An adjustment may, nevertheless, be needed or desirable in the medium run. Such an adjustment is known to be costly for the decision maker for several reasons. First, it redistributes among the various stake holders (e.g., between holders of equity and debt, the managers and owners, or share owners and the employees or unions). This means there is a cost of conflict among these stake holders. Second, observed changes in the financial structure may have agency costs, due to asymmetric information. Issuing of new shares, dividend payouts etc., and also the method of payment used in acquisitions are observable actions that can easily be identified as aiming at a change in the financial structure. Hence, they may reveal information and can cause considerable costs.[7] Even share repurchases, although they typically increase share prices if they take place, can cause resistance and cost; banks and other holders of shares in

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[5]We do not address the difficult question about "optimal for whom". Instead, we assume that there is some decision maker who makes decisions about the financial structure of the firm. This decision maker may be thought of as the management, the owner(s), or a coalition of stakeholders. The assumption here is that this decision maker prefers a financial structure that is not an extreme corner solution, and that there is a cost of using straightforwardly observable instruments of financial restructuring.

[6]Recent work, e.g., by Fama and French (2000) tests this model.

[7]See, for instance, Myers (1977), Myers and Majluf (1984), Hansen (1987), Jensen (1986), Stulz (1988) and Eckbo, Giammarino and Heinkel (1990).

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the firm's outstanding debt dislike share repurchases, and to overcome this resistance may cause a cost.

In comparison, it will be more difficult for outsiders to observe whether a particular acquisition was carried out because of its side effects for the acquiring firm's financial structure, or despite of these side effects. Accordingly, the cost of the change in the financial structure may be less severe where it happens as a by-product of an acquisition, rather than where it is the only noticeable change.

More precisely, the basic idea is as follows: suppose that direct changes in the financial structure, e.g., issues of new shares, or dividend payouts, are expensive. If, for instance, a firm takes an action, and outsiders think that this action is made for reasons of financial restructuring with a probability of π, then this may generate a cost of, say, πc. For actions such as issuing new shares (whether or not combined with an acquisition), and other straightforwardly observable financial transactions, this probability π is close to 1. Now consider a firm that would like to restructure financially. This could be done using an obvious direct financial instrument, such as dividend payouts in case of a desired increase in the debt-equity ratio, or issues of new shares in the case of a desired decrease in the debt-equity ratio. However, before the financial restructuring need becomes observable to the outside world, the firm is matched randomly with a possible acquisition target and must decide whether to acquire this firm. Acquiring this firm can have a number of effects. It may but need not generate significant abovenormal profits due to synergies. It also may but need not help to adjust the financial structure of the acquiring firm towards the optimum. If the acquisition takes place, it is difficult for outsiders to observe which is the reason for the particular acquisition. Accordingly, when the acquisition takes place, financially motivated acquisitions are pooled with profit motivated acquisitions, and even with acquisitions that are very profitable but further distort the financial structure of the acquiring firm away from its optimum.

To give an example, for a given acquisition, outsiders may attribute some probability π_f to the possibility that the purpose of merger was financial restructuring, some probability π_s that the purpose was purely the desire

to make use of synergies, some probability π_{fs} that both these reasons were relevant, and possibly even some positive probability π_{gs} that the acquisition took place because of its profitability, but despite the fact that it distorts the financial structure away from its optimum. The latter may happen if the merger-specific increase in profitability is high, compared to the subsequent cost of the suboptimal financial structure caused by the acquisition.

Accordingly, this will have three effects. First, a merger with a given profitability is more likely to take place if its impact on the financial structure of the acquiring firm is desirable. This is what we call "target selection effect" here. Second, for this target selection effect, acquisition is a means that should, in a statistical sense, adjust the acquiring firms' financial structure towards the desired structure. Third, in this example, only a share of $(\pi_f + \pi_{fs}) < \pi$ of acquisitions brings about a desired change in the financial structure. Accordingly, the cost of financial restructuring through a merger that generates no abovenormal profit from synergies but does yield a desired financial change is smaller than the cost of using a straightforward financial instrument. This is so, because firms which acquire a firm for financial reasons can pool with acquisition cases that are predominantly profit motivated and because all stakeholders in the acquiring firm like profit motivated acquisitions, their resistance to a merger that involves financial restructuring is lower, and this reduces the cost of financial restructuring.

We should therefore expect that acquiring firms choose targets or adopt random acquisition opportunities selectively and take into consideration how well a possible target's financial structure fits with the given structure in the acquiring firm.

A question that arises here is how could financial restructuring via target selection be observed empirically, given the purpose of using target selection is to hide actions aimed at financial restructuring. The idea here is that what cannot be determined unambiguously in each single case becomes apparent in the aggregate. Suppose the optimal debt-equity ratios for firms are randomly distributed with an expected value that equals the industry mean. It may therefore be difficult for outsiders to judge whether a particular firm's actual debt-equity ratio is smaller or larger than this firm's optimal ratio. However,

on average, we should expect that firms with high (low) debt-equity ratios are more likely to want a reduction (increase) in their debt-equity ratio and, on average, firms with the respective debt-equity ratios should use acquisitions for financial restructuring purposes accordingly. This should then be measurable from the data.

Hence, we expect that

> H1: Acquiring firms and acquired firms have more extreme financial structures than firms that are not involved in a merger.

> H2: Acquiring firms adjust their financial structures towards the average financial structure in the industry.

If we claim that target selection is a less observable means of financial restructuring (and therefore the superior instrument from the perspective of the individual firm), than to the method of payment or other observable financial restructuring instruments, we would expect that the method of payment is not used extensively as an instrument for financial adjustment. The method of payment may even be used in a way to further obscure the true direction of financial restructuring. Hence,

> H3: Acquiring firms with debt-equity ratios above the industry average make little use of shares as a method of payment, and acquiring firms with below average debt-equity ratios make little use of cash as a method of payment.

Finally, our main hypothesis is about the target selection effect. It follows from the idea that target selection has a cost advantage as a financial instrument because the acquiring firms that use this instrument can pool with acquisition cases that are motivated fully by other merger reasons such as synergies, or market power considerations[8]:

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[8]We do not discuss here the alleged relevance or irrelevance of synergies or market power considerations for merger and acquisitions. For a brief survey see, e.g., Huck and Konrad (2001) or Scherer (2001).

H4: Acquiring firms with above-industry-average debt-equity ratios are more likely to acquire targets with low debt-equity ratios, and acquiring firms with below average debt-equity ratios are more likely to acquire targets with high debt-equity ratios.

3   Data description and analysis

Our principal source of data is the *Global Mergers and Acquisitions* database of *Thompson Financial Securities Data (TFSD)*. This company collects merger data using a variety of sources such as financial newspapers, Reuters Textline, the Wall Street Journal, Dow Jones etc. The database covers all transactions valued at $ US 1 million or more.

We define a merger/acquisition as a transaction where more than 50 percent of the equity of a target firm is acquired. Of the nearly 70,000 announced mergers across the world during 1985-1998, nearly 45,000 were actually completed and almost half of these took place in the United States. Acquiring company balance sheet data for the years $t-1$ to $t+1$ relative to the merger year t stem from the *Global Vantage/Compustat* database. We could match 17,863 of the 45,000 completed mergers in the period 1985 to 1998 to one of these databases. Some acquiring companies acquire more than one target in a given year, and, since our balance sheet information for acquiring companies is on a yearly basis, we aggregate the relevant variables of these targets. Missing data for target debt/equity ratios and the elimination of outliers (we drop the left and right one percent tail of the distribution) reduces the final sample to 1,432 completed mergers.

Table 1 summarizes the characteristics of the 1,432 completed mergers for which we have all the data. Unless otherwise indicated all variables are measured before the acquisition. The average size of acquiring firms is nearly $ US 8 billion 1995. Acquiring firms are approximately 8 times the size of target firms. Target firm Tobin's q ratios (TQ) are larger than acquiring firm TQs. On average acquiring firms outperformed their country's Morgan Stanley index by nearly 30% in the year before the merger. The average deal

value is 505.3 million \$ US 1995. The average firm in the *Global Vantage* database that made no acquisitions during 1985 and 1998, of which there are more than 20,000, is more than 3 billion \$ US 1995. This sample is used to calculate industry adjusted values.

Table 1: Summary statistics		
	Mean	S.D.
Observations	1,432	
Acquiring firms		
$Size_t$	7,814.6	21,185.0
Tobin's q (TQ_t)	1.39	1.07
Cash flow (CF_t)	0.100	0.08
Outperformance (OP_{t-1})	27.1 %	1.09
Debt/equity $(D/E)_t$ ratio:		
$t-1$	0.373	0.450
t	0.443	0.465
$t+1$	0.469	0.490
Target firms		
$Size_{T,t}$	985.1	6,997.0
Deal value	505.3	1,442.3
Tobin's q $(TQ_{T,t})$	1.94	1.62
Debt/equity $(D/E)_{T,t}$	1.204	2.616
Non-merging firms		
$Size_{N,t}$	3,270.0	31,347.1
Tobin's q	1.34	1.33
Debt/Equity $(D/E)_{N,t-1}$	0.437	0.530

Note: The databases are the *Global Mergers and Acquisition* database of *Thompson Financial Securities* and the *Global Vantage* database. Size is defined as total assets in million \$ US 1995; Tobin's q is defined as the ratio of the market value of total equity plus the book value of total debt (the sum of short term and long term debt) to total assets; Cash flow is defined as the ratio of cash flow (profits before interest and taxes plus depreciation allowances) to total assets; Outperfor-

mance is defined as the difference between the percentage change in the maket value of total equity of the acquiring firm from period t-2 to t-1 and the change in the Morgan Stanley country index over this period; Deal value is defined as the total compensation paid by the acquirer, excluding fees and expenses. The debt/equity ratio is defined as the sum of long term and short term debt divided by the book value of equity. The deflator used is the US-CPI with base year 1995. Unless otherwise indicated all variables are measured before the acquisition.

Table 1 also presents debt equity ratios (D/E) for acquiring firms and their targets. Debt is defined as the sum of long term and short term debt, equity is the book value of equity. As can be seen from the figures, acquiring firm D/E ratios rise from 37.3 % one year before the merger to 46.9 % one year after the merger.[9] Acquiring firms have debt-equity ratios of only 31 % the D/E ratios of the companies they acquire and their debt-equity ratios are also lower than for firms that are not involved in a merger. These summary statistics show that acquiring firms and acquired firms have financial structures that differ from those of firms that are not involved in an acquisition. This is in line with the hypothesis H1.

Table 2 breaks down the sample into mergers where more than 50 % of the transaction value was paid with stock, and those where less than 50 % of the deal value was paid with stock. Three observations are worth mentioning. First, "stock" merger transactions increase the debt/equity ratio by much less than other merger transactions. Second, acquiring firms that use their own equity to pay for the merger are less leveraged with regard to their D/E ratio than acquiring firms that use more cash in the transaction. Third, the means by which the increase in the D/E ratio is achieved appears to be the selection of target firms and not the method of payments. Acquiring firms that use predominantly their own equity in the transaction buy targets that have an average D/E ratio that is nearly twice as large as the average D/E ratio of the targets in the other mergers. This is in line with H3. It

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[9]This is consistent with the findings of Maloney, McCormick and Mitchell (1993) and Ghosh and Jain (2000).

suggests that the method of payment is not used as a financial instrument for optimizing the financial structure towards the industry mean.

Table 2: The debt-equity ratio and the selection of targets				
	Acquiring firms			
	Mean	S.D.	Mean	S.D.
Sample	equity		cash	
Observations	576		856	
$t-1$	0.318	0.347	0.410	0.505
t	0.356	0.352	0.502	0.519
$t+1$	0.376	0.359	0.532	0.553
Targets	1.693	3.349	0.875	1.909

Note: 'Equity' and 'cash' includes those acquiring firms that used more than, and less than, 50% of own stock as method of payment in the merger transaction, respectively.

Table 3A presents absolute values of D/E ratios of acquiring firms for the years $t-1$ to $t+1$ relative to the merger year t. We present these statistics for all mergers as well as separately for mergers in the US, UK, Continental Europe and the Rest of the World. Two observations are worth mentioning. First, debt equity ratios of acquiring firms rise in all countries around mergers. Second, UK acquirers have least debt in relation to their equity while the Rest of the World acquiring firms have the largest D/E ratios. Acquirers in the US and Continental Europe are in between. This "ranking" of D/E ratios is not altered because of the mergers.

Table 3A: Absolute ratios				
	no. of observations	$(D/E)_{t-1}$	$(D/E)_t$	$(D/E)_{t+1}$
US	917	0.389	0.454	0.489
UK	273	0.277	0.343	0.353
Continental Europe	113	0.334	0.391	0.412
Rest of the World	129	0.501	0.625	0.631
All mergers	1,432	0.373	0.443	0.469

Table 3B depicts country-industry adjusted D/E ratios of acquiring firms from $t-1$ to $t+1$ and t-statistics of tests against zero. Again, we present these statistics for all mergers and also for mergers in the US, UK, Continental Europe and the Rest of the World. As can be seen, mergers increase the D/E ratio of the acquiring firm in all countries/country groupings relative to non-acquiring firms. The overall change is a substantial 10 percentage points, fairly evenly distributed across countries. Acquiring firms in the US have D/E ratios that are (economically and statistically) significantly less than their industry peers' D/E ratios one year before the merger. One year after the merger, their D/E ratios are indistinguishably different from the industry average levels. Acquiring firms in the US appear to use mergers to achieve their target D/E ratios. This supports H2.

Table 3B: Industry-adjusted ratios					
	no.of *obs.*	$(\frac{D}{E})_{t-1}$	$(\frac{D}{E})_t$	$(\frac{D}{E})_{t+1}$	*Change* *-1 to $+1$*
USA	917	-0.095 [-6.14]	-0.020 [-1.41]	0.008 [0.47]	0.103 [6.80]
UK	273	-0.014 [-0.85]	0.047 [2.17]	0.059 [3.32]	0.073 [5.13]
Cont. Europe	113	-0.038 [-1.71]	0.018 [0.76]	0.038 [1.54]	0.075 [3.83]
Rest o.t. World	129	0.023 [0.55]	0.139 [2.89]	0.132 [3.34]	0.108 [2.58]
All mergers	1,432	-0.064 [-5.72]	0.01 [0.86]	0.031 [2.61]	0.095 [8.80]

Note: t-values in brackets. Industry adjusted values are obtained by subtracting the mean D/E ratio in the respective 2-digit industry of the country/country group from acquiring firm debt-equity ratios. Continental Europe includes Austria, Belgium, Germany, Denmark, Spain, Finland, France, Greece, Ireland, Italy, Luxemburg, the Netherlands, Norway, Sweden, Portugal, Switzerland and Iceland. The Rest of the World sample includes more than 50 other countries.

Tables 4A-4C present three regression results.

The first regression equation explains the change in the acquiring firm debt-equity ratio from $t-1$ to $t+1$ relative to the merger year t. The explanatory variables are the deviation of the firm's debt-equity ratios from their respective country-industry means in year $t-1$. More precisely, we distinguish between acquiring firms that start out above the country-industry mean, and those that start from below this benchmark. We calculate the respective differences and interact them with dummy variables Above and Below, respectively. If a firm's debt-equity ratio is above the mean by, say, 0.2, the variable $\Delta(D/E)_{t-1} * Above$ takes the value 0.2, and the variable $|\Delta(D/E)_{t-1}| * Below$ takes the value 0. Similarly, if a firm's debt-equity ratio before the acquisition is lower than the respective industry mean by,

say, 0.1, $\Delta(D/E)_{t-1} * Above$ takes the value 0, and $|\Delta(D/E)_{t-1}| * Below$ takes the value 0.1. Additionally we include a dummy variable, "equity", that takes on the value one if more than 50 % of the deal value was paid with own equity and zero otherwise. To avoid both simultaneity problems and econometric problems associated with the inclusion of lagged dependent variables, we estimate by 2SLS. We instrument the D/E ratio variables of period $t-1$ by respective $t-2$ values. The regressions also include yearly time dummies to account for shifts in the D/E ratios that are specific to particular years, e.g. induced by business cycle effects.

Table 4A: Dependent variable: Change in acquiring firm D/E ratio from t-1 to t+1		
	Coefficient	t-Value
$\Delta(D/E)_{t-1}*$Above	-0.441	-9.01
$|\Delta(D/E)_{t-1}|*$Below	0.123	1.75
Equity	-0.085	-4.08
Constant	0.235	5.40
No. Obs.	1,432	
R^2-adj.	0.163	

Note: Estimation method is 2SLS. Instruments are D/E ratios of acquiring firms in $t-2$. Included, but not reported, are yearly time dummies. $(D/E)_{t-1}$ is the debt equity ratio of the acquiring firm in year $t-1$. Above (Below) are dummy variables taking on the value one if the acquiring firm has a D/E ratio above (below) the country-industry mean in year $t-1$, and zero otherwise. Equity is a dummy variable taking on the value one if more than 50 % of deal value was paid with shares in the acquiring firm.

We estimate a significant negative effect of lagged debt-equity ratios if the acquiring firm is above the average debt-equity ratio in its respective country and industry in year $t-1$, and a marginally significant positive effect of $\Delta(D/E)_{t-1}$ for firms starting out below this. This estimation result

is in line with hypothesis H2. Note also that "equity" takes on the expected negative coefficient and is significant beyond the 1% level.

Table 4B presents our results for the choice of method of payment. The dependent variable is "equity", the dummy variable that takes on the value one if more than 50 % of the deal value was paid with own equity and zero else. In column 1, the only explanatory variable is the D/E ratio of the acquiring firm in year t. We find that the larger the acquiring firm's D/E ratio the less likely it is that the transaction is financed predominantly with equity. This result is in line with our hypothesis H3.

Table 4B:				
Dependent variable: Equity				
	Coef	t-Value	Coef	t-Value
$(D/E)_t$	-0.860	-5.65	-1.11	-5.64
TQ_t			0.198	2.32
$TQ_{T,t}$			0.267	5.24
CF_t			-3.84	3.88
OP_{t-1}			0.183	2.31
$Size_t$			-0.300	-5.01
$Size_{T,t}$			0.446	7.38
Constant	-0.038	-0.47	-0.335	-1.09
No. Obs.	1,432		1,432	
Log likelihood	-945.42		-679.61	

Note: Estimation method is maximum-likelihood logit estimation. Equity is a dummy variable taking on the value one if more than 50% of deal value was paid with shares in the acquiring firm. For definition of the other variables, see Table 1.

There is a large literature explaining the determinants of the method of payment in mergers and acquisitions.[10] We thus need to control for these

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[10]For recent empirical contributions, see Amihud, Lev, and Travlos (1990); Jung, Kim,

additional forces which determines the method of payments and we do this in a second estimation that is also reported in Table 4B.

The analysis of Myers (1977) suggests that the better the investment opportunities of the firm, the less debt the firm optimally takes on. This is because the state of the world the firm faces in the future may be so unfavorable that excessive debt would preclude the firm from undertaking the investment. Thus, one expects a positive association between Tobin's q and the likelihood of financing an acquisition predominantly with equity. This prediction is valid for both the acquiring firm (TQ_t) and the target firm ($TQ_{T,t}$). The size of acquiring firm and the target firm are also likely to be a determinant of the method of payment. Hansen (1987) considers the choice of payment medium under conditions of asymmetric information between the target and the bidder. If the acquirer has an informational disadvantage vis-a-vis the target, the acquirer has an incentive to use equity rather than cash as the medium of payment to force the target to share in any post-acquisition revaluation effects. The larger the target size, the more effect any mispricing of target shares has upon the acquirer.[11] One thus expects a positive effect of target size ($Size_{T,t}$) on the likelihood of an equity acquisition and a negative effect of acquiring firm size ($Size_t$). Jensen's (1986) free cash flow theory predicts that firms with large cash flows before an acquisition are more likely to use this cash to finance the acquisition. One thus expects a negative effect of the acquiring firm cash flow to total assets ratio (CF_t) on the likelihood of an equity relative to a cash acquisition. Finally, abnormal returns of acquiring firms before an acquisition (OP_t) are positively related to using equity as the medium of payment, if these proxy for overvaluation. Alternatively, outperformance of the acquirer before an acquisition may simply be an indication that the firm is managed well and may convince target shareholders to approve the stock

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and Stulz (1996), and Martin (1996).

[11] Alternatively, if there is a financing hierarchy or pecking order of finance of the sort proposed by Myers (1984), i.e. internal cash flow is cheapest and used first, then comes new debt, and finally new equity issues, then larger target size may require stock to complete the acquisition.

acquisition in the general meeting. Both these effects suggest that (OP_t) has a positive coefficient.

The second column of Table 4B shows the results. Tobin's q ratios of both the acquiring firm and target firm are significantly positively related to the likelihood of equity financing. This suggests that, if firms with good investment opportunities join, they use their equity so as not to endanger the financing of future growth opportunities. Acquiring firm cash flows and size significantly decrease the likelihood of predominantly equity financing an acquisition, while the better the pre-acquisition performance of the acquiring firm relative to the country's Morgan Stanley index, the lower this likelihood. Target firm size increases the usage of equity financing.

Summarizing, the second estimation that controls for a number of possibly relevant variables reveals the same effect of the debt-equity ratio for the choice of cash or equity as a method of payment. The absolute value of the negative coefficient of $(D/E)_t$ becomes even larger.

Finally we turn to the hypothesis H4, which is the most important of the H1-H4 hypotheses as H1-H3 are compatible with several alternative theories as well, but we have no explanation other than the target selection effect for data conforming to hypothesis H4. This hypothesis suggests that there should be a negative relation between the acquiring firm's debt-equity ratio and the debt-equity ratio of the target. Table 4C presents the results of two estimations on the selection equation explaining target D/E ratio by acquiring firm D/E ratios. The first estimation confirms this systematic and negative relation between the acquiring firm and its target. A second estimation controls for a number of potentially relevant variables.[12],[13] It turns

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[12]For instance, it is conceivable that acquiring firm Tobin's q plays the same role as in the method of payment decision: the larger one's Tobin's q the smaller the target debt equity ratio should be so as not to preclude future financing of investment, ceteris paribus. Also, the larger one's cash flow the smaller the selected target debt equity ratio might be so as not to reveal the true (financial) objectives of the takeover. Similarly, the acquiring firm size and/or the relative sizes of acquiring firm and target firm may systematically affect the decision of target selection.

[13]We also tried target Tobin's q ratio. While the coefficient was negative, the t-value indicated insignificance, so we do not report this regression.

out that, while some of these variables are indeed relevant, controlling for these variables does not change the significant negative relationship between the debt-equity ratios of acquiring firms and their targets. We consider this as strong evidence in favor of a theory of target selection as an instrument of financial restructuring.

Table 4C: Dependent variable: Target debt equity ratio in year $t : (D/E)_{T,\,t}$				
	Coef	t-Value	Coef	t-Value
$(D/E)_t$	-0.247	-2.66	-0.325	-2.28
TQ_t			-0.250	-4.07
CF_t			-3.907	-5.18
$Size_t$			0.303	9.40
Relsize$_t$			0.001	3.91
Constant	1.314	13.80	-0.230	-0.86
No. Obs.	1,432		1,432	
R^2-adj.	0.022		0.145	

Note: Estimation method is OLS. Relsize is acquiring firm size as measured by total assets divided by deal value, i.e. the total amount paid in the acquisition.

4 Conclusions

A change in the financial structure of a firm causes cost of conflict and other cost, particularly if the change is observed. It should therefore be advantageous for decision makers to make a change in the financial structure that is actually carried out more secretly. One way to achieve this is to select acquisition targets so that acquiring these adjusts the financial structure of the acquiring firm in the desired direction. This works because a particular acquisition may take place either *because* of the implications for the financial structure of the acquisition, or *despite* these implications, for instance, for profitability reasons such as synergies or market power considerations. From

an outsider's point of view, financially motivated acquisitions are therefore pooled with acquisitions that occur for other reasons, and makes it impossible to identify unambiguously acquisitions that take place for financial reasons.

A number of empirical hypotheses result from this theoretical consideration. We should observe that acquired and acquiring firms differ in their financial structures from firms that are not involved in mergers. They do. We should observe that acquiring firms adjust their financial structures towards their respective industry means. This is indeed the case. More precisely, the more an acquiring firm's debt-equity ratio exceeds the industry average, the stronger is the reduction in the debt-equity ratio brought about by the takeover, and the more an acquiring firm's debt-equity ratio falls short of the industry average, the stronger is the increase in the firm's debt-equity ratio brought about by the takeover. We also identify the target selection effect as the driving force behind this adjustment in the financial structure: firms with above average debt-equity ratios choose targets with comparatively low debt-equity ratios, and vice versa.

Finally, we find that the method chosen to pay the owners of the acquired firm is not chosen as an instrument to adjust acquiring firms' debt-equity ratio towards the industry mean. On the contrary, firms with high debt-equity ratios have a tendency to use cash as the method of payment, and firms with low debt-equity ratios have a tendency to use shares as the method of payment. This finding is robust to the inclusion of a number of additional explanatory variables suggested by theory, such as the involved firms' Tobin's q ratios, their sizes etc. While there are many possible aspects that influence the method-of-payment decision, we can also interpret this as evidence in line with the theoretical predictions: given that the implications of the method of payment for a firm's financial structure are well known, and given that the method of payment is clearly observable, the method of payment is a financial instrument that does not differ much from straightforward financial instruments such as issues of new shares, or share repurchases. While the financial motivation of firm acquisitions can partially be hidden (the effect of pooling with profit motivated acquisitions), the financial motivation of the choice of the method of payment cannot. It may therefore even be true that

firms that intend to increase their debt-equity ratio choose an appropriate target whose acquisition brings about this desired change, and then they may use equity as a method of payment to avoid any observable sign that the acquisition was motivated by a desire to increasing the debt/equity ratio. Alternatively, target shareholders can veto takeovers in general meetings, and the method of payment may not be completely under the discretion of the acquiring firm. The selection of targets, however, is.

The result for target selection has further important implications. First, it can contribute to explaining the large number of acquisitions that take place, and, in particular, the fact that a large number of acquisitions does not lead to profits that exceed the industry average. The reason is as follows. In a world in which merger happens only because it generates abovenormal profits, for instance, for reasons of production cost or marketing cost synergies, merger should increase share prices and, on average, should yield above normal profits, compared to non-merging firms. Merger that is motivated by a desire for financial restructuring may be useful for the decision maker or the firm. It may reduce the cost of financial restructuring. It may even avoid profits being lower than for average non-merging firms, but it does not generate above normal profits relative to the average non-merging firms.

Further, if acquisition is used as a means of financial restructuring by some firms and outsiders cannot unambiguously distinguish between a particular acquisition has financial restructuring goals or whether it yields synergies or an increase in market power, then the market will evaluate acquisitions differently from a situation in which the financial restructuring motivation is absent. Acquisitions will be considered as being less profitable on average if some aquisitions take place in order to generate above normal profits from synergies or market power and some acquisitions are made by firms that suffer from the problem of (not yet publically observed) suboptimal financial structure. Outsiders will attribute probabilities for the different motivations in a given merger case and will calculate an expected increase in profitability. Outsiders will therefore underestimate the profit increases in acquisitions that are actually motivated by synergies or market power considerations, and they will overestimate the profit increases in acquisitions that are financially

motivated. On average, the expected profits in an acquisition are lower, and stock market reactions to an aquisition that reflect these expectations are less enthusiastic, if some acquisitions are financially motivated, compared to a world in which all acquisitions are motivated by synergies or market power considerations.

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