Private Equity Acquisitions and Strategic Buyers: Information Discounts versus Synergies

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Motivation

- Private equity (PE) funds play an active role in transforming the corporate landscape
- Economic value to society of PE's activities is debated among academics as well as in the media
- The theoretical foundation for the discussion seems thin
  - Empirical studies of PE funds are better developed
- We set up a model to address:
  1. When do PE funds play a role in acquisitions?
  2. When are PE funds beneficial for society?

Introduction

We are active investors that partner with our portfolio company management teams to achieve growth and improve productivity. (...) *Our team of experienced investment professionals comprised of seasoned local investors who know the region, understand the culture, and have extensive investing and business experience.* (...) *We are driven to provide our private equity investors with consistently strong returns that are significantly above those they could achieve in the public markets.* *(quoted from KKR's website)*

- We let PE funds add value through two interacting channels
  - Strategic reorganization aligns interests with management
  - Better information inside reorganized firm

Active role for private equity

- Our PE fund competes with strategic buyers (SB)
- SBs seek value in private benefits and synergy gains
- The PE fund instead sells some assets
- This sale, with their experience, confers an information advantage on the PE fund
- This advantage allows PE fund to better exercise real options
  - PE fund wins takeover targets when real options are more important
  - The SB must bid with an information discount

Welfare

- Economic value added depends on the alternative
- Society may partially value private benefits (eliminated by PE) and synergy gains
- Better exercise of real options is valuable
- Yet, some returns to investors may not be in society's interest
  - Anti-competitive synergy gains or tax avoidance schemes

Some related literature

- PEs create value, innovations (LSS, JF 2011); Operational value (MM, JFE 2106); Operating gains $\leqslant$ taxes/valuation multiples (GHS, JF 2011); Operational improvements for top mature PEs (AGHK, RFS 2013); Value through growth (GKM, JFE 2016)
- Buy-and-build, PE experience and reputation matters (HKPS, JCF 2017); Boost strategy, price premium at entry (HHS, 2018, HJSS 2018)
- Governance, PEs are active in the boards (KS JEP, 2009, NW, JCF 2007)
- Segmentation hypothesis, Bidders have private signals prior to bidding, SB value targets higher on average, PE highest in 22% GM (JF, 2014); Selling process matters (FRPT, JCF 2012)
- LBOs: Leverage varies with economic factors KS, (JEP 2009), AJSW, (JF 2013)
- PE owned firms borrow against PE's reputation (MM JFE, 2015; DJ, JFE 2010)
- PE contract structure to induce incentives ASW (JF, 2009)

Model

- Risk free market interest rate is 0 and all parties are risk neutral
- Target firm
  - Initially owned by founder-manager
  - Firm contains two assets, A_1, A_2
- Asset A_1 has a growth option: invest for risky return
  - Acquire costly information before investing
  - Investment gives private benefits U_{A_1}
- A_2 represents a bad legacy asset
  - Complicates inference regarding A_1; garbles information
  - Further private benefits U_{A_2}

Model: Central players

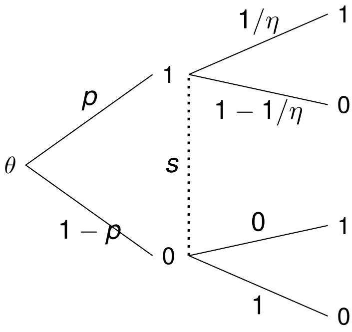
- Private Equity Fund
  - May combine with assets from previous acquisition
  - Can use costly expertise e to enhance value by $(1 + we)G_{PE}$ if growth option succeeds
  - Eliminates private benefits
  - Requires a return $r \geq 0$
- Strategic buyers
  - Successful growth can provide synergy gains G_{SB}
  - Further private benefits from investment in A_1, U_Q

Information friction

$t=0$		$t=1$		$t=2$		t
Sale to PE or to SB or no sale	Keep or divest A_2	Initial inv. I_1	Signal revealed	Invest I_2 or stop	Payoffs + private benefits	

- Opportunity in asset A_1
  - Terminal value θV_{A_1} depends on state $\theta \in \{0, 1\}$
- Information depends on A_2 and owner
  - Investing I_1 launches information gathering
  - Signal $s \in \{0, 1\}$
  - Asset A_2 divested: $s = \theta$
  - Asset A_2 kept: $\mathbb{P}(s = 0|\theta = 0) = 1$, but $\mathbb{P}(s = 1|\theta = 1) = 1/\eta$
  - Legacy asset A_2 implies a garbled signal, parameterized by $\eta \geq 1$ that may depend on owner type

Information structure



Beliefs

$$\mathbb{P}(\theta = 1 | s = 1) = \frac{p/\eta}{p/\eta + 0} = 1$$

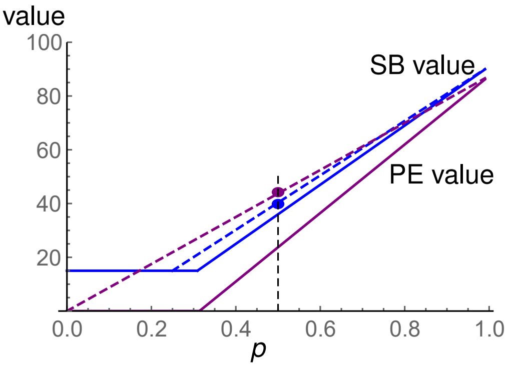
$$\mathbb{P}(\theta = 1 | s = 0) = \frac{p(1-1/\eta)}{p(1-1/\eta)+(1-p)} = \frac{p\eta - p}{\eta - p}$$

$$\mathbb{P}(\theta = 0 | s = 1) = \frac{0}{1-p/\eta} = 0$$

$$\mathbb{P}(\theta = 0 | s = 0) = \frac{1-p}{(1-p)+p(1-1/\eta)} = \frac{\eta - \eta p}{\eta - p}$$

- Posterior belief, π: "high if good" $= 1$ or "high if bad" $= \frac{p\eta - p}{\eta - p}$
- Greater η induces greater information friction (from 0 to p), $\mathbb{P}(s = 1) = p/\eta$

Value of information



- Posterior belief π, $\mathbb{E}[\pi] = Pr(\theta = 1) = p$
- PE can dominate if its posterior belief is sufficiently more variable

Strategic buyer

- By assumption, SB adds value over founder-owner, for any course of action
  - Assume $\eta_m > \eta_{sb} > 1$
  - There are also synergy gains and added private benefits
- We assume that SB prefers to keep asset A_2
  - Private benefit more important than information loss
- SB values the firm (in case of acquiring signal) at

$$\frac{\eta_{sb} - p}{\eta_{sb}} \max\{0, U_{A_1} + U_Q + \frac{p\eta_{sb} - p}{\eta_{sb} - p}(V_{A_1} + G_{SB}) - I_2\} + \frac{p}{\eta_{sb}}(U_{A_1} + U_Q + V_{A_1} + G_{SB} - I_2) - I_1 + U_{A_2} \quad (1)$$

Private equity fund

- Eliminating private benefits, the PE fund prefers to divest legacy assets A_2
- PE values the firm at

$$\frac{p}{1+r}\left(\frac{V_{A_1}+(1+we)G_{PE}}{1+r}-I_2\right)-I_1-e^2/2 \tag{2}$$

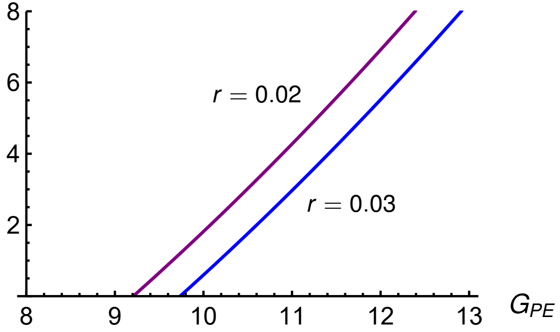
easily solved for optimal effort e

Active Role for Private Equity

- We predict a takeover by the PE fund when (2) exceeds (1)
- This occurs when r is small, G_{PE} is large, w is large, G_{SB} is small, private benefits are small, η_{sb} is large
- In particular, when information is more important than synergies

When does PE play a role: Synergies

(2)*minus*(1)



- The role of PE increases when the PE's synergy gain increases
- The role of PE decreases when the return requirement increases

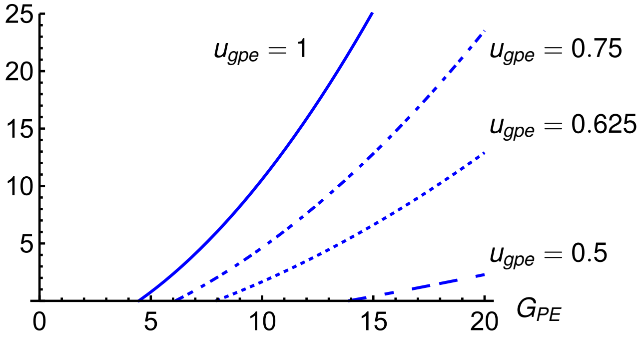
Welfare implications

- Society's weight on private benefits and synergies $u \in [0, 1]$
  - Saved costly efforts of manager or strategic buyer
  - Perks spent by manager/SB, but costly to the firm
  - SB's private (synergy) benefits from e.g. anti-competitive conduct with gain to investors but actual welfare loss
  - PE costly synergies: abuse of market power, tax shield exploitation

$$G_{soc} = p\big(u_{gpe}(1 + we)G_{PE} + V_{A_1} - I_2\big) - u_U U_{A_2} - \frac{p}{\eta_{sb}}\big(u_U U_{A_1} + u_U U_Q + u_{gsb} G_{SB} + V_{A_1} - I_2\big)$$

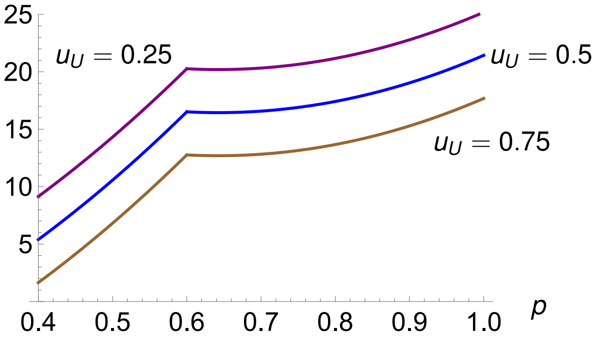
- Society does not discount PE benefits at rate r
  - $\rightsquigarrow$ Society relatively more keen on PE's takeover than SB's t/o
- Corollary: If a takeover by the PE fund is possible and $u_{gpe} = 1$, then such a takeover is desired from society's point of view

Gain to society: Synergy and its importance



- Increasing benefit of PE for greater synergy
- Increasing benefit of PE for greater social weight on this

Gain to society: Real option versus private benefit



- If private benefits have no welfare value, PE takeover is preferred by society due to efficient investment policy

Conclusion

- PE is active where information frictions are important
  - But less so when alternative buyers create synergies
- The PE fund's return requirement can prevent it from winning the takeover contest (PE is scarce capital)
- A PE acquisition can improve society's welfare
  - Crucial how society values the gains that PE and SB foresee

$\rightsquigarrow$ PEs can be beneficial to society when the information friction is high and society's weight on private benefits is low