Will I Get Paid? Employee Stock Options and Mergers and Acquisitions

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Research Questions

- How labor is affected by mergers and acquisitions?
- Can wealth transfers from labor to shareholders be a source of takeover gains?
  - More specific focus: The treatment of ESOs held by rank-and-file employees at target firms
  - Options are a large part of compensation packages (particularly at high-tech firms)
  - Options can be treated with discretion

What We Find

- **In over 80% of M&A deals, some employee stock options are cancelled by the acquirer**
  - Most common scenario: cancelling out-of-the money and paying intrinsic value for in-the-money
  - When options are converted, value can decrease because the acquirer stock has a lower volatility
  - No evidence of increase in new option grants by the acquirer
  - Because of cancellations, the average option loses 48% of its value.
- **Offer price premium is larger when the target has many ESOs and when the acquirer cancels them**
  - Robust to using (relatively) exogenous variation in option grants
- **Bidders that can cancel target's ESOs earn 1.5% higher announcement CAR**
- **No evidence of strategic targeting of firms with options**

Related Literature: How Executives are Affected by M&As?

- **CEOs of target firms can get handsome personal deals in M&As**
  - Hartzell, Ofek, and Yermack(2004), Fich, Cai, and Tran (2011)
    - Special bonuses and increased golden parachutes
    - Unscheduled stock options to target CEOs
    - CEOs trade off personal benefits for a higher offer premium
- **CEOs of acquiring firms also receive large bonuses for completing M&A deals**
  - Harford and Li (2007), Grinstein and Hribar (2004)
    - No relation between deal performance and payments to CEO

Related Literature: Labor and M&As

- **Theory:** Employees as "white squires" and "shark repellent"
  - Pagano and Volpin (2005), Chemla (2005), Shleifer and Summers (1988)
- **Labor contracts/unions as takeover deterrent**
  - John, Knyazeva, and Knyazeva (2015) and Tian and Wang (2015): stronger labor protection/unionization→lower CARs for bidders/targets, fewer takeovers
  - Dessaint, Golubov, and Volpin (2016): stronger labor protection→ less takeovers
  - Rauh (2006): stock in 401(k) plans – a takeover defense
- **Measuring wealth transfers from labor**
  - Rosett (1990), Brown and Medoff (1989), Lichtenberg and Siegel (1990), Li (2013), Davis et al (2014): modest declines in employment and wages
  - Pontiff, Shleifer, Weisbach (1990): pension asset reversions explain 11% of takeover premium.

Background

- Mergers present an excellent opportunity to restructure and reduce employee compensation, get rid of slack
  - Options are a large part of value, less contractually protected than other types of compensation
  - Different compensation structure/culture of target and acquirer, different goals (e.g., innovation, incentives), accounting
  - Options may have achieved its intended purpose, the acquirer can renege (e.g., turnover of key personnel)
- However, there is a simple economic reason as well
  - Value of ESOs can increase manyfold in the M&A transaction

Reasons to Cancel Options - A Levered Claim

- Because option is a levered claim, its value grows much faster with the premium than does the value of the underlying stock.
- For example, an option with a strike price of \$100 and the current market price of \$110 yields the intrinsic value of \$10 upon the exercise.
- With a 41% premium put forth by the acquirer, the price is \$155, the intrinsic value of the option jumps to \$55, which is a 450% increase in the value of the option.
- Therefore, if not modified or canceled, employee stock options could present a particularly large financial burden for the acquirer.

Reasons Not to Cancel Options - Employee Resistance

- Employees may participate in merger negotiations or even sabotage the merger if they feel they can become worse off.
  - Caveat: We are not talking about unions (options are large in non-unionized industries)
- May influence both the outcome and the probability of the merger
  - E.g., employees may refuse to sell their stock (survey evidence), lobby against the merger, pressure the management, and even go on a strike (Pagano and Volpin (2005), Rauh (2006)).
  - Social relations between manager and employees, Cronqvist et al. (2009)
  - Low morale, effort, high absenteeism, turnover

Stock Price Run-Up – A Counter Argument for Resistance

- Resistance is mitigated by a positive run-up in the stock price (news of the merger)—increases the value of all equity compensation (net of cancellations), including stock, options, ESPPs, pension plans
- But, many employees tend to attribute the price increase to the their hard work and the success of the firm rather than to the M&A offer
  - Employees can view a bid as a discovery of the firm's true value. Malmendier, Opp, and Saidi (2016) find that targets of cash-financed acquisitions are revalued on average by $+15\%$ after the deal failure.
- So, employees are happy to see the stock price and options value go up, but even more unhappy to give up options.

Tradeoff for Acquirers

- Ultimately, what incentives ESOs create for the bidders is an empirical question.
  - An additional cost of assuming employee stock options implies a lower offer premium and a smaller probability of a merger
  - But if can cancel or reduce the value of outstanding stock options and transfer gains to shareholders, both the premium and the probability to be taken over may be positively affected by the presence of ESOs
  - Finally, if employees can lobby against those mergers where their compensation is at stake, we may expect that presence of ESOs shifts the bargaining power in merger negotiations to the target, effectively increasing the cost to the bidder

Preemptive Option Grants Complicate Conclusions about Causality

- Target firm can start granting more options prior to the merger:
  - A. Preemptive options grants can be made in the hope to defend against takeovers.
  - B. Preemptive options grants can help to enhance target's bargaining power in merger negotiations.
  - C. Alternatively, options can be granted in lieu of wages in constrained firms.
- Suppose a firm anticipates a 20% probability of becoming a target: if it does not become a target, the stock price goes down.
- Therefore, options are either paid by the acquirer or go underwater and are never exercised!

Data

- Start with completed and withdrawn M&A deals from the SDC Platinum database, announced between January 1, 2006 and December 31, 2014.
  - Exclude spin-offs, self-tenders, exchange offers, repurchases, recapitalizations, acquisitions of assets, remaining interest or partial interest, and transactions for which deal value is not available
  - For offer premium, restrict to completed deals with non-missing information on the number of stock options and the offer premium (1,178 deals).
- Information on the treatment of employee stock options by acquirer comes from a manual search of SEC filings (merger agreements, tender offers)
- Data on employee stock options are from Compustat (change in expensing rules post 2005).

Summary Statistics

Variable	Mean	SD	25th	Median	75th
Deal characteristics:					
Offer premium	41.0	31.4	20.8	33.0	52.0
Cash payment	70.9	45.5	0	1	1
Diversifiying deal	48.0	50.0	0	0	1
Tender offer	26.1	43.9	0	0	0
Private acquirer	16.8	37.4	0	0	0
Target firm option variables:					
Outstand. options/shares.	10.1	7.4	4.9	9.0	13.8
Outstand. options moneyness	40.5	121.6	-28.0	17.1	67.2
Out-of-the money	41.2	49.2	0	0	1
Value of outstand. options/ mktcap	5.1	4.5	2.0	4.0	7.0
Moneyness of vested	60.7	166.3	-33.0	18.4	87.1
Moneyness of unvested	28.6	87.8	-21.6	13.6	51.0

Target Selection: Summary Statistics

	Targets		*Control*		*Difference*
Variable	Obs.	Mean	Obs.	Mean	t-test
M/B	1,145	1.532	49,339	1.630	-3.13***
ROA	1,145	0.072	49,339	0.095	-5.45***
R&D	1,145	0.068	49,339	0.045	8.13***
Cash	1,145	0.239	49,339	0.216	3.86***
Outstand. options/shares	1,145	0.095	49,339	0.083	7.09***
Value of outstanding options/mktcap	939	0.053	38,730	0.048	4.25***

Option Treatment: Definitions

- **Cancel**: Employee gets nothing
- **Cashout**: Employee gets $P - K$
- **Expire on close:** Employee can exercise until merger effective date (if he can)
- **Assume**: Options are converted to preserve the same intrinsic value, not the same as value
- **Other**: Payout can be as low as 1 cent
- **Note on vesting**: Some options have accelerated vesting as result of change-in-control provision

Option Treatment

	Vested stock options				Unvested stock options			
Treatement	In-money		Out-of-money		In-money		Out-of-money	
	N	%	N	%	N	%	N	%
Cashout	878	77.3%			804	70.8%		
Cancel	0	0.0%	907	79.8%	40	3.5%	867	76.3%
Assume	195	17.2%	196	17.3%	248	21.8%	236	20.8%
Expire on close	34	3.0%	0	0.0%	12	1.1%	0	0.0%
Payout	5	0.4%	10	0.9%	6	0.5%	10	0.9%
Other	10	0.9%	9	0.8%	12	1.1%	9	0.8%
No options	14	1.2%	14	1.2%	14	1.2%	14	1.2%
Total deals	1,136	100%	1,136	100%	1,136	100%	1,136	100%

Implications of M&As for Employee Compensation

Panel A: Full Sample					
Variable	Mean	SD	25th	Median	75th
Cancel options	80.6	39.5	100	100	100
Cancel ESPP	37.4	48.4	0	0	1
Gain on outstand./ value of outstand.	-48.7	39.0	-94.2	-43.1	-12.6
Gain on outstand./value of outstand. (with premium)	5.0	67.0	-42.0	11.2	45.5
Gain on vested/value of vested (with premium)	19.6	90.8	-50.4	28.5	62.6
Gain on unvested/value of unvested (with premium)	-17.9	63.1	-78.1	-14.9	26.5

Implications of M&As for Employee Compensation

Panel B: Cancel options = 1						
Variable	Obs.	Mean	SD	25th	Median	75th
Gain on outstand. in %	861	-57.7	35.9	-100	-54.9	-23.3
Gain on outstand in % (with premium)	796	-6.4	64.6	-61.9	2.3	35.8
Acquirer's CAR (%)	345	0.8	6.2	-1.7	0.4	2.7
Panel C: Cancel options = 0						
Variable	Obs.	Mean	SD	25th	Median	75th
Gain on outstand. in %	193	-8.6	24.0	-14.8	-0.5	0.0
Gain on outstand in % (with premium)	197	51.1	55.6	21.6	42.2	72.1
Acquirer's CAR (%)	128	-1.7	8.1	-6.4	-2.4	1.8

Implications of M&As for Employee Compensation

Panel D: Differences Between Target and Acquirer

Variable	Target (Mean)	Acquirer (Mean)	t-test
Stock return volatility	52.1%	35.3%	15.33***
Dividend yield	0.79%	1.20%	-2.99***

Panel E: Option Grants by Bidders Before/After Acquisition

Variable	Mean	Variable	Mean
Options granted t-1 ($M)	75.8	Options granted t-1/mktcap	1.14%
Options granted t ($M)	64.5	Options granted t/mktcap	1.13%
Options granted t+1 ($M)	60.5	Options granted t+1/mktcap	0.47%

Effect of ESOs on Offer Premium

- How does the presence of ESOs affect merger terms?
- Negative relation: options have costs
- Positive relation: options can be canceled/value transfers
- Positive relation: options enhance target's bargaining power

Effect of ESOs on Offer Premium (OLS)

	(1)	(2)	(3)	(4)
Cancel options	3.7*			
	(1.78)			
Outstand. options/shares		32.9**		
		(2.13)		
Value of vested/mktcap			-49.8	
			(-1.30)	
Value of unvested/mktcap			198.2***	
			(3.97)	
Gain on outstanding				-87.0**
options/mktcap				(2.31)
Distance to $\frac{S-K}{K}=0$				-5.2***
				(-2.95)
(Distance to $\frac{S-K}{K}=0)^2$				0.9***
				(2.86)
Deal/target controls	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
Obs.	1,033	1,048	1,025	976
Adj R-sq (%)	13.5	14.6	17.3	15.7

Instruments for ESOs

- Options can proxy for some other valuable target characteristic
- Targets can grant options preemptively
- Two instruments: geography and tax
- Compensation of non-executives has a strong geographical component.
  - Kedia and Rajgopal (2009) show that location of headquarters matters for option grants (local labor market, social interaction among employees of neighboring firms, knowledge spillover from firm to firm).
  - Instrument is the *neighbor firms option use (*BS value of outstand. options/mktcap, averaged over all Compustat firms with HQ in the same 2-digit zip code).
  - Unlikely that all firms in a given region (e.g., in Silicon Valley) are attractive targets and/or face a higher takeover probability.

Instruments for ESOs

- Second instrument relies on the variation in option grants due to tax.
- Firms that face more convex tax schedules benefit more from options relative to fixed wages (Babenko and Tserlukevich (2009)).
- To measure the tax convexity, we estimate the absolute coefficient of variation of target EBITDA over the past 20 years of data.
- Target firms are much smaller than acquirers and the tax convexity features of combined firm are typically not preserved.

IV- Results

	Outstanding options (1st stage)	Offer premium (2nd stage)	Outstanding options (1st stage)	Premium (2nd stage)
Outstand. options		109.2**		129.0***
		(2.19)		(2.59)
Neighbor firms option use	1.062***		1.043***	
	(7.95)		(7.80)	
Tax convexity			0.001***	
			(2.70)	
Observations	1,277	1,277	1,273	1,273
First-stage R^2	0.262		0.267	
(Joint F-test)	13.84 (<0.001)		13.62, (<0.001)	
Weak identification test	63.25 (<0.001)		36.35 (<0.001)	
Test of overident. restrictions	N/A		1.036 (0.309)	

Selection on Unobservables -Oster (2015) Method

- Oster (2015) and Altonji, Elder, and Tabler (2005) develop a method to evaluate how sensitive results are to the omitted variable bias.
- Based on movements in coefficients and R-squared with inclusion of additional controls
- Requires some assumptions on covariance structure – proportional selection relationship
- Still a useful diagnostic, only 54% of published papers pass it.
- Provides an estimate of δ (selection on unobservables, 1 means same as selection on observables) that would wipe out the coefficient to 0 (given a maximum R-squared).

Selection on Unobservables

- For offer premium regressions, our estimate of δ vary from 1.17 (number of options/shares) to 3.70 (cancel options).
- Thus selection on unobservables has to be really large to explain away our results – consistent with IV results

Acquirer Market Price Reaction

- Do acquirers that cancel target's options transfer gains to their shareholders?

	(1)	(2)
Tender offer	-0.43 (-0.63)	-0.24 (-0.34)
Cash payment	1.91** (2.52)	2.65*** (3.56)
Diversifiying deal	-1.24** (-1.99)	-1.92*** (-3.01)
Lockup	1.97 (1.60)	1.97 (1.60)
Target size	-0.17 (-0.81)	-0.32 (-1.39)
M/B	-0.92*** (-4.33)	-1.13*** (-4.58)
Cash flow	-3.25** (-2.02)	1.04 (0.40)
R&D	-8.71*** (-2.96)	-2.61 (-0.56)
Cancel options	1.47* (1.92)	
Outstanding options		-10.39** (-1.96)
Obs	463	500
Adj R-sq (%)	10.8	11.1

Target Selection (1 if actual target, 0 if control firm)

Variable	(1)	(2)
Log(assets)	-0.04 (-0.94)	-0.04 (-0.93)
Sales growth	-0.04 (-0.90)	-0.04 (-0.89)
Cash flow	0.43 (0.73)	0.51 (0.84)
R&D	6.91*** (8.07)	6.97*** (8.02)
M/B	-0.53***(-7.39)	-0.55***(-7.40)
Leverage	0.75** (2.40)	0.60* (1.87)
Cash	0.28 (0.77)	0.29 (0.76)
BHAR	-0.08 (-0.39)	-0.19 (-0.78)
Outstanding options/mktcap	6.46*** (2.82)	
Vested options/mktcap		4.76* (1.72)
Unvested options/mktcap		9.07** (1.97)
Actual targets	1,398	1,376
Potential targets	60,904	59,177

Using IV – Takeover Probability

- Using IV, we find no relation between ESOs and takeover probability
- Perhaps, the positive relation in the OLS is due to preemptive grants by attractive targets

Conclusions

- We document how target stock options are treated by acquirers
- Show that ESOs affect deal terms (premium) and performance (bidder CAR)
- But, it does not seem that firms with options are more likely to be targeted (perhaps costs offset the benefits)