# NEWSLETTER 3 JANUARY 2013

**EXERCISE 1:** Tevya Technologies is a company with 100 million shares outstanding (primary), trading at $ 20 per share. The firm also has $ 1000 million in debt outstanding, $ 500 million in cash and 20 million options, which you have valued at $ 5 an option. Assuming that the firm is fairly priced, estimate the value that is being attached to the operating assets of the firm.

You have been asked to examine a valuation done of Loden Construction, a real estate and construction company. You have been provided with the income statement for the last year:

Revenues $ 1000 million

- Operating Expenses $ 700 million

- Depreciation & Amortization $ 100 million

= EBIT $ 200 million

**EXERCISE 2:** In the valuation, the analyst has assumed a growth rate of 5% forever in revenues, operating income and depreciation, and assumed capital expenditures of $ 160 million (for next year). In addition, the analyst has assumed that non-cash working capital will be 26% of the change in revenues. (Tax rate = 20%)

a. Estimate the expected free cashflows to the firm next year, based upon the assumptions listed above.

b. What is the return on capital being assumed in perpetuity by the analyst?

**EXERCISE 3:** You have been asked to review the terminal value calculation in a valuation done by another analyst. The analyst has the following estimates for net income and FCFE for the next 3 years:

| | Year 1 | Year 2 | Year 3 |
|---|---|---|---|
| Net Income | 150 | 165 | 181.5 |
| FCFE | 50 | 55 | 60.5 |

To estimate the terminal value, the analyst has taken the FCFE in year 3 and grown it by 3% (the stable growth rate) and used a cost of equity of 8%. If the firm's return on equity will remain unchanged at current levels in perpetuity and the analyst's estimates of the FCFE for the high growth period are correct, estimate the correct terminal value of equity, using the perpetual growth rate of 3% and the cost of equity of 8%

**SOLUTIONS TO THE PREVIOUS ERASMUS TEST**

1) **How can you compute the Equity Value ?**

Subtract out the value of debt from the firm value

Subtract out the value of equity from the debt value

Add on the value of debt to the firm value

2) **In the following table there is an error in the title of the columns ?**

Year

Cash flow to equity

Net capex

Cash Flow to Firm

| Year | Cash Flow to Equity | Net Capex | Cash Flow To Firm |
|---|---|---|---|
| 1 | 50 | 40 | 90 |
| 2 | 60 | 40 | 100 |
| 3 | 68 | 40 | 108 |
| 4 | 76.2 | 40 | 116.2 |
| 5 | 83.49 | 40 | 123.49 |

3) **What is the relationship between Dividend Discount Model and FCFE ?**

The Dividend discount model takes into consideration the net dividend that is D*(1-t)

The FCFE is based on net income while divided will be taxed when paid out from the company

Not all the FCFE is distributed as a dividend so that theoretically they could be the same only if dividend are fully distributed

4) **Why in conclusion Firm evaluation is much more difficult than straight Equity Valuation ?**

Because the most difficult item of the balance sheet to evaluate is debt

5) **What is cost of equity ?**

Cost of equity = risk free rate + beta * (equity risk premium)

Cost of equity = risk free rate + beta * ( Market Expected Return – risk free rate)

Cost of equity = implied equity risk premium

6) **Why a government bond is risk free only if it is held up to expiration ? Is it true ?**

Because the time horizon matters and if you sell the bond before expiration the current interest rate can push price lower than 100 that will be refunded at expiration

7) **Which one of the following bonds usually is considered a government risk free rate bond ?**

A 3 months Treasury bill

A ten year Treasury bond rate

A thirty year Treasury bond rate

A TIPS rate ?

None of the above

8) **What is the main drawback in historical risk premium ? Or there are more than one single drawback ?**

It has no statistical significance on a yearly basis

It depends on the calculation methodology: arithmetic or geometric average

Survivorship bias

**9) What is the ultimate effect in terms of return of capital after capitalizing R&D expenses and converting Operating Leases into debt ?**

**To increase either debt or capital means lowering ROI if all other measures are kept equal**

**10) When arithmetic average and geometric average are the same ?**

**When all the items of the average are the same (e.g. 2000 +8%, 2001 +8%, 2002 +8% … average 8%).**

**11) What is a multiple in valuation ?**

Numerator = what you are getting for the asset / Denominator = what you are paying for the asset

Numerator = what you are paying for the asset / Denominator = what is the valuation of your asset from an accountancy measure

Numerator = what you are paying for the asset / Denominator = what is the market valuation of your asset

**12) If a Multiple historical series is not normally distributed what will be the effect of this on our valuation process ?**

**That average has no meaning (meadian matters) and so standard deviation**

**13) If a firm A is not in the same business sector of another firm B but they have the same risk, growth and cash flow characteristics**

They are not comparable for multiple valuation

They are comparable for multiple valuation

It depends

Non of the above

**14) Why higher growth firms will have higher PE ratios than lower growth ratios ?**

**15) The  PE ratio behavious relative to Intetest rates and GDP**

PE + => Intereste Rates – => GDP +

PE + => Intereste Rates – => GDP -

PE + => Intereste Rates + => GDP –

**16) Which one of the following statement is true ?**

Real cash flows should be discounted at nominal interest rates

FCFE should be discounted at the weighted average cost of capital

FCFF should be discounted at the weighted average cost of capital

None of the above

**17) To be risk free and investment must not be characterized:**

Default risk

Reinvestment risk

Default risk and reinvestment risk

**18) FCFE**

They are different from dividend since they can be negative

They can be considered a proxy for potential dividend

Both the previous replies are correct

None of the above is correct

**19) The discounted cash flow valuation does not consider risk at all just expected value:**

True

False

**20) Assets that generate cash flows early in their life will be worth more than assets that generate cash flows later**

True

False

It depends

**21) The "asset side" valuation is**

FCFF

FCFE

Neither

**EXERCISE ON A 2 STAGE GROWTH MODEL**

Piadina Intercontinental is the leading manufacturer of piadine in Forlì. In the last year Piadina Intercontinental's operating margin - EBIT(1-T) - is $ 5 millions, capital expenditure $4 millions and amortization 2 millions. Non-cash working capital at the end of the year was $10 millions.

If we suppose that operating margin – EBIT (1-t) will grow 20% next year and all other variables will grow at the same rate (capex, amortization and non-cash working capital) let's esteem the FCFF for next year **(3 point).**

If Piadina Intercontinental will grow 20% in the next 5 years (as we supposed in the first year), please gauge the today's value of the expected FCFF in the next 5 years. Take into consideration a 12% cost of capital **(3 points).**

After the fifth year, expected FCFF (relative to year 6) will be 10,51, cost of capital will go down to 10% and growth will be 5%. Do gauge the value of Piadina Intercontinental at the end of the fifth year and present current value (note: cost of capital in the first 5 years is 12% but from year 6$^{th}$ on is 10%) **(4 points)**

FCFF1 = 5(1+0,2)-((4-2)*(1+0,2))-10*(1+0,2)-10=1,6

| Anno | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| EBIT(1-t) | 5*1,2=6 | 6*1,2=7,2 | 7,2*1,2=8,64 | 8,64*1,2=10,37 | 10,37*1,2=12,44 |
| Capex | -4*1,2=-4,8 | -5,76 | -6,91 | -8,29 | -9,95 |
| Amm. | 2*1,2=2,4 | 2,88 | 3,46 | 4,15 | 4,98 |

| | | | | | |
|---|---|---|---|---|---|
| **WC** | 10*1,2=12 | 14,40 | 17,28 | 20,74 | 24,88 |
| **Variazione WC** | 10-12=-2 | 12-14,40=-2,40 | -2,88 | -2,46 | -4,15 |
| **FCFF** | 1,6 | 1,92 | 2,30 | 2,76 | 3,32 |
| **PV** | 1,43 | 1,53 | 1,64 | 1,765 | 1,88 |

Terminal value = 10,51/(0,10-0,05) = $ 210,26

Value0 = (1,43+1,53+1,64+1,76+1,88)+210,26/(1,12)^5 = $127,55

**SOLUTIONS TO THE PREVIOUS EXCERCISES**

1. You have been asked to assess the implied risk premium on the Timbuktu Stock Exchange (TSE). The index is trading at 1050, and the dividend yield is 3%. The current long term bond rate is 6.5%, and the expected long term nominal growth rate in the economy is 6%. Estimate the implied risk premium for equities.

Dividends on Index = 3% of 1050 = 31.50
Value = 1050 = 31.50 (1.06)/(r-.06)
Solving for r,
r = 9.18%
Implied Risk Premium = 9.18% - 6.5% = 2.68%
If you assumed that the dividend yield was based on next year's dividends,
Value = 1050 = 31.50/(r-.06)
Sovling for r,
r = 9.00%
Implied Risk Premium = 9% - 6.5% = 2.5%
This answer can also be obtained by adding the dividend yield to expected growth
and subtracting out the risk free rate
[This is how we got cost of equity for Southwestern Bell in the notes.]

2. You have been provided the following information on CEL Inc, a manufacturer of highend stereo systems.

In the most recent year, which was a bad one, the company made only $ 40 million in

net income. It expects next year to be more normal. The book value of equity at the company is $ 1 billion, and the average return on equity over the previous 10 years (assumed to be a normal period) was 10%.

The company expects to make $ 80 million in new capital expenditures next year. It expects depreciation, which was $ 60 million this year, to grow 10% next year.

The company had revenues of $ 1.5 billion this year, and it maintained a non-cash working capital investment of 10% of revenues. It expects revenues to increase 20% next year and working capital to decline to 9.5% of revenues.

The firm expects to maintain its existing debt policy (in market value terms). The market value of equity is $ 1.5 billion and the book value of equity is 500 million. The debt outstanding (in both book and market terms) is $ 500 million. Estimate the FCFE next year.

| | | |
|---|---|---|
| Net Income | $ 100.00 | (1000 * .10 = Normal Net Income) |
| - (Net Cap Ex * .75) | $ 10.50 | (Capital Expenditures: $ 80 mil; Depreciation = $ 60(1.1) = $ 66; D/(D+E) = 500/(500+1500)) |
| - Chg in WC * .75 | $ 15.75 | (WC this year = .10 *1500 = 150; WC next year = .095 * 1800 = 171; Chg in WC = 21) |
| = FCFE | $ 73.75 | |

3. Cello Inc. is a manufacturer of pianos. It earned an after-tax return on capital of 10% last year and expects to maintain this next year. If the current years after-tax operating income is $ 100 million and the firm reinvests 50% of this income back, estimate the free cash flow to

the firm next year.(After-tax Operating Income = EBIT (1-t)]

| | | |
|---|---|---|
| Expected Growth Rate in Operating Income = 10%(.5) = | | 5% |
| Expected FCFF next year | | |
| EBIT (1-t) | $ 105.00 | |
| Reinvestment | $ 52.50 | |
| FCFF | $ 52.50 | |

4. You are trying to estimate the expected free cash flow next year for Brown Forman, a leading U.S. wine and spirits producer. In 1996, Brown Forman had after-tax operating income [EBIT(1-t)] of $ 235 million; it had a book value of equity of $ 730 million and book value of debt of $ 210 million. Assume that you expect after-tax operating income to grow 10% in 1997, and no change in the firm's after-tax return on capital. Estimate the free cash flow to the firm in 1997.

| | |
|---|---|
| Expected Operating Income next year = 235*1.10 = | 258.5 |
| - Reinvestment Needed = .40 * 258.5 = | 103.4 |
| FCFF next year = | 155.1 |

Return on Capital = 235/940 = 25%
Expected Growth Rate = Reinvestment Rate * Return on Capital
10% = Reinvestment Rate * 25%
Reinvestment Rate = 10%/25% = 0.40