

Chapter 1: An Introduction to Finance

Multiple Choice Questions

1. Section: 1.1 Real versus Financial Assets

Learning objective: 1.1

Level of Difficulty: Easy

Solution: A

2. Section: 1.1 Real versus Financial Assets

Learning objective: 1.2

Level of Difficulty: Medium

Solution: C

Net worth = Assets – Debts. Examples of real assets are residential structures, non-residential structures, machinery and equipment, durables, inventories, and land.

3. Section: 1.2 The Financial System

Learning objective: 1.3

Level of Difficulty: Easy

Solution: B

4. Section: 1.2 The Financial System

Learning objective: 1.3

Level of Difficulty: Medium

Solution: A

In the financial system, households are the primary fund providers to the government and businesses.

5. Section: 1.2 The Financial System

Learning objective: 1.3

Level of Difficulty: Medium

Solution: C

Banks, pension funds, and insurance firms do transform the nature of their underlying financial securities. However, mutual funds do not transform the nature of the underlying financial securities.

6. Section: 1.3 Financial Instruments and Markets

Learning objective: 1.4

Level of Difficulty: Medium

Solution: C

7. Section 1.4 The Global Financial Community

Learning objective: 1.5

Level of Difficulty: Medium

Solution: C

8. Section 1.4 The Global Financial Community

Learning objective: 1.5

Level of Difficulty: Medium

Solution: D

Practice Problems

9. Section: 1.1 Real versus Financial Assets

Learning objective: 1.2

Level of Difficulty: Medium

Solution:

Balance sheet:

Residential structures: $\$1,000 + \$3,000 + \$1,500 = \$5,500$

As there are no foreign assets or liabilities, the net worth or equity of the island is \$5,500

To deal with Fred and Robinson's debts:

	Assets	Liabilities
Fred		
House	\$1,000	
Debt to Friday		\$500
Robinson		
House	\$3,000	
Debt to Friday		\$2,000
Friday		
House	\$1,500	
Loan to Fred	\$ 500	
Loan to Robinson	\$2,000	
Totals	\$8,000	\$2,500

As net worth equals assets minus liabilities, the net worth of the economy equals total assets minus total liabilities or \$5,500.

10. Section: 1.2 The Financial System

Learning objective: 1.3

Level of Difficulty: Medium

Solution: In the financial system, there are mainly four major sectors: Households, Government, Business, and Non-Residents. Within the field of finance there are four major areas: personal finance, government finance, corporate finance, and international finance. They closely interrelate to each other. Because they are all major parts of the whole financial system, what happens in one market will affect all the other markets.

11. Section: 1.2 The Financial System

Learning objective: 1.3

Level of Difficulty: Medium

Solution: Banks take in deposits and loan them out to fund borrowers. Pension funds take in pension contributions and pay out pensions to plan participants when they retire. Insurance firms

take in premiums and pay out when a certain event occurs. Mutual funds pool small funds together and make investments that small investors cannot make. Mutual funds also offer investment expertise to ordinary investors.

12. Section: 1.2 The Financial System

Learning objective: 1.3

Level of Difficulty: Medium

Solution: Five main reasons why financial and market intermediaries exist are:

- i) They provide anonymousness and convenience to all transaction parties.
- ii) They efficiently match the needs of the participants in the financial market and aggregate all the small transactions.
- iii) They have procedures for documentation of legal contracts to ensure security.
- iv) The risk of non-payment is alleviated by maintaining credit ratings and by controlling other accounts.
- v) Financial institutions transform the nature of the underlying financial securities.

13. Section: 1.2 The Financial System

Learning objective: 1.3

Level of Difficulty: Medium

Solution: A “credit crunch” refers to a situation when financial intermediaries such as banks and other lenders are either unable or unwilling, in general, to offer credit to borrowers. The crunch usually arises due to a lack of confidence, leading people, and other institutions, to be unwilling to lend to the financial intermediary. If very few people are willing to lend to the financial intermediary, then they, in turn, will not have the funds available to lend out and the “crunch” begins.

14. Section: 1.3 Financial Instruments and Markets

Learning objective: 1.4

Level of Difficulty: Medium

Solution: The two main types of primary market transactions are *initial public offerings* (IPOs), which are offered to the public by previously private firms, and *seasoned equity offerings* (SEOs), which are offered by firms already listed on the stock exchange.

15. Section: 1.3 Financial Instruments and Markets

Learning objective: 1.4

Level of Difficulty: Difficult

Solution: Secondary market transactions are those where ownership of existing shares changes hands, but the corporations or governments who originally issued the securities receive no financing; trading takes place *between* investors. This is critical to the functioning of the primary markets, because governments and companies would not be able to raise financing if investors were unable to sell their investments if necessary.

Mini Case: Valuation

From his corner desk, Thomas has a good view of the entire floor, a perk reserved until a couple of years ago only to senior managers. Freelancer.com, the firm Thomas works for, believes that a flat organizational system, stripped of the multiple layers of management characteristic of brick and stone firms, is more productive and lets the employees be more involved in the decision-making process. And while Thomas appreciates being able to see the CEO drink his coffee in the morning, with the task on hand he feels that he should hide somewhere for a day or two and just crunch numbers. Freelancer.com is preparing an acquisition, and Thomas, as a business graduate among many engineers, has been required to independently value the share of the target firm, Xlance. The CEO, in negotiations currently with the investment bank and the target firm, prefers to have this in-house independent valuation as an initial anchor.

Freelancer.com is a major player in the world of online IT outsourcing, with more than 2.9 million projects posted on its site. The projects, initially focused on website design, graphic design, copywriting, and SEO now also include astrophysics, biotechnology, industrial design, and aerospace engineering. The target, Xlance, is a startup that grew to have more than a half million users, positioning its site in the top ten largest freelance marketplaces in the world. The acquisition would allow Freelancer.com to expand into new markets and increase its global footprint. The investment bank analysts expect Xlance to increase its sales by 6 percent in the long run. Thomas has estimated Xlance sales at about \$6.2 million in 2013. Xlance's EBIT is 15% of sales, changes in net working capital requirements are 10% of any change in sales, and capital expenditures equal depreciation expense. Xlance has \$4.1 million in cash, \$1.2 million in debt, and 100,000 shares outstanding. Similar firms have a tax rate of 24% and a WACC of 15%. From Bloomberg, Thomas also found out that comparable firms in the industry have on average a P/E ratio of 11 and a P/S ratio of 1.2. What concerns Thomas is that financial analysts in the industry do not converge in their expectations of Xlance's growth. A well reputed Toronto-based analyst expects the firm to grow at 10 percent each year for the next 5 years, then continue at 4 percent in the long run. Another reputed technology analyst based in Stockholm disagrees with these growth prospects in the short term and estimates that a slow economy will cut the business expenses for technology altogether. Thus she anticipates Xlance will decrease its sales by 5 percent in the next three years, then by 4 and 2 percent in the next two years. Only then does she estimate that the firm will start increasing its sales, by 3 percent each year in the long run.

1. Help Thomas estimate Xlance's future free cash flow to the firm for the next 6 years, using the assumptions of growth indicated by the investment bank. How much should a share of Xlance be worth today?
2. Estimate the firm's share value using the expectations of the analysts based in Toronto and in Stockholm. How do different growth expectations impact the estimation?
3. Value the firm using the P/E multiple and the P/S multiple. Based on the proximity of these values versus the DCF results, which of the growth assumptions do you believe is closer to the overall market expectation?
4. What other factors affect the value of the target and should be considered by the CEO? Why isn't the CEO using the present price per share of Xlance as traded on the stock exchange?

Mini-Case: Valuation, DCF vs Multiples

Discount rate	15%
Industry P/E	11
Industry P/S	1.2

Investment Bank

Year	%	2013	2014	2015	2016	2017
Sales		6200	6572	6966	7384	7827
Sales Growth			6%	6%	6%	6%
EBIT	15%	930	986	1045	1108	1174
Income Tax	24%	223	237	251	266	282
Depreciation	.					
Capital Expenditures	.					
Increase in NWC	10%		37	39	42	44
Free Cash Flow			712	755	800	848

Toronto Analyst

Year	%	2013	2014	2015	2016	2017
Sales		6200	6820	7502	8252	9077
Sales Growth			10%	10%	10%	10%
EBIT	15%		1023	1125	1238	1362
Income Tax	24%		246	270	297	327
Depreciation	.					
Capital Expenditures	.					
Increase in NWC	10%		62	68	75	83
Free Cash Flow			715	787	866	952

Stockholm Analyst

Year	%	2013	2014	2015	2016	2017
Sales		6200	5890	5596	5316	5103
Sales Growth			-5%	-5%	-5%	-4%
EBIT	15%		884	839	797	765
Income Tax	24%		212	201	191	184
Depreciation	.					
Capital Expenditures	.					
Increase in NWC	10%		-31	-29	-28	-21
Free Cash Flow			702	667	634	603

Multiple Valuation

P/E

EPS 2013	7.07
Share Value	\$77.75
P/S	
Sales 2013	7440
Share Value	\$74.40

Investment bank's assumptions are closer to the market's expectation.

Other Questions

What other factors affect the value of the target and should be considered by the CEO?

Additional value may be derived from the synergy of the two companies

Why isn't the CEO using the present price per share of Xlance as traded on the stock exchange?

Rumours about the possible acquisition may have already inflated the price per share of Xlance

2018	2019
8297	8795
6%	6%
1245	1319
299	317
47	50
899	953

Total Firm Value	7911.20
Share Value	\$79.11

Notes:

We use the growing perpetuity formul

2018	2019
9985	10385
10%	4%
1498	1558
359	374
91	40
1048	1144

Total Firm Value	8021.97
Share Value	\$80.22

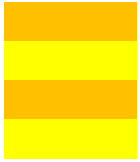
Value after 2018		
Present value		
Present value of the FCF		
2014	2015	2016
622.16	595.11	569.23

Note: alternatively we can calculate th

2018	2019
5001	5151
-2%	3%
750	773
180	185
-10	15
580	572

Total Firm Value	4536.36
Share Value	\$45.36

Value after 2018		
Present value		
Present value of the FCF		
2014	2015	2016
610.83	504.60	416.85



$a \text{ (FCF1/(r-g))}$

10399.09	
5170.19	
2017	2018
544.48	520.81

is as a growing annuity plus a growing perpetuity

4768.49	
2370.78	
2017	2018
344.78	288.52

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