Financial Modelling Workshop

Day 1

Prepared by: Sadayan Izzuddin

Lesson Outline

1. Introduction to Valuation
2. Valuation Methods
3. DCF

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Creating a Storyline

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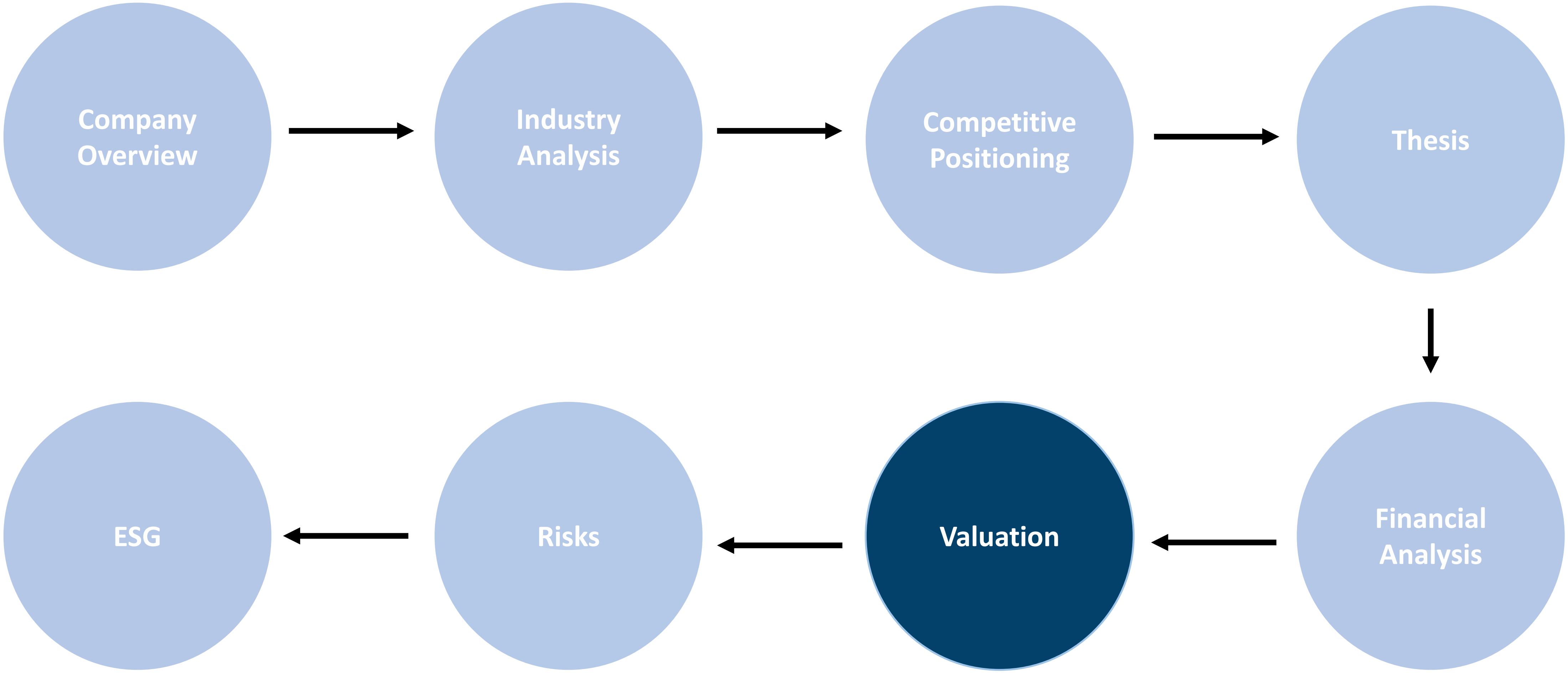

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Valuation Methods

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Intrinsic Valuation
(Value)

Relative Valuation
(Price)

Valuation Methods - DCF

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What is DCF?

Present Value of all your future cashflows

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \dots + \overbrace{\frac{CF_n}{(1+r)^n}}^{\text{Terminal Value}}$$

CF	=	Cash Flow
r	=	Discount Rate (WACC)

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DCF - FCFF/FCFE

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EBIT/Operating Profit(Loss) X (1 – Tax Rate)

-

Change in Net Working Capital

+

Depreciation & Amortization + Other non-cash expense

-

Capital Expenditure

-

Interest & Debt Repayment

FCFF

FCFE

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DCF - Discount Rate

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What is discount rate?

The expected return for the undertaking risk in the investment

WACC

Weightage of Debt X Cost of Debt X (1 – Tax Rate) + Weightage of Equity X Cost of Equity

FCFF

FCFE

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Discount Rate – Cost of Equity

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Cost of Equity $= \boxed{R_f +} B\,(R_m - R_f)$

R_f

Sovereign/Govt Bond

B

1. Regression Beta
2. Bottom – Up Beta

$$\beta_l = \beta_u(1 + (1 - t)(\tfrac{D}{E}))$$

β_l = levered beta

β_u = unlevered beta

t = tax rate

D = debt

E = equity

$R_m - R_f$

1. Damodaran

Discount Rate – Cost of Debt

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Interest Expense/Interest-Bearing Debt	Credit Rating of Comparable Companies	Prime Lending Rate	Risk Free Rate + Credit Default Spread

DCF- Terminal Value

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Perpetual Growth Method

$[FCF_n \text{ X } (1+g)]/(r-g)$

GDP Growth/ Inflation Rate

Discount Rate

Exit Multiple

EV/EBITDA
EV/Sales

Entity specific credit rating

In estimating an entity specific credit rating for the Purpose, we have taken reference to a data report published on 25 September 2017 by Moody's Investors Service titled: *Moody's Financial Metrics™ Key Ratios by Rating and Industry for Global Non-Financial Corporates"* (the "Moody's Report").

The Moody's Report analysed the relationships of 11 key financial ratios across industries for global non-financial, non-utility corporations and their credit ratings (rated by Moody's).

In the analysis, it is observed that out of the 11 key financial ratios, only the following 4 financial ratios follows a monotonic relationship with Moody's credit ratings:

- Earnings Before Interest, Tax and Amortisation ("EBITA") Margin
- Operating Margin
- (Funds From Operations ("FFO") + Interest Expense) / Interest Expense
- Retained Cash Flows ("RCF") / Net Debt

The table below shows the relationship observed between the 4 financial ratios and the Moody's credit rating:

Moody's Credit Ratings	EBITA Margin	Operating Margin	FFO + Interest Expense / Interest Expense	RCF / Net Debt
Aaa	30.6%	25.4%	17.2	31.4%
Aa	19.5%	17.4%	15.2	30.1%
A	15.8%	14.9%	13.1	27.3%
Baa	13.9%	12.0%	8.1	25.3%
Ba	13.3%	11.5%	5.1	19.7%
B	11.2%	9.0%	2.9	11.5%
Caa-C	7.0%	4.6%	1.6	5.1%

Based on the analysis presented in the Moody's Report, we performed the following work steps to estimate an entity specific credit rating for the Purpose:

1. Assigned a score of between 1 and 7 for each Moody's rating, with Aaa being 1 and Caa-C being 7;
2. Computed the 4 financial ratios of Huationg as at Valuation Date based on the unaudited financial statements provided by the Management;
3. Identified the applicable Moody's rating implied by each financial ratio computed, and the accompanying score assigned;
4. Calculated the average score;
5. Assigned a Moody's rating based on the average score; and
6. Identified the equivalent Standard & Poor's credit rating based on the assigned Moody's credit rating performed in Step 5.

Based on the 6 work steps, the results are summarised as follows:

Description	Computed financial ratio	Moody's Ratings	Scoring
EBITA Margin	6.5%	Caa-C	7
Operating Margin	6.5%	Caa-C	7
(FFO+ Interest Expense) / Interest Expense	16.5	Aa	2
Retained Cash Flow / Net Debt	63.1%	Aaa	1
Average score			**4**
Assigned Moody's credit rating			**Ba**
Equivalent Standard & Poor's credit rating			**BB**

Please refer to the next 2 pages for more details on each work step.

1 Assigned a score of between 1 and 7 for each Moody's rating, with Aaa being 1 and Caa-C being 7

Moody's credit ratings	Assigned score
Aaa	1
Aa	2
A	3
Baa	4
Ba	5
B	6
Caa-C	7

2 Computed the 4 financial ratios of the Target as at Valuation Date based on unaudited accounts:

EBITA margin (Note 2)		in SGD'000
Total revenue	[A]	36,446
Net profit / (loss) before taxation		1,494
Less: Interest income		(14)
Add: Amortisation expense		-
Add: Interest expense		643
Add: Tax expense		255
EBITA	[B]	2,378
EBITA margin	[C] = [B] / [A]	6.5%

Operating margin (Note 2)		in SGD'000
Net profit / (loss) before taxation		1,494
Less: Interest income		(14)
Add: Interest expense		643
Add: Tax expense		255
Earnings before interest	[D]	2,378
Operating margin	[E] = [D] / [A]	6.5%

Total may not add due to rounding
Source: Target's completion accounts, Savills' analysis

2 Computed the 4 financial ratios of Avimac as at Valuation Date based on unaudited accounts (cont'd):

(FFO[1] + Interest expense)/ Interest expense		
Net profit / (loss) before taxation		1,494
Add: Depreciation and amortisation		7,949
Add: Amortisation		-
Add: Loss on realised / unrealised forex		-
Add: Interest expense		643
Less: Gain on asset disposal		(107)
Less: Interest income		(14)
Funds from operation (Note 1)	[F]	9,966
Interest expense	[G]	643
(FFO + Interest expense)/ Interest expense	[H] = ([F] + [G]) / [G]	16.5

RCF / Net debt		
Funds from operation (annualised)		9,966
Less: Preferred/common/minority dividends		(2,500)
Retained cash flow	[I]	7,466
Short-term debt		4,612
Add: long-term debt, gross		17,927
Less: cash and cash equivalents		(10,714)
Net debt	[J]	11,825
Retained cash flow / Net debt	[K] = [I] / [J]	63.1%

Note 1: For the purpose of our computation, we have assumed FFO to be net cash generated from operations before changes in working capital.
Note 2: 11M2020 profit and loss figures have been annualised for purposes of this analysis.

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3 Identified the applicable Moody's rating implied by each financial ratio computed, and the accompanying score assigned

	EBITA Margin	Operating Margin	FFO + Interest Expense / Interest Expense	RCF / Net Debt
Financial ratios	6.52%	6.52%	16.50	63.13%
Assigned Moody's credit rating	Caa-C	Caa-C	Aa	Aaa
Implied score	7	7	2	1

4 Calculated the average score;

5 Assigned a Moody's rating based on the average score; and

6 Identified the equivalent Standard & Poor's credit rating based on the assigned Moody's credit rating performed in Step 5

Average score	4
Assigned Moody's credit rating	Ba
Equivalent Standard & Poor's credit rating	BB

The corresponding Damodaran's credit spread is 3.5% for credit rating BB.

Thank You
&
God Bless!

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