M&A methods

Dien Giau Bui*

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   M&A is a hottest topic in corporate finance. This note attempts to review some basic methods in M&A studies.

1 Measures

1.1 Dependent variables

Dependent variables for firms include short-term effects (CAR from both sides and combined CAR) and long-term effects. In addition, some dependent variables only relate to CEO, directors, and board. Two tables will be presented: one for firms and one for executives and boards.

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*Email: buidiengiau@gmail.com

Variables	Descriptions	Papers
CAR (Target and Bidder)	Cumulative abnormal returns, with market-adjusted or from a market model	Field and Mkrtchyan (2017)
Combined CAR (synergies)	Combined bidders and targets' CARs, using weights based on 50-days prior the merger	Field and Mkrtchyan (2017)
Large loss	Loss of over \$500 million in 2011 dollars	Field and Mkrtchyan (2017)
ΔROA	Change in industry-adjusted ROA from $t-1$ to $t+1$	Field and Mkrtchyan (2017)
ΔTFP	TFP is residual from regress sale on inputs (labor, materials, fixed asset, fixed effects)	Field and Mkrtchyan (2017)
Combined Operating CF	Operating CF combined between bidder and target, weighted by assets	Deng et al. (2013)
Target relative gain	Dollar returns (CAR*ME) between target and acquirer, divided by sum of size of two firms 50-days prior merger	Ahern (2012) and Field and Mkrtchyan (2017)
Acquisition Premium	Offer price *divided by* the target's stock price four weeks before the merger announcement date, as reported by SDC and limited between 0% and 200%	Fich et al. (2015)
Combined Premium	Aggregate value (of cash, stocks, and others in SDC) *divided by* target market value 42 trading days prior the bid. In Cai and Sevilir (2012), they use $Value/MarketValue - 1$	Officer (2003)
Divest	Dummy if acquisition divested by acquirers	Ishii and Xuan (2014)
Acquisition rate/Completion Rate	Dummy equal one for successful acquisition (Logit model)	
Time to complete	Number of days spent to complete the deal (survival nonparametric Cox model)	Deng et al. (2013)

Table 1: Firm dependent variables

This is for executives and boards. Some may appear in right-hand side of regression, but they are worth to be listed here.

Variables	Descriptions	Papers
(Target) Retention	Dummy for target directors remain in board of combined firms in post-merger; For boards, we can use number of direcctors (Tobit model) and percentage or pre-board size (OLS)	Ishii and Xuan (2014)
Experience	Involved in acquisition in past 10 years: numbers or percent in total independent directors.	Field and Mkrtchyan (2017)
	Yes and No; or Dollar Measure: $ln(1 + \sum SDCvalue_{t-j})$	Harford and Schonlau (2013)
Ability	For bidders: Sum/Median of past CARs; Number/percent of positive/negative CARs. For targets: Excess Premium which is residual from Expected Premium of a deal.	Harford and Schonlau (2013); Field and Mkrtchyan (2017)
Board seats	Number of outside board positions	Harford and Schonlau (2013)

Table 2: Executive and boards dependent variables

1.2 Control variables

The control variables include firm characteristics, deal characteristics.

Variables	Descriptions
Firms	size, CF, Leverage, past return (BHAR), Q or M/B, Governance (G-index)
CEO	Tenure
Deal	Public target, Cash deal, Relative deal size (SDC deal/bidder cap), Diversification deal, High-tech deal (in high tech industries, Loughran and Ritter, 2004), Rumor, Tender Offer, Toehold (bidder owns a fraction of targets' shares), Prior Bidding in same year
Market	HHI for competition, Unique industry (selling expense/sale as in Masulis et al., 2007), Target Industry Liquidity (bids > 1 million in same year and same industry), High Tech Industry (Loughran and Ritter, 2004)
Fixed effects	Year, Industry FE

Table 3: Most common control variables

References