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Investment Banking

1. Mergers & Acquisitions



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Mergers & Acquisitions

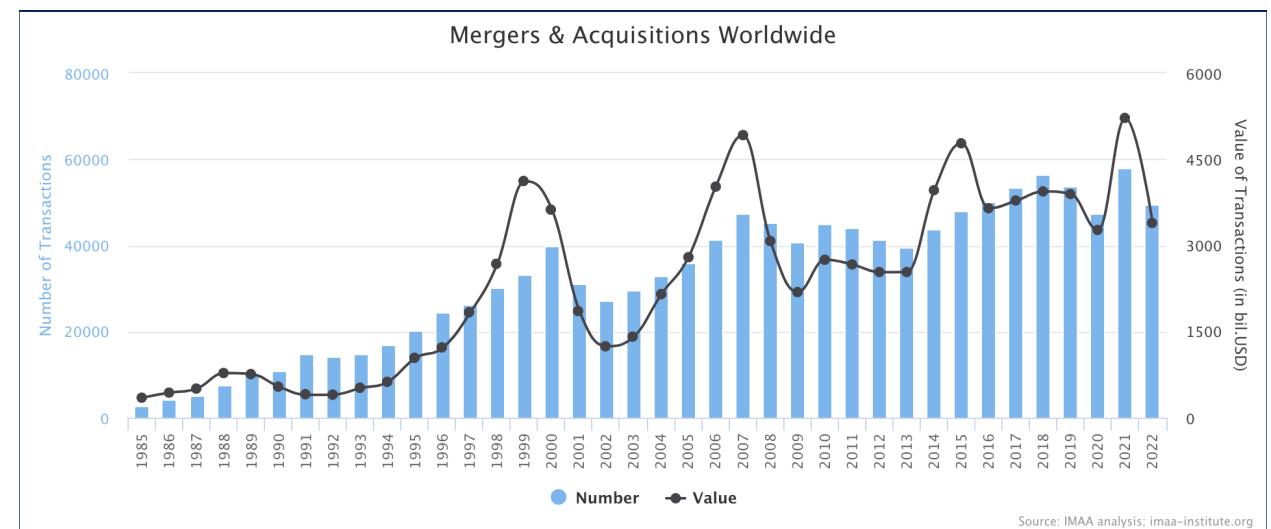
Introduction
Value Creation and Strategy
Valuation



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Introduction

M&A





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Introduction

M&A

Basic Concepts

- Acquisitions or takeovers includes different transactions
 - Merger (F)
 - Consolidation
 - Tender Offer (H)
 - Acquisition of assets
 - Buyout
- Acquisition premium vs. Goodwill
- Friendly vs. Hostile acquisition
- Merger activity in the United States, UK and Continental Europe has occurred in waves
 - Neoclassical hypothesis (PEST and Q-theory)
 - Behavioral hypothesis



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Introduction

M&A Motives

- Reducing costs or increasing market power
 - Strategic realignment
 - Technological change
 - Deregulation
 - Synergy
 - Economies of scale/scope
 - Cross-selling
 - Diversification (Related/Unrelated)
 - Financial considerations
 - Booming stock market
 - Falling interest rates
 - Tax considerations
- Agency problems
 - Ego/Hubris



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Introduction

M&A

Successful or failed transactions?

- Empirical studies using event-study methodology
 - The evidence indicates that the stockholders of target firms are the clear winners in takeovers
 - These gains are much larger in TO (hostile) than in mergers (friendly)
 - The effect of takeover announcements on bidder firm stock prices is not as clear cut
 - Studies indicate that approximately half of all bidding firms earn negative excess returns around the announcement date
 - Since acquirers are substantially larger than targets, the above results translate to small positive overall gains
 - In the long run, acquirers in mergers suffer wealth losses, significant in many studies, but in tender offers they earn insignificantly positive returns in many studies
 - Results are similar to US, UK and Europe



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Successful when....

- Positive abnormal returns to bidders is associated to the following situations:
 - Target is a private firm or a subsidiary of another firm
 - The acquirer is relatively small
 - The target is small relative to the acquirer
 - Cash rather than equity is used to finance the transaction
 - Transaction occurs early in the M&A cycle



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Introduction

M&A Failure...

- Primary reasons some M&As fail to meet expectations
 - Overpayment
 - Agency conflicts of the acquirer
 - Over-estimating synergy because of hubris
 - Winner's curse when multiple bidders
 - Slow pace of integration
 - Poor strategy



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Value Creation and Strategy

M&A Sources of value

- Coherent acquisition strategy has to be based on one or more of these motives
 - Create operating or financial synergy (synergy value)
 - $V(AB) > V(A) + V(B)$
 - Take over poorly managed firms and change management (control value)
 - In the last two decades, has been increasingly cited as a reason for hostile acquisitions
 - Diversify to reduce risk
 - Open question whether it can be accomplished more efficiently by investors (through traded stocks) or by firms
 - Acquire undervalued firms
 - Very difficult strategy especially when acquiring publicly traded firms in reasonably efficient markets



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Valuation

M&A

3 steps in value the acquisition
of a firm

- 1. *Status quo* valuation of the firm ("as it is")
 - Value the target firm by estimating the firm value with existing investing, financing and dividend policies
- 2. Control value
 - The value of controlling a firm comes from changes made to existing management policy that can increase the firm value ("as it should be")
 - Value of Control = Value of firm, optimally managed ("as it should be") – Value of firm with current management ("as it is")



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Valuation

M&A

3 steps in value the acquisition
of a firm

■ 3. Synergy value

- Value the firms involved in the merger independently (target firm, optimally managed, i.e., "as it should be")
- Estimate the value of the combined firm with no synergy, $V(A) + V(B)$
- Build in the effects of synergy into expected growth rates and cash flows, and value the combined firm with: $V(AB)$
- $V(AB) - [V(A)+V(B)]$
- In the case the two firms (acquirer and target) are managed independently after the acquisition you only need to estimate the value of the target firm
- However, in the valuation of the target firm, optimally managed, should be included any proceeds resulting from the sale of non-operating assets and the savings due to redundancy costs.



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Valuation

M&A
DCF

- Estimation of Enterprise Value

$$EV_0 = \sum_{i=1}^n \frac{FCFF_i}{(1+k_{wacc})^i} + \left[\frac{TV_n}{(1+k_{wacc})^n} \right]$$

- Estimation of Equity Value

$$EqV_0 = EV_0 - D_0$$

$$EqV_0 = \sum_{i=1}^n \frac{FCFE_i}{(1+k_e)^i} + \left[\frac{TV_n}{(1+k_e)^n} \right]$$



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Valuation

M&A
DCF

- **FCFF (Free Cash-Flow to Firm)**
 - $EBIT \times (1-T) + D\&A - \Delta WC - CAPEX$
 - Cash-flow available to remunerate all capital (debt and equity)

- **FCFE (Free Cash-Flow to Equity)**
 - $FCFF - Interest \text{ (net of taxes)} + \Delta Debt$
 - Cash-flow available to remunerate equity



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Valuation

M&A
DCF

- k_e - Cost of equity
 - CAPM: $r_e = r_f + E(MRP) \times \beta$
 - β change with debt – Hamada formula:
- $$\beta_L = \beta_U x \left[1 + (1 - T)x \frac{D}{E} \right] \quad \leftrightarrow \quad \beta_U = \frac{\beta_L}{\left[1 + (1 - T)x \frac{D}{E} \right]}$$
- k_d = risk-free rate + default spread
 - Rating
 - YTM
- K_{wacc} – Weighted average cost of capital
 - $K_{wacc} = k_e * E/V + k_d * D/V * (1-T)$
 - $V = E+D$
 - E and D – Market values (**NOT** accounting values)



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Valuation

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DCF

- Terminal (Residual) Value

$$TV_n = \left[\frac{FCFF(E)_{n+1}}{k_{wacc(e)} - g_{FCFF(E)}} \right]$$

- n – forecast horizon
- FCFF(E)_n – FCFF(E) projected to the period n
- k_{wacc (e)} – cost of capital
- g_{FCFF(E)} – FCFF(E) perpetual growth rate after n
 - g_{FCFF} = ROC x EBIT Reinvestment rate
 - g_{FCFE} = ROE x (1- Payout ratio)
- Some authors state that can also be estimated through EV multiples (more on that later)

$$TV_n = EBIT_n \times \left[\frac{EV}{EBIT} \right]_{benchmark}$$



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Valuation

M&A
DCF

- 1. Estimate cash flows, based on the assumptions for its post-acquisition management
- 2. Estimate the terminal value at end of forecast horizon
- 3. Estimate the cost of capital appropriate, given its projected post-acquisition risk and capital structure
- 4. Discount the estimated cash flows
- 5. Add in cash-flows from asset disposals or subtract out cash-flows from business investments
- 6. Subtract debt to give a value for the equity of the target
- 7. Compare the estimated equity value with the pre-acquisition stand-alone value to determine the added value from the acquisition.



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M&A DCF - Example

	2018	2019	2020	2021	2022	2023
Sales	1620.0	1750.0	1890.0	2040.0	2204.0	2204.0
Operating profit	64.8	70.0	75.6	81.6	88.2	88.2
(-) Corporation tax	21.4	23.1	24.9	26.9	29.1	29.1
(-) Additional fixed assets	20.4	22.0	23.8	25.7	27.8	0
(-) Additional working capital	4.8	5.2	5.6	6.0	6.5	0
Free cash flow to the firm (FCFF)	18.2	19.7	21.3	23.0	24.8	59.1
PV of FCFF 2018 to 2022	78					
PV of TV @ 2022	319					537 (59.1/11%)
PV of FCFF	397					
(+) Divestment of associate	30					
(+) Sale of Target head office	70					
(-) Long-term loans	90					
Value of Target equity	407					

- The forecast assumes the following values :
 - Actual (2017) sales = 1500
 - Expected sales growth = 8% until 2022 and 0% thereafter.
 - Operating profit margin = 4% of sales.
 - Tax rate = 33%
 - Additional fixed capital = 17% of incremental sales.
 - Additional working capital = 4% of incremental sales.
 - Cost of capital (WACC) = 11%.



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M&A Multiples

- Most used ratios

- Equity Value

- PER – P/E (Price Earnings Ratio)
 - Price/Book – Price Book Value (Market-to-Book Value)

- Enterprise Value

- Tobin's q = Market value of firm/Replacement Cost = $EV / (Book\ Value\ of\ Equity + Book\ Value\ of\ Debt)$
 - $EV/EBIT(DA)$
 - $EV = Market\ Value\ of\ Equity + Market\ Value\ of\ (net)\ Debt$



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M&A Multiples

■ PER – P/E (Price Earnings Ratio)

- $\text{PER} = \text{Share Price}/\text{EPS}$
- Application of the PER (or other ratio) model implies the following steps:
 - 1. Examine the most recent and project the future performance under the current target management
 - 2. Identify those elements of revenue and costs that will be raised or lowered under the acquirer management
 - 3. Re-estimate the target's future, post-acquisition earnings, on a sustainable basis
 - 4. Select a benchmark PER (comparable companies in terms of risk and growth)
 - 5. Multiply the sustainable earnings by the benchmark PER to arrive at a value for equity.



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M&A Multiples - Example

Pre-bid profit/loss of target firm	(\$m)
Turnover	1500
Cost of sales	1380
Gross profit	120
Administrative costs	80
Associate company loss	5
Operating profit (before D&A, EBITDA)	35
Depreciation and amortization (DA)	16
EBIT	19
Interest ($\$90 \times 10\%$)	9
Tax (40%)	4
Profit for shareholders	6

■ Effects of Acquisition

- Gains:
- Increase sales by 8% and gross margin to 9% (from 8%)
- Sell of associated company for \$30m and head office for \$70m (both value are net of taxes)



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M&A Multiples - Example

Pro forma income statement	(\$m)
Turnover	1620
Cost of sales	1474
Gross profit	146
Administrative costs	80
Operating profit (before D&A, EBITDA)	66
Depreciation and amortization (DA)	16
EBIT	50
Interest ($\$90 \times 10\%$)	9
Tax (40%)	16
Profit for shareholders	25

- Valuation of the target

- P/E sector ratio – 12
- Value based on earnings – $12 \times 25 = 300$
- (+) Sell head office* – 70
- (+) Sell of associated company* – 30

400

*Only sustainable earnings enter into the P/E model, elements of a transitory nature are identified and valued separately



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Valuation

M&A Multiples

■ EV/EBITDA

- Similar to PER model
- Used heavily by analysts, in recent years, as an alternative measure of valuation
- Allows the comparison between firms with different capital structures
- Main measure in leverage buy-out acquisitions since avoids the problem with the change of the target capital structure after the acquisition
- $\text{Equity} = \text{EV} - \text{Debt}$
- Example
 - EV/EBITDA comparable firm ratio equal to 7
 - Valuation of the target
 - $\text{EV} = 7 \times 66 + 30 + 70 = \562m
 - $\text{Equity} = 562 - 90 = \472m