Full Semester Notes

Week 1

- Cross border deals are normally dealt with cash as organizations may not want to share positions within other jurisdiction and may want to finance the takeover out right.
- In large deals, cash is less likely to be exchanged. Instead shares are obtained by the acquiring firm.
- M & A relates to inorganic growth (synergies), not organic growth (corporate strategy).
- What matters to companies undertaking an M & A is that value is being created.
    - This includes:
        - Increased revenue
        - Cost savings
        - Risk Management
        - Current and future strategic position
        - Current and future opportunities
        - Financial and regulatory and taxation consideration.
    - Numerous ways to create value:
        - Strategy (organic)
        - Structural change (inorganic or organic)
        - Post M&A strategy implementation
        - Divestment or restructuring.
- Strategic growth: create sustainable competitive advantage (not just growth).
    - Industry/market/region/product/service/resource advantage.
- Definition:
    - **Merger:**
        - where corporations come together to combine and share their resources to achieve common objectives. The shareholders of the combining firms often remain as joint owners of the combined entity.
    - **Acquisition:**
        - Where the shares or control of a company is taken over by persons who, prior to the change in shareholding or control, did not possess such shareholding or control. The acquired firm becomes the subsidiary of the acquiring firm.
- Type of deals:
    - Horizontal: Same industry.
        - Rationale: create efficiencies through basic economies of scale (fixed cost reduction) and economies of scope (variable cost reduction) through greater distribution network.
        - Synergies:
            - Consolidation/Rationalisation of facilities and reduction in inventory.
            - Savings from volume purchases – greater bargaining power
            - Exploit increases market power via increased prices.
        - Risks:
            - Anti-trust issues
            - Consumer welfare

- Vertical: Different steps of the production process.
  - Rationale: Create cost efficiencies through components of the supply chain.
  - For e.g. Informational control or Operational efficiency.
  - Upstream (Input - Apple acquiring FoxConn) and downstream (Distribution - Mattel acquiring Toys R Us) integration.

  - Synergies:
    - Increased control over inputs.
    - Improved supply chain coordination
    - Better adjust production
    - Ability to capture upstream/downstream profit margins.
  - Risk:
    - loss of innovation and diverse supply choice.
    - Difficulty in managing different functions
    - Long term pressure to separate.
- Conglomerate: not related in industry, product or service. E.g. Westfarmers
  - Rationale: Risk management via diversification of cash flows.
  - Synergies:
    - Sharing infrastructure (cost reduction)
    - Leverage balance sheet to benefit from flexibility
    - Access to greater to distribution networks and customer bases
  - Risk: query whether any real benefit from conglomeration accrues to firm
- Financial acquisition:
  - Rationale: they always have an exit strategy: Buy low sell High as practised by Private equity.
- Blurred Merger:
  - Companies in similar industries whose supply chain complement each other's different product distribution.
- Cross-Border acquisitions:
  - Rationale: expand product distribution to different markets.
  - Risk: difficult to measure tangible benefit from distribution synergies.

The five step Model for M and A:

- <u>Step 1: Develop Corporate strategy.</u>
  - Resource based view of competition.
  - Porters five forces:
    - Current rivalry
    - Threat of entry of new competitors
    - Threat of substitutes
    - Buyer power
    - seller power
- <u>Step 2: Develop criteria for target</u>
  - Acquire only those targets that are consistent with the strategic objectives and value creation logic of the firm's corporate strategy and business model.
- <u>Step 3: Identify pitfalls in deal structuring and negotiations?</u>
  - Performing due diligence

    - Determining the range of negotiation parameters, including the walk away price, negotiable warranties and indemnities.
    - Negotiating the positions of senior management of both firm.
- Step 4: Post acquisition integration:
    - Change of target firm or the acquiring firm,
    - Change in the attitude and behaviour of both to accommodate coexistence of fusion of the two organization.
    - Integration of the firms information systems.
- Step: 5 Post acquisition audit and organizational learning

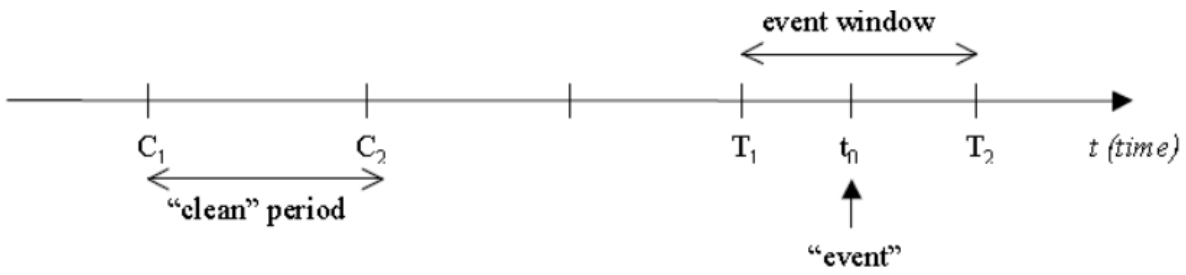
Structure of an event study:

The effects of M&A actions are typically measured using the event study technique.

Event studies measure the abnormal return to estimate the effect of M&A while controlling for other influences on the share price.

Residual analysis: Testing whether the returns to the firms during the M&A is greater or less than what regular risk -return (CAPM) analysis would predict.

- objectively measured by increase (decrease) in value:
    - **Value conserved**: Actual return = required ROE, project breaks even: NPV = 0
    - **Value created**: Actual return > required ROE: NPV > 0
    - **Value destroyed:** Actual return < required ROE; project has returned less than on an investment of similar risk **even if it has not lost money**.
- Measuring M&A in efficient markets:
    - Weak form efficiency:
        - Measure returns by considering whether share price has improved after the event.
        - Does not control for external or internal factors, so it is highly subjective.
    - Semi-Strong efficiency:
        - Measure returns by considering whether returns to shares have exceeded a benchmark.
        - More objective, but dependent on the validity of the benchmark.
    - Strong form efficiency:
        - Measure returns by considering whether returns to shares would have exceeded prices without the deal. This is impossible to measure.
- Note: longer period captures more of effect of takeover, but subject to more noise.



    - Expected return: take a clean period of normal returns for the firm to determine normal returns

- Compare with returns from the event window period.
- Benchmarks : A number of benchmarks can be used to estimate the return to the firm in a 'normal period'. The primary limitation in event studies is the estimation of the benchmark

Step 1: Define the event period

- Subjectively determine the length of an event period window based on the nature of the event, data availability, possible confounding events and industry effects.

Step2: Measure expected performance, i.e. benchmark:

Mean-Adjusted Return: Comparing returns during the event period to the firm's average daily returns during the clean period (on any given day (in absence of event), that's what company is expected to do).	$\hat{R}_{jt} = \overline{R}_j$ i.e. E(r) = the returns to the firm during the 'clean' period. This is suboptimal because historical performance may not be a true reflection of future performance, and obviously it does not take into consideration market sentiment or other events that affected the firm during either period. Also assumes beta = 1, and alpha = 0.
Market-Adjusted rRturn: company where price is very volatile (hard to identify a ***clean period***, mean adjusted return isn't that meaningful). Use market adjusted return instead, what we expect company would have done is equal to what the market would have done (market up by 1% = company up by 1%).	$\hat{R}_{jt} = R_{mt}$ Assumptions: company where alpha is 0 and beta is 1 → however this is not true for all companies (unrealistic)
Market model return: Comparing the returns during the event period to the firm's expected, market-adjusted returns during the **event** period [could actually use any model, i.e. FF3 Model etc]	$\hat{R}_{jt} = \hat{\alpha}_j + \hat{\beta}_j R_{mt}$ i.e. using CAPM, E(r) predicts the return of the firm during the event period, where ***a*** = mean return unexplained by market. This takes into consideration the risk associated with market and mean returns.

For e.g.: Usyd's acqusitions of UNSW.

In the clean period, USYD had the following:

- An alpha of 4%
- Beta of 2
- Return of 12%
- Market return 15%

In the event period,

- USYD had a return of 10%.

- Market return of 5%

Therefore,

- Mean adjusted return:
  - USYD Event return – USYD Clean return = 10% – 12% = -2%
- Market adjusted return:
  - USYD event return – market clean return = 10% - 15% = -5%
- Market Model return:
  - Usyd event return – (alpha + beta * Market event return) = 10% - (4% + 2*5%) = -4%

Step3 : Calculate the abnormal returns: i.e. the residual = Actual return – Expected return

- Residual $r_{jt} = R_{jt} - \hat{R}_{jt}$

Average Residual Returns

$$AR_t = \frac{\sum_j r_{jt}}{N}$$

- Consider volatility of stock across the history of M&A and multiple deals (average reaction)
  - Find the average between the abnormal returns of each M&A deal
- Averaging across large numbers of firms mitigates noisy components of returns

Cumulative Average Residual ***(CAR)***

$$CAR = \sum_{t=T_1}^{T_2} AR_t$$

- CARs for successive days over event period
- Shows average total effect of event across all firms over event period (aggre M&A, not only one) - aggregate returns over time

Issues:

Event studies are used to assess the potential value in the decision to acquire (i.e. strategy formulation). However, they **are less likely to depict the value created or destroyed during the implementation** of the acquisition (Strategy implementation).

Due to the lack of foresight over the quality of strategy implementation, we need to extend the scope of analysis to longer horizon studies.

The two most utilised approaches include:

- **Buy and hold abnormal return approach (BHAR)**
  - The avg multi-year return from investing in all firms that complete an event and selling at the end of the pre-specified holding period
    VS
  - a comparable strategy using otherwise similar non-events.

  - Doing so, allows us to mitigate the **issues of the joint-hypothesis problem.**
  - Yet, the long run abnormal returns are subject to a range of other significant measurement and interpretation issues including survivorship bias, new listing bias, etc.
- **Calendar time portfolio approach (Jensen's Alpha)**
  - Overcomes the biasness.
  - Comprises of two stages:

- Calculating calendar time portfolios for firms experiencing an event
- Then determining whether these portfolios are abnormal through the use of a multi factor regression model like the Fama and French 3-factor model.

Step 4: Net impact of the takeover?

The absolute dollar gain (loss) due to an event can be defined as follows:

- Calculate wealth creation before and after M&A.
- Change in W = CAR_t x $MKTCAP_0$
  - Where:
    - $MKTCAP_0$ is the market cap of the firm at date 0 (before the event window interval)
    - CAR_t is the cumulative average residual returns (%) over the event period 't'.

Statistical significance:

- Test of Hypotheses:
  - Null hypothesis that CAR = 0; event does not affect returns; or
  - Alternate hypothesis that CAR does not = 0; event affects returns.
  - Null hypothesis presumed true unless Statistical tests establish the contrary.
- How to test:
  - Take the Ratio of the CAR to its estimated Standard deviation
    - Use standard deviation to check at 5%/1% levels of confidence.

$$t\text{-}stat = \frac{CAR}{\hat{S}(CAR)}$$

- If absolute value of *t-stat* ratio is greater than specified critical value, reject null hypothesis with some degree of confidence
  - $|t\text{-}stat| > 1.96$, CAR is significantly different from zero at 5% level (null hypothesis is true at most 5% of the time)
  - $|t\text{-}stat| > 2.58$, CAR is significantly different from zero at 1% level (null hypothesis is true at most 1% of the time)

Week 2: Merger Waves, Perspective and Regulation -

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Total Voting Rights	Level of Control
Below 5%	Publically listed companies can trace the beneficial ownership in the company, even when the entitlement is less than 5%
5%	Shareholder becomes a substantial shareholder and must lodge a notice with the target and the ASX within 2 business days
Over 10%	Ability to block a competing bidder from moving to compulsory acquisition
15%	Restriction against any foreign company acquiring an interest in excess of 15% without Foreign Investment Review Board (FIRB) approval
20%	Basic prohibition against acquiring a greater than 20% shareholding without announcing a takeover offer
Over 25%	Bidder can block special resolutions such as changes to company constitution
Over 50%	Voting control of the target is obtained
75%	Bidder can pass special resolutions
90%	Ability to compulsorily acquire the remaining shares in the target

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Week 3:

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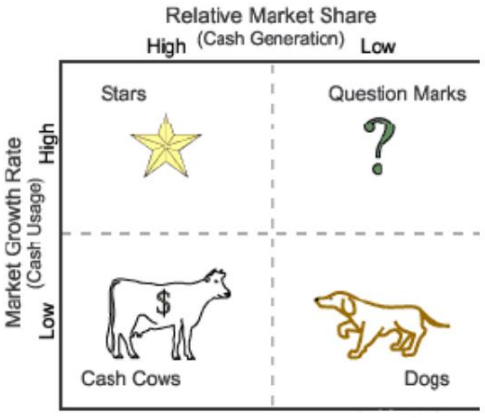
Relative Market Share
High (Cash Generation) Low
Stars
Question Marks
Market Growth Rate (Cash Usage)
High
Low
$
Cash Cows
Dogs

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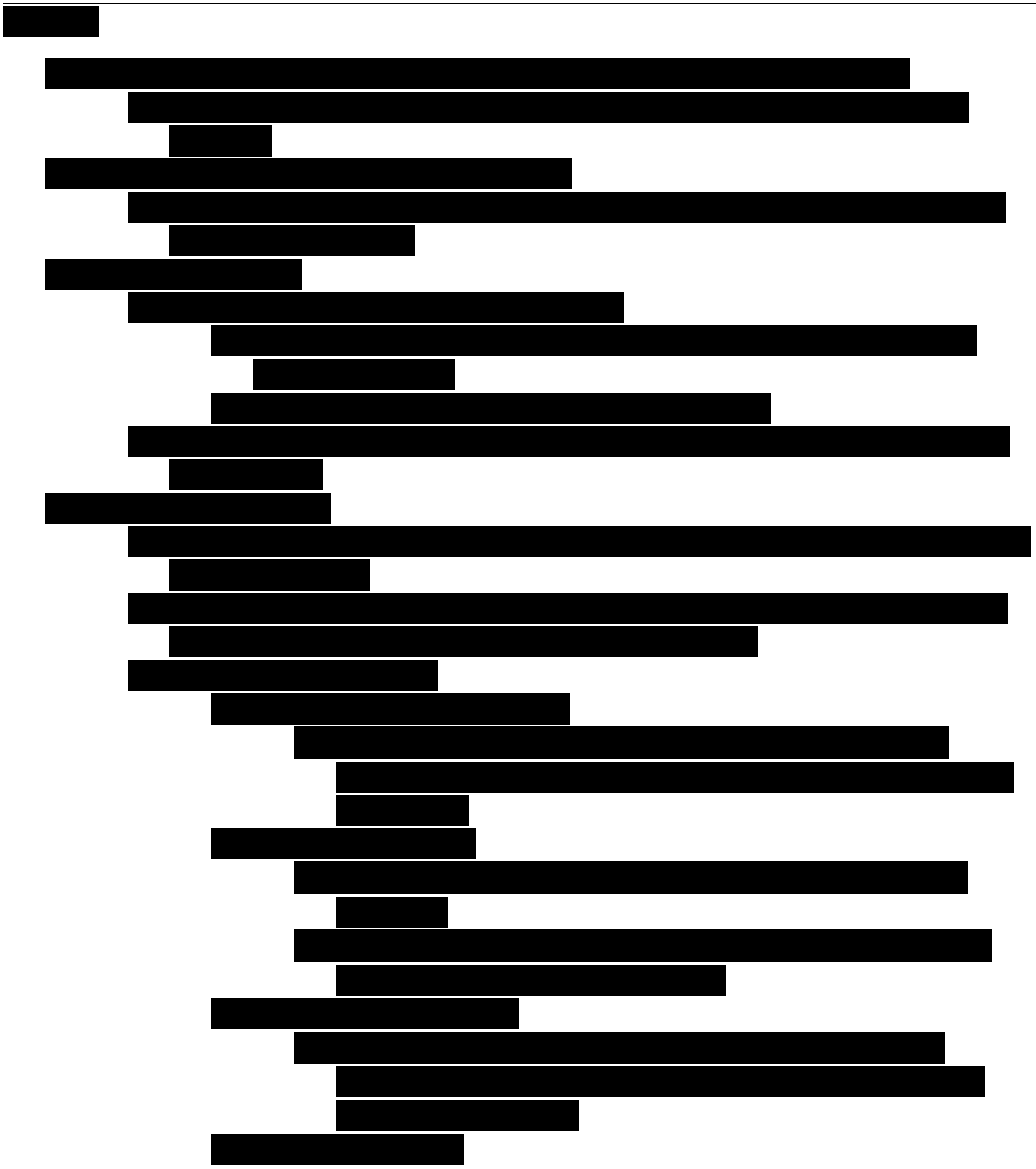
Sources of Value Creation

Category	Types of Value Sources
Revenue Enhancement	- Increased market power - Networking externalities - Leveraging market resources and capabilities
Cost Saving	- Reduction of excess capacity - Scale economies in production, marketing, sales and distribution, logistics, branding, R&D - Scope economies in banding, marketing, distribution, production, logistics
New Growth Opportunities	- Creating new capabilities and resources - Creating new products, markets and processes



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Barriers to CBA		
Structural	Statutory	- Strong powers to block mergers
		- Strong Unions
	Regulatory	- Foreign investment regulation
	Infrastructure	- Absence of M&A services
Technical	Management	- Boards cannot be removed quickly
		- Different voting rights
	(Corporations Act, Cth)	- Families dominate shareholdings
Informational	Accounting	- Poor accounting information
		- Low compliance
	Shareholders	- Shareholder structure unknown
	Regulation	- Regulatory procedures unpredictable
Cultural and Traditional	Attitude	- Dislike of hostile bids
		- Unwillingness to disclose information
	Value System	- High premium on trust & confidence

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Week 4

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Negotiation vs. Auction

NEGOTIATION	AUCTION
Dominant method for selling a company, offers flexibility, allows assertion of other important issues (not just price) - One on one, low competition - Focussed on conditions (not price) - flexible - Slower process, controlled by target management - Also dominant in Australian M&A activity - Need to adapt strategy to the firm and to identify target's strengths and weaknesses	Involves multiple buyers, competition among bidders helps to realise higher prices for seller, much more structured process and deadlines, faster result (**govt**) - Controlled by independent directors - Good for 'price discovery' - 'Winners' curse' likely if bidder doesn't have a strategy/reserve price - Less discretion in selection process

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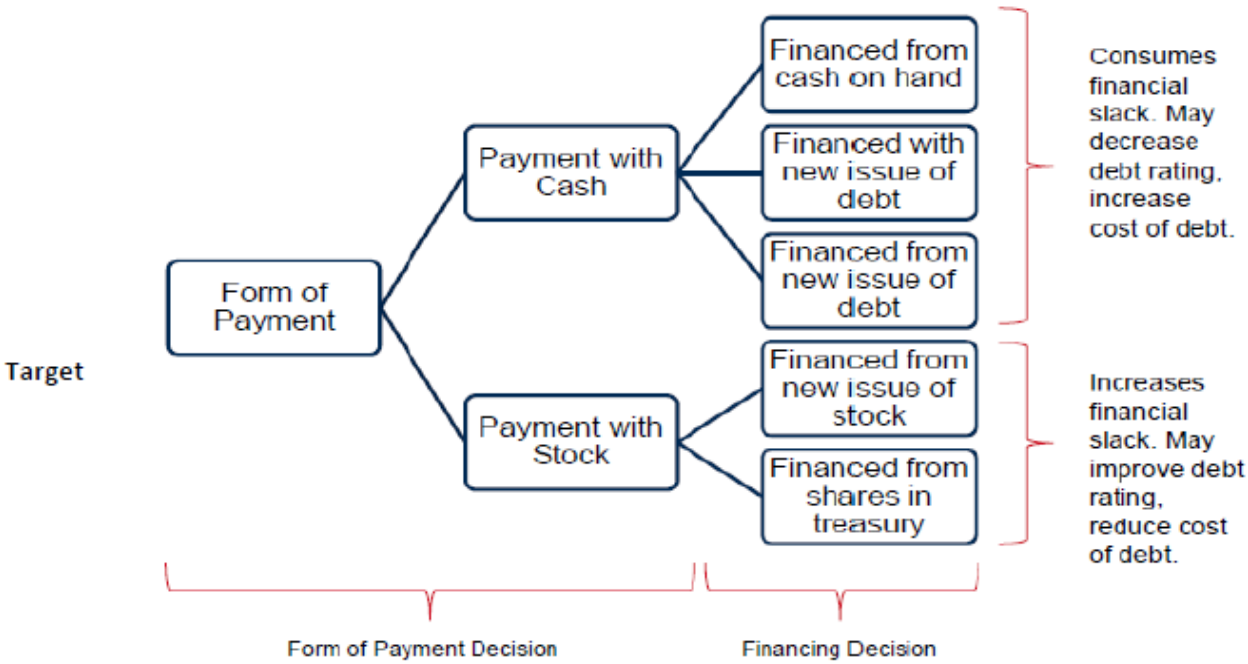

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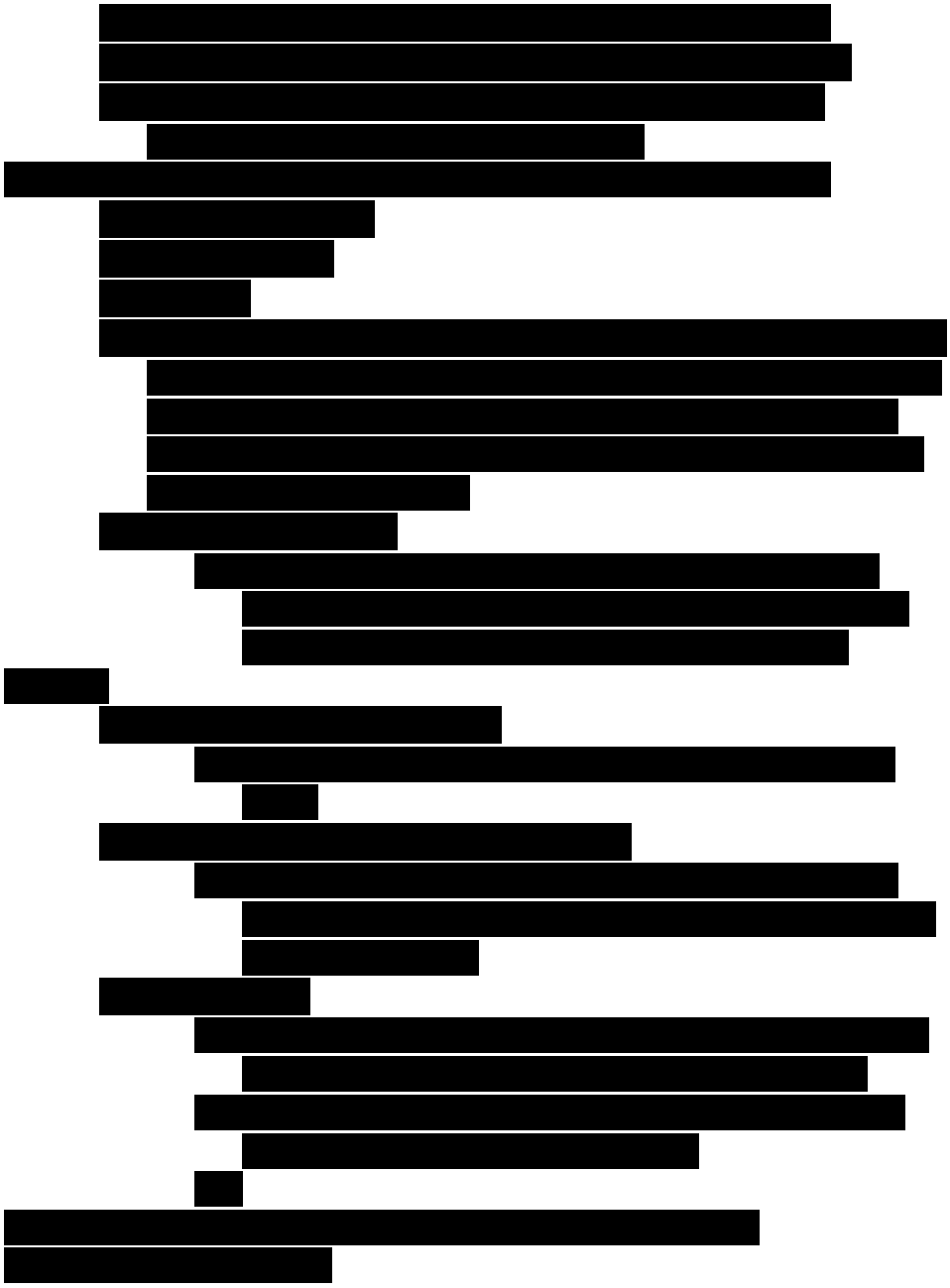

Forms of payment

Bidder offers…	Target shareholder receives…
Cash	Cash in exchange for their shares
Scrip (share exchange)	A specified number of bidder share's for each target share
Cash underwritten share offer	Bidder's shares that may be sold for cash to institution (vendor placing) or bidder's shareholders (vendor rights)
Loan stock	Loan stock (debenture) in exchange for their shares
Preferred shares	Convertible to bidder's shares at predetermined period and rate
Deferred payment	Payment paid in instalments, may be subject to performance
Conditional payment	Deferred payment made if pre-specified criteria met

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Comparison of bids and schemes in Australia

	Off-market bid	On-market bid	Scheme of arrangment
Control of process	Bidder	Bidder	Target (with MIA)
Target support	Friendly or hostile?	n/a	Generally essential
Court approval	Not formally	Not formally	Necessary (+TP)
Conditions	Usually, esp MAC	n/a	Usually
Time to end	Uncertain	Uncertain	High certainty
Threshold	90%	90%	50% votes + 75% value
Differentiation	Not allowed		Acceptable if disclosed
Flexibility	To revise offer	n/a	Initially
Deal risk	Trade-off with conditions	High	"all or nothing"

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Week 5

Valuation methodologies summary

Trading multiples	Transaction multiples	Discounted cash flow	Leveraged buy out	Other methods
▪ "Public market valuation" ▪Live observations of how companies are being valued by investors. ▪Issues in identifying appropriate ratios and controlling for multiple factors ▪Non-control transactions (no control premium)	▪ "Private market valuation" ▪ Historical observation of how much investors have paid for companies. ▪ Change of control situations – includes mix of control premium and synergies paid.	▪ "Intrinsic valuation" ▪Often used to establish "base" valuation ▪ Useful for period of non-constant growth for finite life ▪Requires significant number of assumptions for future periods.	▪ "Financial buyer valuation" ▪What can financial sponsors pay for assets? ▪ Based on our knowledge of their required returns, debt repayment, access to leverage, ability to extract operational synergies and return on equity investment	▪ Current share price ▪Historical trading performance ▪Liquidation analysis ▪Dividend discount model ▪Break-up analysis ▪Replacement cost

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EV / Sales	• Generally not very accurate although essential for high-tech companies
EV / EBITDA	• Generally most accurate multiple to use (watch out for interest income) • Good ratio for cyclical industries • Good for cross-country comparisons • Independent of leverage
EV / EBIT	• Most useful when assessing a capital intensive business
P / E	• Historical P/E is affected by one-off charges • A NTM P/E is actively used by analysts since it is forward-looking and avoids problems with different fiscal years
P / Book	• Most appropriate for financial institutions
EV / Total assets	• Useful when assessing utilities and other fixed-asset based companies
Industry specific	• Price per subscriber/barrel/production etc.

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Example: XSS Capital is in acquisition mode and is considering making a bid for ZHC. There has been significant consolidation in the financial services sector recently, with 3 prominent deals in the last 6 months. Using the details in the table, what price range for ZHC would you advise XSS using the comparable transaction method:

Transaction	Total Paid/EBIT	Total Paid/BV
Dimon Partners	16	2.2
Equity Trustees	17	2.5
Forward Fund	18	2.6

(1) Find average deal price/EBIT = 17
(2) ZHC EBIT = $100m, ZHC deal value estimation = 17 x EBIT = $1.7bn = $17.00/share ($10/share current)
(3) Find average deal price/BV = 2.43
(4) ZHC book value = $700m, ZHC deal value estimation = 2.43 x $700m = $1.701bn = $17.01/share

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$$NPV = \sum_{t=0}^{T} \frac{CF_t}{(1+r)^t}$$

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$$NPV = \sum_{t=0}^{T} \frac{E(CF)_t}{(1 + r_t + \pi_t)^t}$$

[redacted]

NET INCOME + DEPRECIATION, AMORTISATION, CHANGE IS DEFERRED TAXES, OTHER NON-CASH CHANGES, AFTER-TAX INTEREST EXPENSE - CAPITAL EXPENDITURES, INVESTMENT IN WORKING CAPITAL = UFCF!

Profit After Tax	***This is the basis for the indirect method***
+ Depreciation	Depreciation is a non-cash expense and is therefore added back
(-) Increase in Accounts Receivable (A/R)	The increase in A/R covers sales that have not been collected, not cash
(-) Increase in Inventories	Increases in inventory are not included in COGS but are fully funded
+ Increase in Accounts Payable (A/P)	Increase in A/P are costs that have not been paid
+ Increase in Tax Payable	Tax costs not yet paid
+ After Tax Interest Expense	To look at the operating side/finance side separately add back finance expenses. Use after tax no. to allow for tax effects of interest payments
= Cash Flow from Operations	
(-) Increase in PP&E (at cost)	Cash from operations is used to fund asset acquisitions. This cash is no longer available for distribution
= Free Cash Flow	Cash available for distribution

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$$P = \frac{D_0(1+g)}{r-g}$$

[redacted]

[redacted]

$$WACC = r_e \frac{E}{V} + r_d (1 - t_c) \frac{D}{V}$$

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$$V_{\text{Synergies}} = V_{\text{Synergies in place}} + V_{\text{Real options synergies}}$$

[redacted]

Element of FCF	Directional relationship in FCF calculation	Related synergy
Revenue	+	Revenue enhancement
Operating expenses	-	Cost reduction
D&A	+ indirectly (tax shield)	Tax reduction
Tax expense	-	Tax reduction
Asset sales/rationalisation	+ but usually non-recurring	Asset reduction
Improvements in working capital cycle	+ in NWC terms	Revenue enhancement Cost reduction

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Category	Argument	Counter-argument
Increased market power	- Combined firm has increased market share and greater pricing flexibility	- Market share gains are difficult to retain - Competitive rivalry may not necessarily diminish
Network externalities	- Combined firm has a more attractive network and could increase volume sold - Product could be repriced	- Potentially limited by anti-competitive concerns
Acquisition of complementors	- Combined firm can offer incentives to consumer to take a bundled product	- Potentially limited by anti-competitive concerns and product quality issues
Leveraging marketing resources and capabilities	- Combined firm can exploit larger distribution channels, branding and general marketing expertise	- R&C not necessarily transferable, dependant on firm and consumer preferences

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Category	Argument	Counter-argument
Reduction of excess capacity	- Combined firm has lower fixed costs and improved market position	- Firm may need to beware of new entrants
Elimination of common costs	- Combined firm can extract value that shareholders achieve themselves	- Transfer of skills to competitors - Implementation risk
Economies of scale	- Combined firm can reduce average costs for a single product if there are fixed costs of production	- One party may already be at minimum efficient scale - Diseconomies of scale may exist
Economies of scope	- Combined firm can produce multiple products with same inputs and factors, lowering average costs	- Little evidence of economies of scope - At worst, could be perceived as diversification
Learning economies	- Combined firm can run more efficiently due to experience of one or both firms	- Learning not necessarily transferable

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Category	Argument
Increased depreciation expense due to basis set up	When a firm is purchased, its assets are revalued to reflect market value at the time of the transaction. Hence the basis for depreciation expense will increase due to the transaction, providing a benefit to shareholders
Ability to carry forward losses (NOLs)	The combined firm may have profits to use these against within the time limits. Shareholders could not do this without the deal, hence a synergy. Income Tax Assessment Act (ITAA) 1997 s80E.

[redacted]

$$V_{\text{Synergies in place}} = \sum_{t=0}^{n} \frac{\text{After-tax synergies}_t}{(1+RADR)^t}$$

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Risk class	Appropriate RADR	Example
No material risk	Risk-free rate	•Certain asset sales such as inventory reductions
As risky as EBIT	Cost of debt	•Lower risk cost reductions
As risky as enterprise FCF	WACC	•Medium risk cost reductions •Lower risk revenue enhancements
As risky as equity FCF	Cost of equity	•Higher risk cost reductions •Medium risk revenue enhancements
More risky than equity FCF	Hurdle rate	•Any other synergies

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$$V_{\text{Synergies in place}} = \text{After-tax synergies}_t \times \text{P/E multiple}_t$$

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Type of real option	Description
Growth	Transaction creates the opportunity (not obligation) to grow: R&D; matching licences with resources, access to information (telcos?)
Exit	Transaction allows for more alternative responses to market changes (airlines?)
Defer	Combining firms can give flexibility to wait on developing new technology or entering a market (Google?)
Alter scale	A combination can help the buyer to expand, contract, shut down or restart operation with respect to a market (banking?)
Switch	The ability to change the mix of inputs or outputs of the firm (oil?)

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$$\text{Max payment for Target} = V_{\text{Standalone}} + V_{\text{Synergies}} + \Delta_{\text{Illiquidity and control}}$$

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[redacted]

$$\text{Gross base price} \times (1+\pi_{\text{Control}}) \times (1-\delta_{\text{Illiquidity}}) = \text{Net price}$$

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Considering target value with acquirer motive

Motive	Best approach to setting valuing target (max offer)
Undervaluation	Stand-alone target valuation; no premium
Diversification	Stand-alone target valuation; no premium (explain why??)
Operating synergy	Value (synergies) + Stand-alone target valuation
Total synergies	Combined firm value – Sum (stand-alone values)
Control	Value of target firm run optimally
Financial acquisition	Depends on buy-out strategy, inputs, firm investment criteria

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Lecture 6

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Ansoff's Matrix			
		Products	
		Existing	New
Markets	Existing	Market Penetration	Product Extension
	New	Market Extension	Diversification

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Revenue Enhancement		
Category	Argument for	Counter Argument
[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Cost reduction		
Category	Argument for	Counter Argument
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Financial synergies		
Category	Argument for	Counter Argument
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

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Asset reduction
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Identifying synergies in place		
Element of FCF	Directional relationship in FCF calculation	Related synergy
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[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

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Assets	Liabilities
Current Assets – includes all the firms short-term assets: *Cash* – money the firm has in the bank *Marketable Securities* – securities held, at market value *Accounts Receivable* – customers unpaid bills to the firm *Inventory* **Fixed Assets** *Leased property and equipment* – if the firm has leases the value of the items leased may appear on the balance sheet *Plant, Property & Equipment* – these items are listed at historical cost minus the loss of value due to aging (depreciation) **Goodwill** – if assets have been purchased at more than their market value the difference is listed	**Current Liabilities** – all the firms short term obligations: *Accounts payable* – unpaid bills to suppliers *Accrued Tax* – unpaid tax *Current portion of long term debt* – the part of the long term debt principal to be paid in the next year. *Short-term borrowing* – all borrowing that (in principal) has to be repaid within the year. **Long Term Liabilities** *Obligation under leases* – the debt equivalent of long term leases *Long term debt* – borrowing by the firm to be repaid over a number of years **Preferred Stock** **Equity** – investments in the firm by its owners plus undistributed accumulated earnings *Stock Value* – the value of the stock at issue *Retained Earnings* – that part of profit after tax not paid as dividends
Total Assets – sum of items in this column	**Total Liabilities** - sum of items in this column

Formulas

$$\text{Max payment for Target} = V_{\text{Standalone}} + V_{\text{Synergies}} + \Delta_{\text{Illiquidity and control}}$$

$$V_{\text{Synergies in place}} = \sum_{t=0}^{n} \frac{\text{After-tax synergies}_t}{(1+RADR)^t}$$

[redacted]

$$V_{\text{Synergies in place}} = \text{After-tax synergies}_t \times \text{P/E multiple}_t$$

$$\text{Gross base price} \times (1+\pi_{\text{Control}}) \times (1-\delta_{\text{Illiquidity}}) = \text{Net price}$$

[redacted]

[redacted]