

Market Optimism and Merger Waves

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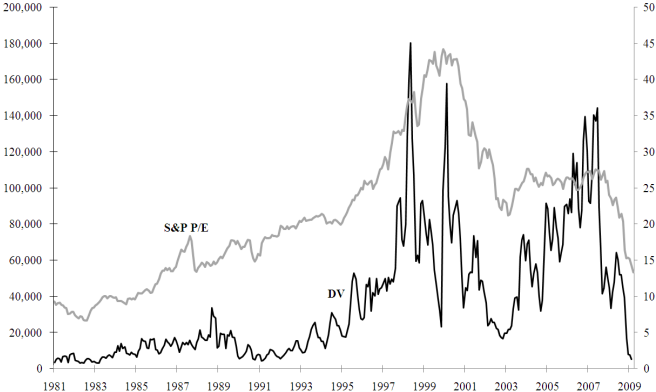
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Motivation

Mergers come in waves and move closely with stock prices for over a century:



1890s

1920s

1960s

2000

2007

Motivation

Merger theories struggle with explanations for this aggregate phenomenon

We focus on psychological/behavioural aspects of managers and financial markets:

- (1) Managerial Theory of Mergers
- (2) Shleifer & Vishny's Overvaluation Hypothesis

Evidence for behavioural hypothesis, by testing its implications:

- (1) on determinants of mergers
- (2) on how mergers are financed
- (3) on consequences for stock market returns

Optimism: Stock & Bond Markets and Mergers

Average growth expectations in 1990s, based on P/E

Excuse to believe (Galbraith)

“New era” (Shiller) rhetoric; expectations of “economies from consolidation” in steel and railroad industry

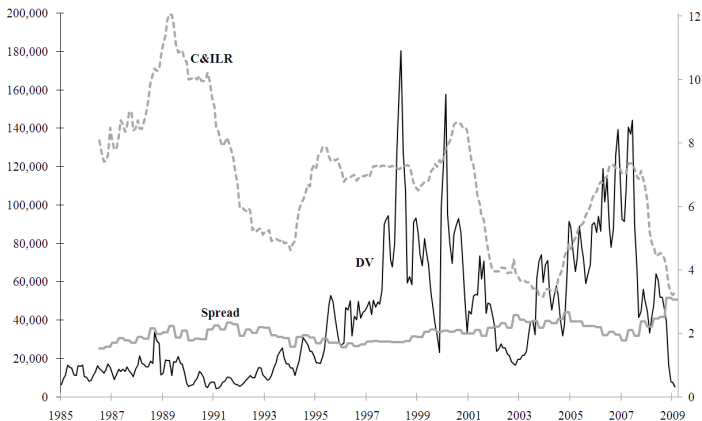
US Steel share price: 1901, from \$38 to \$55, in 1903, at \$9

“P/E magic” of conglomerates in 1960s wave; resembles Ponzi scheme that characterizes all stock market bubbles (Shiller)

Small difference between corporate bond interest and federal funds rate: little risk perceived; spread measures optimism with respect to riskiness of companies

Mergers, Borrowing Costs and Bond Markets

Mergers waves correlate positively with C&ILR, but negatively with spread:

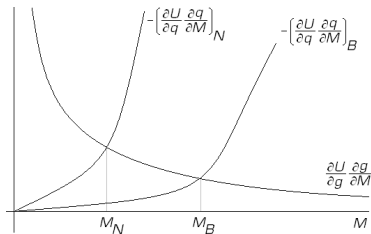


Managerial Theory of Mergers

Assume that, for manager, $U = U(g, q)$

- ▶ $\partial U / \partial g > 0$: managerial income increases with firm size, also after mergers (Bliss & Rosen, 2001)
- ▶ $\partial U / \partial q > 0$: with decreasing q , threat of takeover rises (modelled with Tobin's q)

Manager's tradeoff: $\partial U / \partial g > 0$ and $\partial g / \partial M > 0$, but at some point $\partial q / \partial M < 0$; from FOC it follows then that $\left. \frac{\partial q}{\partial M} \right|_{M^*} < 0$, there are value destroying mergers



during boom (B), expectations of merger benefits are better and M^* shifts to M_B

Overvaluation Hypothesis, Shleifer & Vishny (2003)

Like MT, it is behavioural in the sense that two assumptions are relaxed:

- ▶ mergers create wealth
- ▶ capital markets are efficient

Motivation:

- ▶ bidder overvalued, target (relatively) undervalued
- ▶ bidder managers trade overvalued shares for real assets
- ▶ target managers have short horizons

Measuring Optimism

High optimism increases merger activity; differentiate between

(1) market optimism, measured by

- ▶ S&P 500 P/E
- ▶ spread between C&ILR and FFR

(2) firm specific optimism

- ▶ relation between profits, π_{it} and firm value V_{it} , when profits grow at g_i and discount factor is k_i :

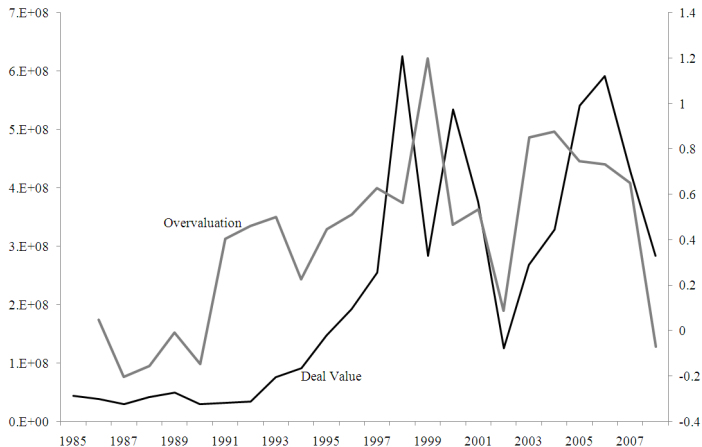
$$V_{it} = \frac{\pi_{it}}{k_i - g_i} = \alpha_i \pi_{it}$$

- ▶ estimate this for period when from S&P P/E ratio, shares seem not overpriced (1985-1986, 1988-1994, 2001-2004) (assuming $k_i = k, g_i = g$); overvaluation measure:

$$O_{it} = V_{it} - \hat{V}_{it}$$

Firm Specific Overvaluation

Mean overvaluation in sample, $O_{it} = V_{it} - \hat{V}_{it}$, relative to total assets:



Causes of Mergers

Estimation of

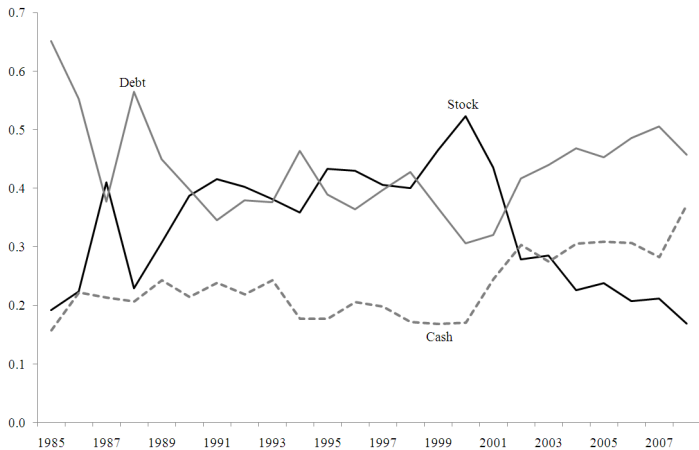
$$M_{it} = a + bO_{it} + cS\&P_t + dS_t + e\ln(TA_{it-1}) + fCF_{it-1} + gL_{it-1} + \mu_{it}$$

M_{it} : dependent variable, deal value over total assets

Alternatively: add Federal Funds Rate; if spread measures borrowing costs only, FFR should have similar coefficient as spread

Means of Finance over Time

Percentage of deal value financed by issuing stock, new debt or payed in cash:



Choice of Finance

Check the implications of MT on choice of finance; estimation of

$$EF_{it} = a + bO_{it} + cS\&P_t + dC\&ILR_t + eM_{it} + fCF_{it-1} + gL_{it-1} + \mu_{it}$$

EF_{it} : dependent variable, fraction of assets acquired by issuing new shares

Expect $b > 0$ (OVH), $c > 0$, $d > 0$ (MT, OVH)

Consequences of Mergers

Literature on effects of acquisitions for acquirers' abnormal returns consists of 3 groups:

- (1) short term near zero
(Jensen, Ruback, 1983, Eckbo, Thorburn, 2000, etc.)
- (2) short term negative
(Moeller, Schlingemann, Stulz, 2005)
- (3) long term (2y-5y) negative, particularly for mergers consummated during stock market booms
(Agrawal, Jaffe, Mandelker, 1995, Loderer, Martin, 1997)

Consequences of Mergers

Estimate the effect of optimism variables on abnormal returns:

$$AR_{i,t+n} = f(P/E_t, S_t, (O/TA)_{it}) + zL_{i,t-1} + \mu_{it}$$

for $n = 1, 2, 3$ years

Expect negative effect of optimism on AR, i.e.

$$\frac{\partial AR}{\partial P/E} < 0, \quad \frac{\partial AR}{\partial S} > 0, \quad \frac{\partial AR}{\partial O/TA} < 0$$

Results I: Causes

	Coeff.	(t-value)	Coeff.	(t-value)
O	0.022	(15.8)	0.022	(15.5)
P/E	0.008	(18.4)	0.009	(18.6)
S	-0.100	(-7.9)	-0.200	(-11.4)
ln(TA)	0.059	(34.3)	0.059	(34.2)
CF	0.142	(7.3)	0.145	(7.4)
L	-0.142	(-9.4)	-0.141	(-9.4)
FF			-0.020	(-8.2)
a	-1.228	(-34.4)	-0.938	(-19.0)
N	57,777		57,777	
R^2	0.0464		0.0478	

Key variables of MT, overvaluation, spread and P/E, significant, sign as predicted

Spread coefficient 10x that of FFR; measures more than only borrowing costs

Results II: Means of Finance

	Coeff.	(t-value)
O	0.088	(9.2)
P/E	0.018	(6.8)
C&ILR	0.093	(8.1)
M	0.949	(18.4)
CF	-1.099	(-10.6)
L	-0.631	(-7.8)
a'	-1.384	(-14.2)
N	7,681	
R ²	0.0800	

O, P/E, interest rate, as predicted

Results III: Consequences

	1 year		2 years		3 years	
	Coef.	(t-value)	Coef.	(t-value)	Coef.	(t-value)
P/E	-0.0162	(-4.1)	-0.0720	(-12.0)	-0.0902	(-11.6)
P/E ²	0.0002	(3.0)	0.0012	(11.6)	0.0016	(12.1)
S	0.5894	(2.5)	2.2546	(6.2)	1.9370	(4.1)
S ²	-0.2114	(-3.6)	-0.6479	(-7.4)	-0.6147	(-5.4)
O	0.0044	(2.4)	-0.0165	(-5.8)	-0.0324	(-8.9)
L	0.0863	(4.8)	0.1678	(6.1)	0.2345	(6.6)
cons.	-0.0958	(-0.4)	-0.9361	(-2.4)	-0.3018	(-0.6)
N	14,350		13,315		12,248	
R ²	0.0263		0.0489		0.0677	

Control group: all non-acquirers six months before acq. and during window, same SIC-2, same size-decile

Estimates split for wave period, 1995-2000, 2005-2007, and outside (rest of 1985-2008)

Discussion

Results in line with MT and OVH:

- ▶ optimism measures affect assets acquired positively
- ▶ more equity financing if individual and market optimism high
- ▶ larger negative returns for acquirers for acquisitions made in optimistic environment

Optimism in MT fits merger wave from 2005-2008 also well:

- ▶ more debt financing in recent wave
- ▶ optimism on stock *and* bond market affects merger waves