



**LISBON
SCHOOL OF
ECONOMICS &
MANAGEMENT**
UNIVERSIDADE DE LISBOA

GESTÃO FINANCEIRA II / CORPORATE FINANCE II

Problem Set 3

Licenciatura – Undergraduate Course

1st Semester, 2020-2021

GESTÃO FINANCEIRA II - PROBLEM SET 3

SUBMISSION DEADLINE: 11-12-2020 23:59H | e-mail: victormbarros@iseg.ulisboa.pt

Chapter 19 & 20 – Valuation / Understanding Options

- Identify your assumptions whenever you deem necessary –

- 1) Assume you work for a research department within an international asset management firm engaged in the financial analysis of a short set of unlisted companies. One of those companies is called “Core 1” which presents the following historical data:

\$ 000	Year 1	Year 2	Year 3
Sales	2,500	2,625	2,000
COGS	-1,125	-1,181	-900
Other Operational Costs	-340	-400	-415
EBITDA	1,035	1,044	685
Depreciation	-130	-130	-145
Provisions	-125	-130	-135
EBIT	780	784	405
Interest	-70	-72	-79
Extraordinary P/L	100	0	-400
EBT	810	712	-74
Tax	-243	-214	0
Profit after Tax	567	498	-74
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Net Investment in Working Capital	20	5	-45
CAPEX	200	300	50

For the following years (Year 4 to Year 8), please consider the forecast assumptions below:

- Sales: Annual Growth of 5% (Years 4 and 5) and 12% (Years 6 to 8)
- EBITDA Margin: 40% (Years 4 and 5) and 45% (Years 6 to 8)
- Depreciation: regarding past CAPEX (until Year 3) – \$145,000/year; 7.5% annual depreciation rate over new CAPEX (from Year 4 onwards)
- Provisions (for potential contingencies): 5% over Sales
- Corporate Tax Rate: 30%; tax losses may be carried forward for 3 years
- Investment in working capital: 12.5% over incremental EBITDA
- New CAPEX: \$150,000/year on Year 4 and 10% annual growth onwards
- Long-run growth rate: 2% / year (for perpetuity estimate purposes)

For the expected rate of firm return, consider the following parameters:

- Risk-free rate: 2.0%
- Firm's overall Beta: 1.22
- Market Risk Premium: 6.0%
- Expected Return on Debt: 4.0%
- Debt / Equity ratio: 30.0%

In addition, at the end of Year 3, the Company's outstanding debt amounts to \$2,500,000 (market value = book value) and the free float of CORE 1 is 450,000 shares (free float 90%).

What is the expected share price at the beginning of Year 4?

- 2)** Assume that Ms Ruth Spencer borrows the present value of \$150, buys a 9-month put option on stock XYZ with an exercise price of \$250, and sell a nine-month put option on XYZ with an exercise price of \$100.
- a) Draw a position diagram showing the net payoff when the option expires.
 - b) Suggest two alternative combinations (loans, options, as well as the underlying stock that may grant Ms Ruth Spencer the same net payoff).